

Tongariro

the Annual

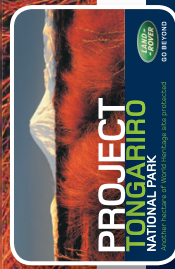
MAY 2008



Department of Conservation
Te Papa Atawhai

landrover.co.nz 0800 2 landrover

SITE OF THE NEXT LAND ROVER CHALLENGE



Every new Land Rover purchased helps protect another hectare of Tongariro National Park – New Zealand's only dual World Heritage site.

60
YRS



GO BEYOND

PROJECT TONGARIRO

TONGARIRO

the Annual



Vol. No. 16

May 2008

ISSN 1172 1081

Editor: Dave Wakelin

Published by: Department of Conservation,
Tongariro Taupo Conservancy,
Private Bag,
Turangi

Phone: 07 386 8607 Fax: 07 386 7086

Printed by: Geon Brebner Print, Taradale Road, Napier

The Tongariro Taupo Conservancy acknowledges and is grateful for the support given to the publication of the Tongariro Journal by Tongariro Natural History Society.

Material in the Tongariro Journal does not necessarily reflect the policy of the Department of Conservation. Copy may be freely quoted provided acknowledgement is made.

Cover photo: Crevasse on Tuwharetoa glacier, Mt. Ruapehu. *Photo: Dave Conley*

Above: Rob and Charlotte deliver a kiwi egg to Kiwi Encounters. *Photo: TNHS*

Back cover: Mt Ngauruhoe seen from the entrance to the Chateau Tongariro. *Photo: Dave Wakelin*

Tongariro

the Annual

Contents

Motivation.....	3
From the Conservator	4
Tussock Traverse	6
Didymo - a second chance	8
Dr. Harry Keys - ONZM	12
Mountain biking speeds ahead	13
Sponsorship deals puts society in driving seat	16
Tongariro Taupo Conservation Board	17
Turangi Taupo Area highlights	19
Taupo Fishery Area highlights	22
Bat survey	26
Conservation Awards 2007	28
Tongariro Alpine Crossing upgrade work	31
Volcano watch 2007	34
Conservation with communities	40
Rotopounamu gurgler ...	41
Lest we forget	42
Ruapehu Area highlights	44
In unity we have strength	47
In search of the past ...	52
Whakaipo Bay - Mapara Valley	55
The Waimarino	57
Junior Kaitiaki Rangers	58
Conservation Support Team highlights	59
World Heritage chairmanship	62
After the volcanic events of 2007...	69



Above: Mt Ruapehu's Crater Lake from the Dome Equipment Shed.

Photo: Dave Conley

Left: Harry Keys photographs a lake formed at the base of the Tuwharetoa glacier.

Photo: Dave Conley

Below: Participants on a summer programme Crater Climb trip explore a crevasse.

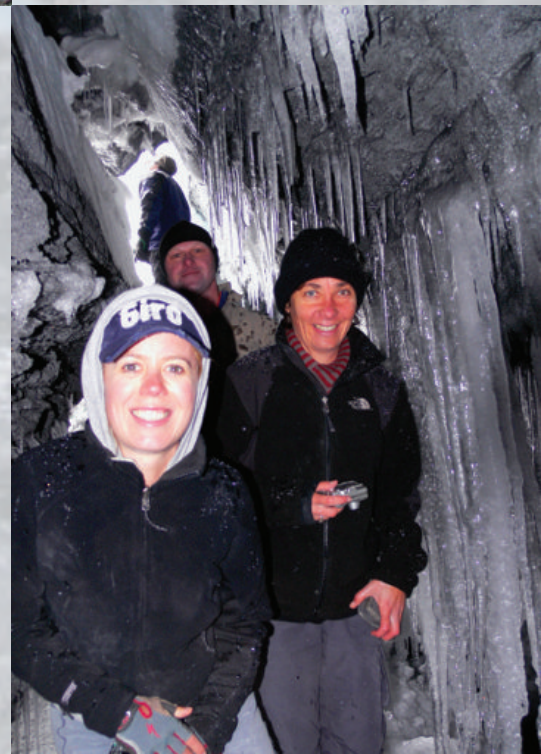
Photo: Nick Batkin

Background: Aerial view of Crater Lake taken in April 2008.

Photo: Dave Conley

Material in the Tongariro Journal does not necessarily reflect the policy of the Department of Conservation. Copy may be freely quoted provided acknowledgement is made.

For more information on all matters relating to conservation check out the Department of Conservation's website www.doc.govt.nz



Motivation for conservation



Above: Dave Conley on a trip to Mt. Ruapehu's Crater Lake.

Photo: Karen Williams

During my time with DOC what has become abundantly clear to me is the passion and dedication of everyone involved, and what a truly diverse and rewarding environment it is to work in. My first months as the Public Awareness officer for the Tongariro-Taupo Conservancy have been an absolute whirlwind of new experiences. I have been out wandering Ruapehu's glaciers with Harry Keys, mist netting whio on the Mangetepopo, and digging for kiwi in Tongariro Forest. I have toured Rotokawa's geothermal energy fields and climbed all over a drilling rig mining heat from kilometres under ground. I have kept awake listening to kaka under a Pureora full moon, and spent some very icy nights

camped out amongst the *Powelliphanta* carnivorous snails in the depths of Kaimanawa Forest Park, and much of this has led me to thinking about just what motivates people to take an interest in conservation.

Clearly, people come at the issue from a huge range of perspectives, and it is interesting to reflect how my own attitude and understanding about conservation has changed in the short time I have been involved. I initially had a role with the Fishery area team, spurred on by my lifelong interest in fishing. Since moving across to a conservancy role my understanding has broadened somewhat, thanks largely to the patience of my workmates. Also, my burgeoning interest in hunting has seen me out in the bush much more than previously, and the realisation of what an incredibly unique environment we live in, is starting to settle in. Up until recently I had very little knowledge or appreciation of the complexity of our forests, or the quirky personalities of many of our sub canopy birds. However, after a few short months of imbibing the infectious enthusiasm of those around me, I am finding myself stopping mid-stride whilst out for a hunt, happy to enjoy the company of a robin or take note of the podocarp giants above me

Largely due to the vastly different reasons we all have for being interested in conservation, it seems to me one of DOC's greatest challenges is to find meaningful ways to speak to every user and interest group in our community. How do we balance the wishes of those who wish to protect our biodiversity with the views of those who view the conservation estate as their hunting grounds, or somewhere to get out in their four wheel drive? Members of the Conservation Support Team have spent much of the past year focussing on thorny issues like these, and this work will lead to some very exciting developments for the conservancy over the next few years.

In the meantime my hope is that the Annual is again testament to what our community brings to the conservation effort, and just how important it is that we continue to focus ourselves on tapping into the potential of our communities to protect what they cherish.

If you wish to learn more about conservation, find a walking track, look for volunteer opportunities, see what exciting projects are underway around the country or catch up on the latest media releases then go to www.doc.govt.nz



Paul Green
Conservator

From the Conservator

The collapse of the Crater Lake tephra dam on 25 March 2007 and the resulting lahar and emergency management was a model for successful risk mitigation. Robust science and engineering analysis had successfully modelled the event including the volume, speed and path of the lahar. Important infrastructure had been protected; not only against this event but the many more lahars that will inevitably occur in the future. The community can also feel very satisfied at role it planned and carried out emergency management procedures. The lessons of this integrated planning will benefit the management of future volcanic events.

The next important task on Mt Ruapehu is to refine and integrate the two warning systems and in particular to review the Eruption Detection System (EDS) that helps mitigate risk on the Whakapapa skifield and Whakapapa village. This is a difficult challenge given the unpredictability of the volcano, the proximity of the ski field and the number of locations at risk.

When the mountain erupted in September two climbers staying in Dome Shelter were trapped when the shelter was hit by rocks, mud and water. Fortunately one climber was uninjured and able to descend the mountain to seek assistance. A courageous rescue by Ruapehu Alpine Lifts and DOC staff Nicki Hughes and Phil Smith reached the injured person and no doubt the early evacuation helped save his life.

I was delighted to note Harry Key's New Years Honour in recognition of his outstanding work over 12 years in providing scientific advice and leading mitigation and monitoring work in respect of the Crater Lake 'issue'.

There has been great progress in significant projects during the year.

Our recreation work has retained its focus on track upgrades. The Tongariro Alpine Crossing, Lake Rotopounamu, Pukawa-Omori and Waihohonu-Tama tracks have all received significant attention. The 'staircase' deviation on the Tongariro Alpine Crossing is a result of careful analysis of options and excellent planning, design and work by our contractors. It is a well-graded track that provides outstanding views making the visitor experience a lot more enjoyable. We will now focus on restoration of the old 'staircase' by ensuring that water run off occurs quickly.

The other two significant visitor facility improvements in our conservancy have been achieved by community groups. In Taupo, Bike Taupo have completed a track between Whakaipo Bay and Kinloch, known locally as W2K. This will provide a great opportunity

Above: Tongariro Taupo Conservator, Paul Green
Photo: Dave Wakelin

Below: Paul with the Minister of Conservation, Hon. Steve Chadwick, at the Tongariro National Trout Centre.
Photo: Dave Conley





Above: Dave Wakelin is interviewed at Mt. Ruapehu's Crater Lake for TV3's Campbell Live two days after the lahar occurred. Dave oversaw much of the media work relating to the lahar in the years leading up to the event and during it.
Photo: Herb Christophers

for both mountain bikers and walkers. The track was opened on 26 April 2008 by the Minister of Conservation. Near Ohakune, the Ohakune 2000 group has continued to progress the Ohakune Coach Road and this track will be opened in February 2009 when Ohakune celebrates its centenary. With this impetus the Tongariro Natural History Society with the assistance of a grant from the Stout Trust and the department will help fund restoration of the historic Hapuawhenua Railway viaduct. Now that the money has been secured work will accelerate during the winter of 2008.

These projects are a great example of how the community value conservation and are involved in it.

Over Easter 2008 I attended a 50 year celebration of the opening of Mangaturuturu Hut on the Round the Mountain Track. The hut was built and is maintained by the Wanganui Tramping Club. The same club is a major contributor to volunteer *Pinus contorta* control on the southern slopes of Mt Ruapehu and in the last ten years have led removal of heather in the Mangaturuturu Valley. Sixty five members attended the celebration including at least eight who were part of the original building team 50 years ago! The work of the club epitomises how New Zealanders value New Zealand's outdoors. The hut is still in marvellous condition and hopefully will be a valuable mountain experience for another 50 years!

Communities are also playing a significant part in biodiversity projects throughout the conservancy. Protection of the South Taupo wetlands is gaining momentum with a number of partners including Maori Land Trusts, Nga Whenua Rahui, Waikato Catchment Ecological Enhancement Trust and the Tongariro Natural History Society. Pest eradication groups have established at a number of sites around Lake Taupo.

Highlights of the department's biodiversity work has been kiwi and whio recovery. These iconic species have benefited from recent 1080 operations in the Tongariro Forest and in the case of whio the establishment of predator trapping lines.

The Taupo Sports Fishery remains in a healthy condition. Fishery staff have played a major role in didymo prevention advocacy throughout the Central North Island. We are grateful for the positive input of all the other parties in this campaign including Genesis, the Tuwharetoa Maori Trust Board and Fish & Game.

Thanks to all our staff, volunteers and partners who have helped throughout the year. In particular I want to acknowledge the efforts of our long-term editor Dave Wakelin who retired in December 2007. Dave arrived at Tongariro in 1986 and has had responsibility for editing the journal since then. It's not an easy task but Dave has ensured the journal has continued to develop as a quality product highlighting both the department's and community's work in conservation. I am sure 2008/09 will bring even greater rewards for conservation.

The Land Rover Tussock Traverse 2008



Above: "And they're off"
The start of the 2008 Land
Rover Tussock Traverse.
Photo: TNHS

During a recent training camp in preparation for defence of his Taupo New Zealand Ironman title seven times champion, Cameron Brown, described it as simply beautiful and one of the best runs he'd ever experienced.

The run Brown was referring to was the spectacular course for the annual Land Rover Tussock Traverse 27 kilometre alpine run and walk event staged on the last Saturday in January each year. Organised by the Tongariro Natural History Society, proceeds from the event go towards the preservation of the Tongariro National Park. Last month's third event raised \$8,000 for the forest restoration project at Rotopounamu with two hundred and five entrants completing the course on a typically hot summer central plateau day. This event shows promising signs that it will continue to grow in popularity, as trail running and walking events gain traction on the New Zealand sporting calendar.

The Tussock, as it's affectionately known, has a laid back, understated atmosphere where the emphasis is more on enjoying the event experience and breathtaking views of the Tongariro National Park. However, none of this detracts from the obvious level of care and organisation that goes into the event by the Society. Participants are enthusiastically encouraged by an abundance of well equipped marshals out on the course right to the end welcoming party with plenty of goodies and provisions to assist tired but exuberant athletes. The Tussock has in excess of forty dedicated Society volunteers generously offering their time so that the event may happen.

For the uninitiated, the 27 km traverse begins on the Tukino ski access road in the Rangipo Desert off State Highway One between Turangi and



Right: Steady progress at Waihohonu junction .
Below: Mark Williams, first entrant home.
Photos: TNHS

Waiouru with competitors running and walking to Whakapapa via the Round the Mountain and Waihohonu tracks to finish on the grand lawn in front of the historic Chateau Tongariro at Whakapapa village. The course takes competitors past the historic Waihohonu hut, now 103 years old and the oldest recreational hut in New Zealand today.

A tough two kilometre climb up the ski road greets competitors before they drop down to the round the mountain track with the first 10 km

being a gradual downhill descent. The next 10 km gets the heart rate up with an ascent from 1100 m to 1300 m to just past the Tama Lakes before dropping back down to the finish past the picturesque Taranaki Falls.

Seeing and navigating between the majestic peaks of Mounts Ruapehu and Ngauruhoe is one of the real treats of the Tussock experience. Its diversity of terrain, commencing with the lunar landscape in the Rangipo desert area and changing to the undulating sub alpine terrain provides great variety for all to enjoy.

This event aims to encourage a wide range of abilities from highly trained athletes to recreational and fitness enthusiasts with less competitive ambitions. Whatever your persuasion the Tussock will have appeal for all. At the front in 2008 were hill and trail running specialists Mark Williams (Tauranga) in 2 hours 4 minutes 31 seconds, a new course record and Kate Taylor (Taupo) 2 hours 41 minutes 31 seconds, also a new course record.

The fourth Land Rover Tussock Traverse will be staged on 24 January 2009. Entries will open in late 2008.



Didymo - a second chance



Right: Would didymo bloom like this in the Tongariro River - we don't know!
Photo: Glenn Maclean

What would life be like with didymo? Well on the 31 October it looked very much like we were about to find out, and as many of you know it wasn't a great feeling. Ironically I was in Christchurch attending a meeting on funding our efforts to keep didymo out of the North Island when I heard about the finding of dead didymo cells in the Tongariro River. It was a lovely afternoon flying back to Taupo but a sick feeling looking down at the rivers under me thinking they might soon all be infected.

What would didymo mean for the central North Island? We don't know and despite the opinions expressed in the days following the find, neither does anyone else. What we do know is that in the South Island it does particularly well in lake outlets, probably as a consequence of the reasonably constant flow and low sediment load. While rivers flowing from lakes are less common in the North Island, very similar conditions are created downstream of the numerous hydro dams.

Clearly if didymo blooms as it has done in some South Island rivers (but not in others) then the huge growths will have a major impact on this area in terms of the ecological impacts, effect on angling opportunity and other recreation, and the social and economic loss. That's not rocket science but the big unknown is will it bloom?

Short of didymo getting here we just don't know. However it is simply not worth taking the risk!

On 31 October routine monthly monitoring detected dead didymo cells in samples taken from the upper Tongariro, Whanganui, Mangatepopo and Whakapapa Rivers. Immediately Genesis Energy ceased diverting water across most of the Tongariro Power Scheme to avoid spreading any didymo further. This is the first time essentially the whole scheme has been shut down and represented a very significant cost to Genesis Energy. Over the following days many further samples were taken, the



Right: Rob Pitkethley of Eastern Fish and Game decontaminates after working in the Whakapapa River.

Photo: Gerald Inskeep

surveillance net spreading wider and wider to try and establish if there was a live didymo infestation somewhere in the local or more general area. At the same time an intensive effort was put in on local rivers to ensure any didymo was contained. At any time up to 25 staff were manning access points or roving along the rivers contacting anglers, kayakers and other river users and washing their gear. The Tuwharetoa Maori Trust Board (TMTB) and Lake Rotoaira Forest Trust also closed the four access roads to the upper Tongariro River. The combined response from Biosecurity New Zealand, Fish and Game, DOC, Genesis, TMTB and Lake Rotoaira Forest Trust amounted to more than 1500 hours of staff

“The reality is you just don’t know if your gear may be contaminated so clean your gear after every trip, simply as a matter of routine.”

time over five days and reflected how seriously the various organisations viewed this possible incursion. This effort was supported by local businesses including commercial rafting companies who stopped rafting the upper river at a considerable cost, outdoor adventure schools and recreational users such as kayakers who avoided the rivers despite the excellent conditions which prevailed with the closure of the intakes.

What ultimately transpired was that the samples were contaminated with dead didymo cells via dirty sample bottle lids sent from a Christchurch laboratory.

So the good news is the local rivers are still didymo free. Coincidentally a planned national delimiting survey commenced the first week of November to take samples from rivers and streams all over the North Island. This in conjunction with ongoing weekly surveillance in the Tongariro and Western Diversion rivers will be a further check that North Island rivers are still free of this scourge.

This incident re-enforces two big lessons. I don’t know how many times people have suggested to me that they don’t need to clean their gear because they haven’t been in the South Island or anywhere where

Right: Gerald Inskeep of Eastern Fish and Game washes down trampers in the Waipakahi Valley during the didymo scare.
Photo: Gerald Inskeep.



there is didymo. The reality is you just don't know if your gear may be contaminated so clean your gear after every trip, simply as a matter of routine!

Secondly, the cells were dead so even if they were introduced into a river they were not going to create a viable colony. Killing didymo is as simple as drying or freezing your gear or saturating it with 5% detergent or disinfectant.

As it has turned out this possible didymo incursion was a near miss. It caused a lot of uncertainty and concern and that was unfortunate. However, we have got a second chance which we thought was long gone on the afternoon of 31 October, so let's make the most of it.

Over the 2007/2008 summer the Central North Island Regional Partnership Group has a number of new initiatives, as well as the continuation of much of the existing programme to encourage all of us to clean our gear. This included new banners, posters, sandwich boards, and advocacy staff on the rivers and lake, working with key stakeholders. There was also a free retractable 'zinger' reel for fly-fishing anglers who signed a voluntary declaration that they clean their gear. However at the end of the day the group is not going to solve the problem on its own. It's about all of us taking responsibility for our own actions and making sure we do clean our gear, but also taking opportunities to promote the message in our own way. Simple stuff like ensuring our visitors over Christmas cleaned their gear, or in talking with a fellow angler on the river bank encouraged them to do likewise.

Personally, I have completed a lot of angling surveys over the last few months and I'm really encouraged by how widely the didymo message has spread. I can't remember when I last ran into someone who didn't know about didymo, and many of you are cleaning your gear, freezing your boots and so on. That's great! Clearly there are also those who aren't but if we all, in our own way, take any opportunity to encourage these people then with time we may change them. I have to say I don't have patience anymore with people whose excuse for not cleaning their

DNA analysis

As a result of the October 2007 didymo scare we have stepped up our monitoring programme along with the Ruapehu Area office and are now using DNA analysis thanks to Professor Brendan Hicks and his team at Waikato University. Using DNA analysis means that didymo can be detected at a much earlier stage and so chemically treating the cells may be a viable option if it ever was to get here. However, by the time didymo is found it may be too late to protect our waterways and we cannot emphasise enough how important it is for each one of us to do our bit and clean our gear to ensure that we keep didymo out of the North Island. We have been exceptionally lucky to have the services of “Didymo Dave” Cade who has been our roving educator on didymo targeting everyone from anglers to ironmen competitors but let’s give Dave a hand and ensure that we take responsibility for our own gear!

gear is that didymo is inevitable, or they don’t fish anywhere else, or any other reason. Cleaning our gear at the end of each trip is a five minute job to and it is our contribution to ensuring the rivers and lake remain healthy and our sport unaffected. It’s not a big ask and anything less is selfish on anyone’s part.

It’s not just about didymo; there are any number of other freshwater pests around the world which potentially pose a major problem for our rivers and lakes. Unfortunately it is the world we live in now that these pests are only a day’s travel away, and as a matter of routine we should clean our gear to ensure we don’t unwittingly transfer another nasty to our favourite waterway. It may not even be a pest where it naturally occurs but when introduced into a new habitat it becomes a whole different story. For example, a major concern in the western United States is a small black mud snail which can occur in densities of up to half a million snails per square metre, dramatically impacting on the ecology of the stream. Fortunately in this case this is one pest we don’t have to worry about, as it came from here and is native to New Zealand!

So we have a second chance. The recent scare bought home the significance of a potential didymo infestation but fortunately it’s still not here. Let’s make the most of this opportunity and ensure we play our part by always going through CHECK, CLEAN AND DRY routine at the end of each day’s fishing or when moving from one river to another. It’s a good idea to think about replacing gear which can’t be easily cleaned too. A lot of people will thank you for this.

Fuel efficient vehicles

The department has embarked on a programme of replacing its vehicles for ones that are more fuel efficient and produce less CO². One estimate states that if the DOC’s entire fleet of vehicles was replaced with these “greener” vehicles then saving would amount to 300,000 litres of fuel and reduce its CO² production by 1,350 tonnes per year putting the department on the path to being carbon neutral by 2012. The fishery team’s boats used on Lake Taupo to check fishing licences and enforce the fishing regulations are currently powered by four stroke Yamaha outboards which are cleaner, more economical and quieter than their two stroke counterparts. We are a long way from fitting the boats with sails or rowing around the lake!

Dr. Harry Keys - ONZM



Above: Harry Keys at the investiture of his award of Officer of the New Zealand Order of Merit. From left to right: Harry's wife Karen Williams, Harry Keys, Governor-General the Honourable Anand Satyanand, Margi Keys, Her Excellency Susan Satyanand, Edna Williams.
Photo: Harry Keys

The news that Harry Keys had been awarded a New Year's Honour, that of Officer of the New Zealand Order of Merit for his services to conservation put a smile on our faces at DOC, Turangi. Harry's journey to receiving the honour has been a long and interesting one.

His love of climbing and university summers spent working for Alpine Guides (Mount Cook) Ltd. as a mountain and ski guide gained him skills that served him well in later endeavours.

Harry completed his PhD in geochemistry in Antarctica, with field studies ranging from the Trans Antarctic Mountains, the Dry Valleys and Mt. Erebus. Thus in November 1979 Harry was among those called by the National Search and Rescue Centre to be part of the team to fly to the Air Zealand DC 10 tourist flight crash site on the lower slopes of Erebus. His face-rescue skills

and experience were called on to safeguard and support the onsite investigators and body recovery work.

Subsequently he worked for agencies including the Commission for the Environment, initially as an investigating officer and then as scientist with responsibility for the development of Antarctic environmental protection policy advice.

In 1987 he joined the new Department of Conservation as a scientist, where, because of his considerable Antarctic experience he was given the role as a New Zealand delegate on Antarctic Treaty System negotiations, a role he still undertakes.

He moved to the Tongariro Taupo Conservancy as Conservancy Advisory Scientist in 1990 with responsibilities for research planning and liaison for conservation management and provision of scientific advice.

The eruption of Mt Ruapehu in 1995 and again in 1996 changed his responsibilities markedly. Harry had a key role in ensuring public safety on Ruapehu during the two years of eruptions. He quickly realised that debris deposited over the pre-1995 lake outlet would in time lead to a dam collapse and lahar and this set the stage for the next eleven years of planning until 18 March 2007 when the lahar finally took place.

Working through mitigation options with others in the department, other agencies and authorities Harry led the way with the establishment of a state of the art alarm system (ERLAWS) and the bund on the lower slopes of Ruapehu. He worked tirelessly with local authorities, notably Ruapehu District Council and the police to ensure the Emergency Response Plan addressed all the safety requirements and responses required. The result of that dedication was borne out on 18 March 2007 when the response plan was said by many to have 'worked like clockwork'.

He possesses a rare ability of being able to convert screeds of complex scientific data into understandable management bites of information for all forms of media. He has become one of the most recognisable and trusted faces of the Department of Conservation. Congratulations.

Terry Slee,
Programme Manager
Visitor Assets
Turangi-Taupo Area

Mountain biking speeds ahead



Above: Enjoying W2K.

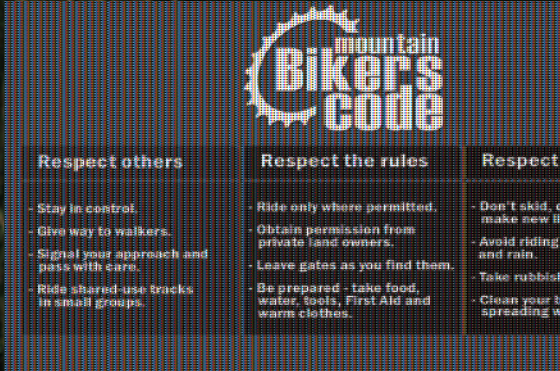
Photo: John Carman

Visitors to Taupo's Western Bays may have noticed a flurry of activity over the last couple of months. A new track, called W2K, has been constructed between Whakaipo Bay and Kinloch, hugging the cliff tops of a remote, rugged and less visited area of Lake Taupo. Ultimately measuring some 21 km, the W2K track takes in stunning scenery and spectacular views across the lake to both the Kaimanawa Ranges and Tongariro National Park. For this reason, many think it will provide a valuable alternative opportunity to the Tongariro Alpine Crossing for visitors to the area when the weather is unfavourable. W2K also adds to an increasingly integrated network of mountain biking tracks and walking tracks from Whakaipo Bay to Kinloch and on to Kawakawa Bay. This network will provide many hours of recreation enjoyment within a stone's throw of Taupo for bikers with a range of abilities.

Perhaps the one of the most important aspects of the track is that it is being developed by the mountain biking community itself. From the outset, Bike Taupo has been at the forefront of this track's

development. Bike Taupo have been involved in every aspect of this project, from planning and financing to the actual construction work. In this respect the W2K track is the blossoming of a relationship that has been maturing since work first began on the Rotary Ride some years ago. When Bike Taupo first began approaching the department with an eye to improving opportunities for local mountain bikers, neither side probably envisaged this ultimate outcome. However, over time Bike Taupo's continual development and solutions focus, an increasingly receptive local conservancy, and national level changes in policies have transformed the environment for mountain bikers. What began as adapting tracks for mountain biking has developed into working for the needs of both mountain bikers and walkers. By addressing issues like gradient, water control, avoiding blind corners and creating the impression of speed without creating a danger means that these tracks should provide enjoyable opportunities for users for many years to come.

Across the country, new mountain-biking opportunities are being opened up with bikers gaining access to places they could never go before. At the same time, mountain bikers are keen to ensure that the new areas opened up are sustainable, both in terms of social and physical impacts. This type of thinking has guided the recent opening up of the Poulter Valley Track in Arthur's Pass National Park to trial for mountain biking, run in partnership by the Department of Conservation and Mountain Bike New Zealand (MTBNZ). Both trampers and bikers are being surveyed about their experiences. Throughout the trail, visitors can provide feedback via



Above: Wide sweeping corners mean more safety, more enjoyment.
Photo: John Carman

Inset: The mountain bikers code

Pete Masters
 Bike Taupo

an online form on cycling websites as well as the DOC website. The information gathered will be used to decide whether to make the opportunity a permanent one and will add to our knowledge about the similarities and differences between these recreational users and demonstrate changes in attitude towards mountain biking on conservation land and an increasingly important community partnership.

The relationship between DOC and local mountain bikers has come a long way with noticeable changes in the attitude towards mountain bikers and walkers. I think that can be put down to a number of things.

- A better understanding of what a mountain biker is (a trampler on wheels)
- Some very good understanding staff.
- The bikers proved they could not only build their own tracks if need be, but were willing to share them.
- Proving that the conflict issue was a myth (Huka Falls has 800,000 visitors and 15,000 bikers share the bridge with no complaints).
- Mountain biking has not disappeared over time and is one of New Zealand's fastest growing sports.

The mountain bike community is made up of many different types of people. The one thing they have in common though is that they all enjoy being in the outdoors in any shape or form. Use of the outdoors or back country has changed and the ability to access them on a mountain bike has opened up areas that in the past were a whole day's tramp. You can now bike in and out to a hut and still mow the lawns in the afternoon.

Mountain bike parks are now all over New Zealand with easy access increasing the number of riders. Taupo alone has seen a three fold increase in numbers in the last four years.

Where to from here? Not all of the DOC tracks can have mountain bike access mainly because the track design did not consider shared use, often because of cost. I would hope that in the future no new track is built in this conservancy or anywhere in New Zealand, that is not compatible with shared use.

John Carman
Visitor Assets Ranger
Turangi-Taupo Area

I'm a self confessed cycling nut!

I have been working for the Department of Conservation for nine years now and in that time I've seen, from a mountain biker's point of view, a number of changes occur.

When I started in 1999, mountain bikers were rated slightly higher than possums (but not much). To have them ride on DOC tracks created a fair few hassles from the other staff. The attitude was, "What's with this new guy - he's riding one of these nasty bike things that plough up our tracks. Better keep an eye on him". Even my riding buddies gave me a hard time! Things ticked along like this for a while but then, slowly, changes started happening. A new manager in Taupo, Paddy Gordon, was open to new ideas. There was also this strange helicopter pilot guy, a keen mountain biker, who started whispering in Paddy's ear. Pete Masters is his name. He was tolerated because flying beats walking and he has a natural gift of the gab.

The upshot of this was that the Rotary Ride was born! This was a major achievement because it went through four different land owners including the department. The best thing for bikers was that it provided an access track from the centre of Taupo to Craters of the Moon biking tracks. My mates loved this so I was in the good books for once! After this we started to look at those tracks where bikes were allowed. It didn't take long to realise that a walking track is totally different from a mountain biking track. Braking on walking track corners rips up the track surface. We needed to build tracks that were suited to mountain bikers. If you ask any biker what makes a great track and the word that always comes up is flow. For an awesome track you don't need speed as you can get away with the perception of speed. If you get the chance ride a track in Rotorua called 'Be Rude Not Too' and you'll know what I mean - a tight flowing track with trees and other obstacles with lots of corners flowing in to one another. Not only do you feel like you are going fast but because you don't need to brake as much, you don't rip up the corners. Everyone's happy!

After the Rotary Ride things really started moving with upgrades of DOC's shared tracks. Working with Pete and his crew saw some major upgrades completed. Bike Taupo worked with DOC on a track linking Whakaipo Bay with Kinloch (W2K). There's even a rumour that my boss in Turangi is sneaking up to W2K in the weekends taking our work bike for a blast. Yes, now DOC even have work mountain bikes!

It's taken a while but the feeling toward mountain biking and bikers have changed. And we are getting there. I even watched the Area Manager riding one of my crew's new single speed bike up and down the hallway! I wonder if his hunting mates will still hang with him seeing as he's turning in to a mountain biker! So, if you see a DOC Ranger working on a track don't turn and flee the other way, they may well be a mountain biker and know the pick of the local tracks!

W2K was officially opened on 26 April by the Minister of Conservation Hon. Steve Chadwick. Following the opening the Minister, 150 bikers and 250 walkers enjoyed the challenge and views the track offers.

Below: The Minister of Conservation, Hon. Steve Chadwick, cuts the ribbon (a bike tube!) to declare the W2K track officially open.
Photo: Dave Wakelin



Sponsorship deal puts society in the driving seat

The Tongariro Natural History Society (TNHS) has a new livery thanks to an exciting new sponsorship agreement with Land Rover.

The sponsorship arrangement means the Society receives a financial contribution of \$100 from Motorcorp Distributors Ltd., the New Zealand importer of Land Rover, every time a new Land Rover is sold (through an Authorised Land Rover Centre). Together we have calculated the amount contributed is the equivalent of helping to protect one hectare of Tongariro National Park.



As part of the support package TNHS receives the use of a new Land Rover Freelander 2 TD4 HSE and a fuel card to go with it.

“Many of our projects are in areas that need a reliable, tough vehicle,” says Sarah Gibb, Director of TNHS. “The Freelander is ideal and we’re thrilled with it.”

TNHS has a range of restoration projects presently underway. Two major projects

are the forest restoration around Mt Pihanga-Rotopounamu, and working with DOC on the restoration of the Hapuawhenua viaduct near Ohakune.

Having a high profile corporate sponsor will help the society in a range of ways although it won’t stop the need for filling out funding applications.

“It’s wonderful to have a partnership with such a prestigious company as Land Rover and it we hope it will raise our profile and also take Tongariro National Park to a wider audience,” says Ms Gibb. “Land Rover used to supply vehicles to the park in the 1960s and 70’s and it seems appropriate to bring it back.”

Globally, Land Rover is committed to addressing the challenges of sustainable development. Through ‘Project Tongariro’, Land Rover aims to minimise its environmental footprint in New Zealand and make a positive contribution.

Wallis Dumper, Managing Director for Land Rover in New Zealand said, “Kiwis are well aware of Land Rovers ‘Go Beyond’ capabilities but as a New Zealand owned company we have been striving to support the worldwide Land Rover initiatives that see things like the Dagenham Diesel Centre being wind turbine powered. We also want Land Rover owners in New Zealand to support New Zealand’s own back yard and what better way than to support our own dual World Heritage Site!”

Above: The sponsored Land Rover, part of a generous sponsorship package between Land Rover New Zealand and the Tongariro Natural History Society.

Photo: TNHS

Tongariro Taupo Conservation Board



Right: Sue Carson and Rob Lester listen on as board chair Sarah Gibb explains the Hapuawhenua restoration.

Photo: Jo Hood

Conservation Boards provide the community with a voice in conservation management. They represent the long-term public interest, including that of tangata whenua, in conservation planning and policy development affecting the department's management of public conservation areas.

A Conservation Board is a group of individuals, independent of the department, appointed by Government who provide a community perspective on the work of the department and give constructive advice as to the department's priorities and performance.

The functions of the board are set out in section 6M of the Conservation Act and in the National Parks, Reserves and Walkways Acts. A board's focus is on policy issues, strategic direction and planning, not day-to-day operational details of the department's work.

A major responsibility of each board is overseeing the implementation of the conservation management strategy (CMS) for its region and any national park management plan.

The current Tongariro/Taupo Conservation Board members are:

Sarah Gibb (chair), Turangi

Sarah is the Director of Tongariro Natural History Society and through this has a close affinity to the park. She has 10 year's teaching experience and 12 years working in recreation management.

Alex Wilson, Rotorua

Alex has been a member of the Conservation Board since 2001 and had been the chair for the past five years. Alex has gained extensive conservation experience while working for Maori Affairs and Lands and Survey.

Dr Tumu te Heuheu DCNZM, Taupo

Tumu is Paramount Chief of Ngati Tuwharetoa and a direct descendant of Horonuku te Heuheu Tukino IV, who in 1887 gifted the mountains of Tongariro to the people of New Zealand. He is currently chairperson

for the Tuwharetoa Maori Trust Board, Lake Taupo Forest Trust and Lake Rotoaira Forest Trust. In the 2004/2005 New Zealand Honours List he was made a Distinguished Companion of the New Zealand Order of Merit. As New Zealand's delegate to the UNESCO World Heritage Committee he was elected chairperson in 2006.

Sue Carson, Rotorua

As a director of Forest Genetics Ltd, Sue has an extensive educational background in natural resource management, along with a long-standing interest in carrying out research in forest genetics.

Ngaire George, Rotorua

Ngaire is a Trustee of Te Mana Taiao Environmental Trust - with marae membership from Te Arawa, Tuwharetoa and Raukawa. She is chair of the Mokai Marae as well as Tuaropaki A Trust the Mokai Marae reserve.

Maree Gurney, Marton

Maree is a keen skier, tramper, mountain runner and kayaker who enjoys sharing her passion for the outdoors with her young children. She is a member of the Tongariro Natural History Society and is the chair of the NZ Multisports Charitable Trust.

Betsan Martin, Wellington

Betsan is a researcher and writer, her fields include environmental policy, ethics, sustainability, and leading seminars on Te Tiriti in community, government, tertiary, and adult and community education sectors.

Les Molloy, Wellington

Les has a professional background in Earth Sciences and Ecology. He is an international consultant to UNESCO on World Heritage and has extensive knowledge on the backcountry of this conservancy.

Che Wilson, Whanganui

Che is a member of the Ngāti Rangi Trust, the Ngāti Rangi Claims Team, Te Kāhui Maunga Festival and a trustee of the Whanganui Trust. Che also has provides cultural advice for international cultural and art institutions and writes educational resources in te reo Māori.

Brian Robinson, Taupo

Brian was Group Manager of the GNS Wairakei Research Centre following over twenty years as a research scientist with DSIR and GNS. His research interests were mainly mineral deposits and geothermal systems but have turned to the environmental effects of exploitation and groundwater pollution. Brian is chair of Lakes and Waterways Action Group Trust.

Judy Reid, Wellington

Judy Reid is a lawyer who has worked as an academic, a trade union official and a labour relations consultant. She was president of the New Zealand Alpine Club in 2005/7 and is currently a member of the New Zealand Mountain Safety Council executive.

Robert Lester, Turangi

Rob Lester is currently the vice president of the Tongariro Trout Centre Society and lives in Turangi. He has a strong background in committee communication and boardroom skills. Rob has been a director of Manfield Promotions Inc. for 30 years and has been a member/chairman/president of numerous organisations.

Turangi Taupo highlights



Above: The Turangi Taupo crew at an Area meeting. The only one missing is Lianne Fraser who took the photo.
Photo: Lianne Fraser

As well as celebrating a range of positive outcomes in the 2007/08 year, the Area has enjoyed one or two exciting surprises, mostly in the way of offspring of the feathered and human kind. We welcomed several familiar seasonal workers to the team over summer and have had an interesting and enthusiastic bunch of volunteer and paid hut wardens join the staff for the Great Walks season.

Recreation

Work continued on upgrading the Ketetahi track with 480 metres completed from the hut to Ketetahi Springs and a further 370 metres to the bush line. Many other popular tracks have had significant realignment and resurfacing work carried out. These include the Spa Park to Huka Falls track, Pukawa Omori track and Rotopounamu. At Kinloch local residents are helping maintain the Whangamata Stream track while the most significant community-led development is a new mountain bike track from Whakaipo Bay to Kinloch. This project, spearheaded by Bike Taupo, is a 14 km shared mountain bike and walking track which will eventually include an additional eight kilometre loop track.

New Ketetahi Hut

Architects' plans are being worked on for a new hut at Ketetahi which will be located off the main hiking track. Alternative energy such as solar and mini-hydro schemes are being investigated for use here and at Oturere hut. It's hoped that by harnessing natural energy and being able to heat water, less gas will be needed which as well as cutting operating costs is more environmentally sustainable.

Publications

After several rounds of public consultation a new Kaimanawa Forest Park management plan, an invaluable document in terms of the day-to-day management of the park, was approved by the Tongariro Taupo Conservation Board. A significant outcome of the planning process is the development of a Kaimanawa Forest Park Recreational Hunting Working Party. This is a great outcome which will see more effective liaison between DOC and recreational hunters who are an important user group of the forest park.

Coinciding with the new management plan was the publication of a new Kaimanawa Forest Park brochure which is a coalition of the park map and old brochure.

Biodiversity

The Area continues to make headway against unwanted animal and plant pests. Contractors have removed most of the wilding pines from Rangitaiki which not only benefits the conservation area but neighbouring landowners as well. Wilding pines along the Tongariro River and at Whangamata Stream have also been dealt with and with help from the community this work will continue over the next few years.

The battle against broom, buddleia, old man's beard, celastrus, and willows is ongoing and progress is good. The repetitive work to control celastrus is never a staff favourite, but they do a great job nevertheless. With help from the Tongariro Natural History Society the number of Waimarino wetland willows is reducing. The society is also pivotal in helping to propagate mistletoe and more recently *Dactylanthus*.

Working with the Tongariro Natural History Society

TNHS volunteers, staff and contractors have monitored miles of tracking tunnels and filled hundreds of bait stations at Rotopounamu. Positive results from recent monitoring from these and other efforts are very encouraging. TNHS is also involved in bat monitoring on Kakaramea, where we're trying to better understand the life of New Zealand's only native mammal. It's a popular project with volunteers and staff alike, showing that our job is definitely not nine to five.

Below: The Pied Piper would have been proud! Counting rats caught during Pukawa Wildlife Trust pest control work.
Photo: DOC



Snails and whio

Our work to protect the rare carnivorous snail, *Powelliphanta marchanti* in the southern Kaimanawas has received national recognition and we will continue to raise awareness of these special snails.

The arrival of seven whio chicks on the Tongariro River caused great excitement. Equally exciting was the wonderful feedback we received from the public who helped us keep track of their development until they fledged early this year.

Right: A birds eye view. Ian McNickle hangs on a long strop, part of fire training for staff.

Photo: Ian McNickle



Community Involvement

The Area actively supports 15 community groups which, given our relatively small population base, is a significant number and we believe demonstrates the value that locals place on conservation and their natural environment. Their projects vary. Many are involved with pest animal and plant projects and we provide advice, infrastructure and training. Others are developing and maintaining tracks while several groups assist in revegetation projects and monitoring. Along the Spa Park to Huka Falls track, a team from Office Products took responsibility for the aftercare of around 1000 plants which were planted as part of a team building exercise at their national conference in 2006.

Number Six – An Empty Shell and Pile of Ashes

Last November seven volunteers living at 6 Poihaere Street lost just about everything from laptop computers and cameras to toothbrushes and underwear when a firework was thrown through a window. For more than 17 years Number Six has housed DOC volunteer hut wardens, track workers, weed busters and a host of others.

Sensational community support saw help come flooding in. A major sponsor of TNHS, Land Rover, sent clothing - warm fleece jackets, fleeces and beanies. TNHS long term volunteers squeezed the DOC volunteers into their home until alternative accommodation was found. A TNHS member kindly gave the DOC volunteers the use of her Turangi holiday home

Offers of food and furniture came from all over the Central North Island. Financial donations were given by local residents, the Taupo Mayoral Fund, TNHS members and DOC staff from around the country, all of which helped the volunteers get back on their feet and back in the hills.

Fishery Area highlights



Photo: Dave Conley

Selecting the important highlights of each section of the fisheries team is a little daunting. However, there is a common theme to everyone's work, how energy efficient the fishery team is becoming in its day to day operations. This fits well with how we as a department are caring more about the environment than ever before.

Solar and hydro power turbines

The solar power system at the Waipa hut has been recently overhauled. Now resembling a space station with its roof covered in solar panels, the hut is capable of providing enough energy to charge work radios and cell phones and run interior lights. The system also provides enough energy to run our electronic logger at the trap which detects and records PIT (Passive Integrated Transponder) tagged fish. In the past we have had to carry large batteries to and from the hut.

Among fishery staff, the Te Whaiiau trap near Lake Otamangakau is known as the "punishment trap" - isolated, cold and exposed. Finally we have managed replaced the ice box of a caravan in favour of an Antarctic cabin. Hopefully this fully insulated solar powered cabin will stop the water from freezing inside the jug and on the inside of the windows and make life a little easier for fishery staff scheduled on for up to four or five days in a row.

Keeping a tag on what trout do

When the Te Whaiiau Stream trap is reinstated in April the PIT tagging project will continue, with a plan to tag 200 brown trout to accompany the 200 rainbow trout tagged last year. This will involve surgically implanting passive transponder tags (like those used to tag dogs) into mainly maiden



Above: Nathan Walker makes some last minute adjustments to the solar panels on the new Te Whaiiau trap accommodation.
Photo: Julie Greaves

brown trout as they pass through the trap. With a detector system under the measuring board, we will be able to individually identify specific fish which will allow us to answer several questions about their growth and survival. This will greatly help with our understanding of what is happening with the Lake Otamangakau fishery.

The PIT tagging project which commenced in the Waipa Stream in 2006 continues with two projects:

- We have successfully tagged almost 170 juveniles (>90mm) and it is possible that the first of these fish will return as adults later this year. Our aim is to monitor the movement of these juveniles in the stream and learn more about their downstream migration and hopefully detect them when they return as adults in a few years.
- 200 adult fish were also PIT tagged in the Waipa Stream on their way upstream to spawn which should help us identify growth rates amongst adult fish as well as give us an idea of the number of fish that survive to spawn for another year. It will also be interesting to see whether tagged fish arrive at the trap at the same time each year or whether the weather plays a more important role.

Trout research

We are funding a PhD student to use genetics to help answer 3 key questions within the fishery:

- how broad is the genetic variation amongst Taupo trout
- is the shift in spawning run timing genetically influenced
- is there a genetic difference amongst the spawning population?

Clipped fins from trout processed through our fish traps will be recycled as a source of genetic information.

Although the project has just commenced it is hoped that the current and future genetic methods will help us address these key questions and help us to properly manage the Taupo Fishery.

It has been well documented through the literature that river and stream

If genetic variation is present amongst fish from different rivers then genetics could be used to:

- identify the river where a fish began life even if it was caught in the middle of the lake.
- assuming that the lake is made up of several different populations of fish it may be possible to estimate the size of the spawning runs in other rivers based upon the run size of the Waipa Stream.
- may also help us determine whether we can manipulate the spawning runs through the use of size limits or closed seasons to help re-establish an early spawning run if desired.
- in terms of fishery management it may pose the question - should we manage the populations of spawning trout as one or as a series of individual populations? This would have implications in terms of angling regulations but also fishery management should we ever need to restock a stream for example.

flows and conditions can have a severe impact on what can live there both in terms of aquatic invertebrates but also fish. There is continued and increasing pressure to use New Zealand's streams and rivers for large scale irrigation and/or hydro-electric power development. Central and local governments are facing an increasingly important question: How much water can be removed from an aquatic ecosystem before it is negatively impacted? It is in society's best interests to consider rivers and other freshwater systems as legitimate "users" of fresh water. For this reason it is imperative to answer this question correctly.

In April 2007 the Ministry for the Environment commissioned a report called "Scientific input to a proposed National Environmental Standard on Environmental Flows and Levels". The purpose of this report was to set out a consistently national approach to selecting amongst the different methods for setting environmental flows. The department is a key player in this process and our fishery scientist Dr Michel Dedual is one of four scientists heavily involved in defending the views of the department.

Taupo for Tomorrow programme

Mike Nicholson has been appointed as educator for the Taupo for Tomorrow programme. Approximately 2,600 students visited the centre and participated in the programme last year. Importantly, 600 of these visits were related to the "Wonderful Wai", local school's programme which primarily focuses on water quality issues and valuing and conserving our local waterways.

Compliance and law enforcement

Of concern to our compliance and law enforcement has been an increase in the number of offenders providing false details at the time of their apprehension. In the last few months alone we have had four offenders give false details to rangers. In each case and after timely investigations, we have discovered their true identities and they have been brought before the Court and successfully prosecuted. The maximum penalty for providing false particulars is a term of imprisonment not exceeding one year or a fine not exceeding \$10,000.

Below: The fish pass at the National Trout Centre is a great tool for educating visitors about sustainability.
Photo: Kim Alexander-Turia



Bridges

Both the Major Jones and Red Hut swing bridges have undergone such improvements to a combined total of over \$20,000. The Red Hut Bridge received the most attention and also received a fresh coat of paint ready for the mad rush of anglers expected this winter. Contractors are also cutting back vegetation on the numerous angler walking tracks along the eastern side of Lake Taupo so that they too are ready for the start of the winter fishing.

State of Taupo trout

It has been well publicised recently that the wild Taupo trout fishery has been at a low point during the last couple of years in terms of the size and



Above: Great summer weather has made for lots of fun on the lake.
Photo Glenn Maclean

quality of the trout that it produces. This is mainly thought to be attributed to an incomplete mixing of Lake Taupo during winter 2005. Basically this meant that almost 50% of the nutrients were trapped in the bottom waters and prevented from mixing with the surface waters where phytoplankton (plants) are able to utilise them. These nutrients would normally be then transferred through the food chain to zooplankton then smelt and ultimately trout. With smelt already struggling to find enough food in Lake Taupo, further decreasing what is available is likely to have a severe impact on the smelt population

and over recent years we have seen smelt numbers decline slightly.

Coinciding with the low productivity of Lake Taupo, 2005 was one of the most productive years for juvenile trout in the Tongariro River. With large numbers of juveniles entering the lake during 2005/06 this would have made the issue worse and meant that the trout already present in the lake would have to compete with even more trout for the same amount of food available.

Unsurprisingly, the size and condition of rainbow trout trapped during 2007 at the Waipa Stream fish trap reflected the poor conditions in the lake during the past couple of years. The average size and weight of rainbows was considerably shorter and lighter than previous years. Although the average condition was up slightly on those trapped during 2006, it was the second lowest recorded out of the last 10 years and below the annual average. Rainbow trout averaged 484 mm which was the lowest average length and the first time that the annual average length had dropped below 500mm. Similarly, the average weight of rainbow trout was 1.25kg and was the first time the average weight of Waipa rainbows had dropped below 1.6kg since trapping began in 1998.

On a more encouraging note, the fish caught during this summer have been generally larger than those caught last summer with many under-sized fish being just under the legal length. Although their condition is not superb, there are still many nice fish being caught towards the end of summer. However, some of the fish that spawned late last year are struggling to regain condition but this may not be a bad thing if it gives the smelt and the maiden trout a better chance. Overall, it may take a little time to recover from this low point in the fishery but bear in mind that the Taupo Fishery is a wild fishery and should rebound once conditions are favourable. Combined with the proposed size limit reduction to 40cm which is likely to be in place by July 2008, this may help restore the balance while still maintaining angler satisfaction. The genetics study will also help determine whether we are able to artificially manipulate the run and restore the early runs of fish but the proposed size limit change may help us towards that goal in the meantime.

New technology will constantly helping us in understanding of the fishery and the direction in which it is heading. Although things may seem a little gloomy, remember that no one has switched off the light at the end of the tunnel!

Bat survey



Above: Cindy Jenkins, Siobain Finlow-Bates, Sarah Gibb and Jo Feary set out a bat detector near caged *Dactylanthus*.
Photo: Lucy Roberts.

In July 2007, Tongariro Natural History Society was a recipient of an Environmental Initiatives Fund from Environment Waikato. This grant allowed us to buy new and up to date bat monitoring equipment, including hand held bat detectors and automatic bat boxes, to assist in surveying for the presence of bats around the northern areas of Tongariro National Park.

Both short-tailed and long-tailed bats are important parts of our native ecosystems, as they are the only native terrestrial land mammals. The lesser short-tailed bat is the only living species of an ancient endemic line and is divided into three sub-species, including the central-plateau short-tailed bat (*Mystacina tuberculata rhyacobia*). This sub-species is classified as range restricted under the New Zealand Threat Classification System due to human induced loss of habitat. Deforestation and predation from introduced mammals are the main reasons for population declines.

Short-tailed bats roost either in small, highly structured groups, or colonially, in large old trees. Short-tailed bats are primarily insectivorous, but also feed on nectar, pollen and fruit. They feed both aerially and terrestrially and are an important pollinator of several native plants including *Dactylanthus taylorii*, whose flowers have adapted to be pollinated by the bat. The wings of the short-tailed bat are modified in several ways to allow them to forage easily on the ground, and they often use their wings to “walk”.

Also known to be around these areas is the North Island long-tailed bat

(*Chalinolobus tuberculatus*), which is classified as nationally vulnerable. They are widely distributed in the North Island and mainly inhabit forest edges. They are mainly insectivorous, feeding solely on insects caught in the air and often forage aerially along roads, in both native and exotic forestry.

Long-tailed bats roost primarily in cavities in trunks and large limbs of indigenous trees. They are becoming increasingly rare, even in areas where they were found in the 1990s and causes of decline include loss of foraging and roosting habitats, predation and competition of roost sites by introduced mammals, birds and wasps.

The bat surveys carried out by TNHS will initially survey likely areas for bats and define likely roosting and feeding areas in order to protect these bat populations in the future. Long term goals include predator control to enhance survival of these bat populations, protection of likely roost areas from habitat loss, and enhancement of other areas to attract bats to these areas.

The first use of TNHS's new hand held bat detectors was for a survey around Rotopounamu, the site of one of TNHS's large restoration projects. This was to determine the presence of both short tailed and long tailed bats. It is unknown whether there are roost trees around Rotopounamu but regardless the bats should use this area for feeding. Also, because there are *Dactylanthus* plants in the area, it is hoped that short tailed bats would visit these plants, as they are an important native pollinator.

In December 2007 and January 2008, surveys were carried out on four fine nights, walking around the lake track starting at sunset. A total of four long tailed bat passes and one short tailed bat pass were heard. A "bat pass" is heard as the bat flies over the person, and the echo location the bats use to find prey etc. is heard on the bat detectors.

Although the numbers heard were not large, it is a positive step towards finding bats within this area of the national park and further work will determine whether they are successfully pollinating the *Dactylanthus* in this area.

In February 2008 further bat surveys were carried out around the Kakaramea area of the national park. This was a repetition of work carried out by TNHS in December 2006 and again relatively large numbers of long tailed bat passes were heard on roads surrounding the area.

As part of the Kakaramea *Dactylanthus* project, further bat monitoring was carried out using the new automatic bat boxes. These can be set to turn on and off at certain times and can be left in the field for up to one week at a time. The boxes scan for noises at both long tailed and short tailed bat call frequencies and record any noises at that frequency onto a memory card within the box. All an observer has to do is remove the card and plug into a laptop to determine whether there have been any bats in the area during that time. Amazing technology!

Unfortunately no bats were recorded this year using the automatic bat boxes but we are now very skilled at using them and confident that using them in the *Dactylanthus* areas during the entire flowering time next season will help us determine whether short tailed bats visit these areas while feeding.

Conservation Awards 2007



Above: The recipients of the 2007 Conservation Awards with Conservator Paul Green and Minister of Conservation Hon. Steve Chadwick. From left to right: Tumu te Heuheu (accepted award on behalf of Alex Wilson), Steve Smith and son, the students of Waitahanui School, Hon Steve Chadwick, Paul Green, Merriana Merriman (Waitahanui School), Alan and Karen Murdie, Sergeant Mike Craig, Keith Wood.

Right - top to bottom: Tumu te Heuheu accepts the award on behalf of Alex Wilson; Steve Smith; Harry Keys presents award to Mike Craig; Allan and Karen Murdie.

Photos: Herwi Schellus

The fifteenth Tongariro Taupo Conservancy Conservation Awards were announced at the Taupo Museum on 6 December 2007, before a large gathering, which included the Minister of Conservation Hon Steve Chadwick and the Tongariro Taupo Conservation Board. In all five awards were made.

The Minister applauded the conferring of conservation awards saying she understood the conservancy was one of the first in the country to start the recognition of individuals and organisations in this way. She said, "I am impressed to see that here, as in other parts of the country, there has been not only close dialogue with companies working on DOC managed lands but in many cases a 'conversion' has occurred with increased awareness by businesses of the need to tread carefully on the land. Some of those businesses have been recognised in this conservancy with Conservation Awards."

The Minister presented the first award of the evening to Alex Wilson, ex chair of the Tongariro Taupo Conservation Board. "Alex Wilson was nominated for the board by Tumu Te Heuheu as being a Kaumatua with extensive knowledge of conservation issues and the Lake Taupo catchment in particular."

He joined the conservation board in September 2001 and became its chair in June 2003. As chair Alex was always readily available to conservancy staff who valued his support and advice.

Ms Chadwick said, "Alex had the complex job of overseeing the preparation of and approval of the Tongariro National Park Management Plan. He was also able to use the respect shown him as Kaumatua to look at solutions



for guiding on Mt Tongariro and access through private Ketetahi Trust land that were acceptable to the department and iwi.”

Tumu te Heuheu accepted the award on behalf of Mr Wilson who was unable to attend.

Programme Manager Technical Support for the Taupo Fishery Area Glenn Maclean told those assembled that in late 2005 Steve Smith was instrumental in setting up the central North Island Didymo Action Group because of concerns that not enough effort was being made to keep didymo out of the North Island. Glenn noted that, “The group comprising Fish & Game, DOC, Genesis Energy, Tuwharetoa Maori Trust Board and Recreational Canoeing association has become the model for the establishment of Regional Partnership Groups across the New Zealand to deal with didymo and other potential biosecurity threats.”

“Steve has played the major role in raising the awareness and preparedness across the North Island and in encouraging and getting authorities to put in place vital actions to protect this area. He has travelled countless kilometres and worked huge hours in often very frustrating circumstances, largely on top of his full time role and for no financial reward. It has often been a thankless task and despite the widespread concern over didymo few others have stepped up to help out.” Glenn, in presenting the award to Steve, acknowledged that the fact that didymo is still not in the North Island is in no small part due to Steve’s ongoing efforts, commitment and passion to protect NZ’s rivers from this scourge.

In presenting an award to Sergeant Mike Craig of the Ohakune Police on behalf of the New Zealand Police, Conservancy Advisory Scientist, Dr Harry Keys, said the police provided the central control role in the management of the lahar on 18 March as well as providing the largest external agency-based part of the integrated response plan.

Harry said, “Their commitment to these roles, as well as planning, training and joint exercises before the event provided fundamental support in the plan and inspired confidence in it. The police were a major contribution to the smooth running of the response on the day of the lahar. Mike exemplified this role through his commitment and professionalism over many years, just as the police exemplified the multi-agency management of the lahar.”

Ruapehu Area’s Community Relations Programme Manager, Bhrent Guy, said that Alan and Karen Murdie, ex proprietors of Ohakune New World, were typical of many who supported conservation in that they made a quiet contribution over many years. Mr Guy said that, “They sponsored at least six of the 35 kiwi chicks that were released into Karioi Rahui. Both sponsored the Whakamanu Wildlife Trust which raised chicks from Waimarino Forest which were then released into the Rahui until 2005, when the work was taken over by Bushy Park of Wanganui. The Trust now



Opposite page: Tumu te Heuheu, Steve Smith, Harry Keys presents Mike Craig with award, Alan and Karen Murdie.

Above: Keith and Mercia Wood, Waitahanui School students perform, Taupo District Councillor Christine McElwee and Hon Steve Chadwick.

Above Right: Merriana Merriman, Gavin Rodley (Minister's private secretary), Paul Green, Tumu te Heuheu.

Photos: Herwi Scheltus

raises and releases back into Waimarino Forest.”

Nic Etheridge, Conservation Support Manager spoke of the commitment Keith Wood has made to conservation both on behalf of Ngati Rangi and as an individual.

Keith, she said, was another example of someone in the community who saw a need and then quietly and conscientiously made sure it was done.

“Over the years he has worked tirelessly on the implementation of the Karioi Rahui on the southern slopes of Ruapehu and the reintroduction of kiwi. Keith has been a leader in negotiations with the department over Ngati Rangi concessions and assisted with the Kiwi forever programme. He was to the forefront in stating the iwi’s stance on Crater Lake issues, supporting the mitigation works undertaken and stating forcefully the sanctity and spirituality of the Crater Lake area to the iwi and why there should be no intervention at the crater.”

As part of the evening the Bernard Stretch Memorial Award, was presented to Waitahanui School for the work they are undertaking to establish a Nga Whenua Rahui kawenata on land adjoining the school. They have already planted 1000 seedlings as part of the restoration with funding assistance from the Genesis-Tuwharetoa Fund. Presenter, Rob McGowan, said, “The vision of the principal and school board behind the restoration is to develop a resource that will enable the students and their families to regain the knowledge of the ngahere that was once so much part of life for the community, as well as developing an understanding the ecological processes involved. The restoration reflects the understanding that there is more to learning te reo than just the language itself; the source of matauranga Maori is Tane, and it resides in Te Wao nui a Tane, the living forests of Tane.”

Tongariro Alpine Crossing upgrade work



Above: Contractors “Logic Forest Solutions” working on the deviation laying Jakmat to form a stable base for the new track.
Photo: John Wilton

Great weather over 2007/8 summer season has enabled a substantial section of the Tongariro Alpine Crossing track to be upgraded and completed well before the onset of winter. Between the head of the Mangetepopo Valley, from Soda Springs to South Crater, the section of track known as the “Devils Staircase” now has a two kilometre new deviation in a sweep from the south of the original track sidling across the lower slopes of Ngauruhoe to rejoin the old track just before the South Crater. At the north end of the Crossing further work has been ongoing between Ketetahi Hut and the bush edge.

The old Devils Staircase was a 900 metre unformed track which was showing significant signs of erosion from the 60,000 pairs of feet that trudded up it each year. With an average gradient in excess of 20 degrees and many parts over 40 degrees the term staircase fitted well. On a fine day the long trail of bunched climbers clearly indicated the route to those following. Various paths had formed and in many parts the route taken had become spread of a wide area. The new track now takes trampers on a more gentle gradient with an average gradient of ten degrees. Where steps are required properly formed in-ground steps at 26 degrees link the sections of formed pathway.



Above: Barbara Browne (DOC Northern Regional Manager) and John Wilton (Project Manager) inspect the 2008 works on the Crossing.

Below right: New track on the Staircase deviation.

Photos: John Wilton

Logic Forest Solutions, the contractors who completed much of the new track work, were on site during December and January and met the department's high standard of workmanship expected. Department staff assisted with the supply of materials, the construction of the prefabricated woodwork for steps and other logistical support.

Earlier, in 2007, contractors, Technico, completed 800m of track on the Ketetahi Springs section while in 2008 a further 500 metres of track was upgraded below Ketetahi Hut. Another contractor, Electrix, completed 400 metres of track up from the bush-line during January and February. Over the past three summers department staff have continued the upgrade programme on three kilometres of track from hut to bush edge with more than 80% having been upgraded.

Maintaining the Tongariro Alpine Crossing will always remain a challenge. The Crossing climbs and descends over 1000 metres range in altitude through fragile volcanic soils and often near steep faces. Protective vegetation is sparse and materials needed to form and sustain a path over the 18.5 km of terrain need to be imported to the site. Natural volcanic materials in the area are not suitable for use to form a solid base or walking surface.

Particular care has been taken to complete the new upgrade work with effective drainage systems and a hard wearing surface treatment. Many factors are considered when designing and constructing tracks but care



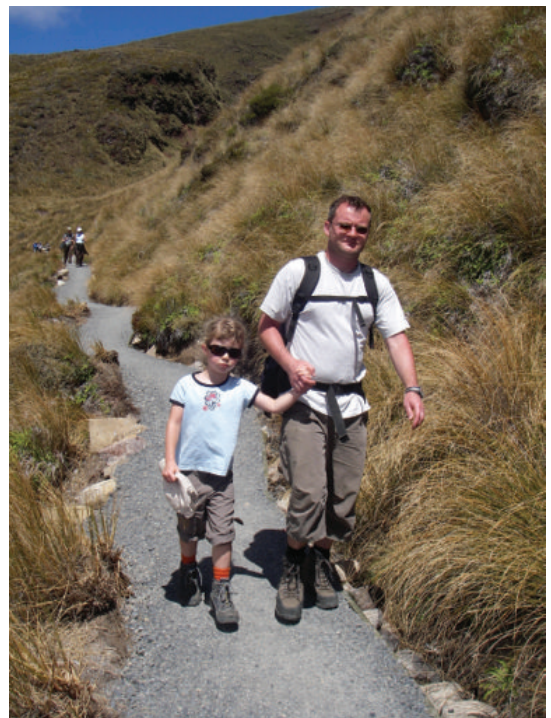


Above: Stairway to heaven - or at least an easier way to reach South Crater on the Tongariro Alpine Crossing!

Below right: Trampers on new track work on the Ketetahi Springs section.

Photos: John Wilton

has been taken to route deviations so as to enhance the experience, take in items of interest, provide great views and avoid long straight paths. The development of new track surfacing material has been ongoing throughout these upgrades. With the assistance of Fulton Hogan, a stabilised aggregate has been used this season to surface some sections. Metal aggregates used for this surfacing need to sustain the erosion and the wear of many feet as well as the growing trend for trampers to use walking poles. These poles result in a conservative estimate of some 400 million holes annually of varying sizes being poked into the track surface and the surrounding edges. Generally feet have a positive effect in compacting the surface but the increased use of walking poles may have a very different effect. The impact of the poles on displacement of track metal and damaging effects on the carefully placed and compacted track surface and edges is a subject for serious research.



Volcano watch 2007

2007 was another busy year on the volcanoes, with the 18 March dambreak lahar and a significant eruption of Ruapehu on 25 September. Shallow earthquakes are continuing under Ngauruhoe.

Ruapehu

Lahar of 18 March 2007

We reported on this in the 2007 Tongariro Journal but now know how very significant it was in relation to historic lahars. As Prof Vince Neall pointed out at a workshop on 4 September 2007 debriefing the planning and management of the event there are two criteria for measuring the magnitude of lahars: (1) peak discharge (flow rate) which usually determines flow depth and therefore the degree of hazard, and (2) total volume. Table 1 lists these data for the best known and largest of the lahars that have occurred in the Whangaehu in historic time. It shows that the peak discharge of the 18 March lahar was 70% greater than that of the 1953 event (not 25% greater as I reported in the 2007 Journal) and twice as large as the 1975 event (the most hazardous eruption lahar of the last 100 years). Only the 1861 event had a larger flow rate at Tangiwai - twice that of the 2007 lahar. Vince Neall considered that the 2007 event was the third largest in total volume, which was because only 13% of Crater Lake's waters were released in comparison to 80% of the lake in 1995 (but spread over 24 hours) and presumably a large percentage also in 1861. While the time taken for water to be expelled from the Lake is a relevant factor, we can be fairly confident that the main bridges over the Whangaehu are now large and strong enough to survive most of what Ruapehu can throw at them.

The lahar had a much larger geomorphological effect than we initially appreciated. Virtually the entire portion of the Whangaehu Glacier remnant in the valley below Crater Lake was removed by the 1.3 million cubic metres of 28°C released water. The passage of the lahar and

HAZARD AND OTHER LAHAR SIZE PARAMETERS	1861 (ESTIMATED)	1953	1975	1995	18 MARCH 2007
VOLUME LOST FROM CRATER LAKE (MILLION M ³)	Approx 4 (based on bulking factor of 1.5)	1.8	1.6	5-6 over 24 hours	1.3
VOLUME AT TANGIWAI (M M ³)	6	1.65	1.8 at Karioi	4.8	1.9
WATER LEVEL RISE AT TANGIWAI (M)	>6.7	4.6-5.4	3.9	3 approx.	5.6
PEAK DISCHARGE AT TANGIWAI (M ³ /SEC)	2000	600	500	360	990
PEAK DISCHARGE AT NIWA'S FLOW STATION AT KARIOI 10 KM DOWNSTREAM OF TANGIWAI (M ³ /SEC)	not calculated	370 est'd	360	233	500

TABLE 1. COMPARISON OF VOLUMES, FLOW RATES AND FLOW DEPTHS OF MAJOR HISTORIC LAHARS. DATA COMPILED WITH ASSISTANCE OF DATA FROM VINCE NEALL (MASSEY UNIVERSITY), BARRY WAUGH (NIWA), JOHN WAUGH (HORIZONS) AND GRANT WEBBY (OPUS), PLUS HARRIS (1954) AND NAIRN AND OTHERS (1979).



Right: New landscape in the head of the Whangaehu Valley including a temporary lake caused by removal of most of the glacier here and a landslide which partly dammed the stream.

Photo: Harry Keys

Below: The lahar created a huge ice cave in a remnant of the glacier that is continuing to collapse in 2008.

Photo: Peter Barrett.

removal of this ice triggered a large landslide from the upper gorge area adjacent to the existing landslide area monitored since 1995. The landslide partly blocked the channel and may have been the cause of a second peak in the lahar (e.g. 30 minutes after the main peak passed) as recorded at upper instrumented sites downstream. Altogether the entrained glacier and landslide material doubled the size of the lahar within a kilometre of the lake outlet. Deposition and further scouring of material occurred downstream with a maximum of 12-14m of new

sediment deposited in the tributary area one kilometre upstream from the Round The Mountain Track. The lahar had a volume of 4.45 million cubic metres on the Whangaehu fan (Vince Neall personal communication).

There were no reports of activity at Ruapehu following the lahar. The removal of over 1.3 million tonnes of water led to a minor increase in seismicity due to the reduced pressure over the vent system (GNS Science/GeoNet). The loss of a larger amount of water during the 1953 event had not led to any hydrothermal eruptions then either.

A lot of public interest was generated by the March lahar. Ontrack had to employ a security firm to keep sight-seers off the railway bridge at Tangiwai. The memorial area became a tourist mecca for a while. The Summer Programme trips to the Crater Lake and down the Whangaehu lahar path were well patronized and we were pleased to escort the new Minister of Conservation and some staff from DOC Head Office on one of the lahar path trips.

25 September eruption and lahars

On 25 September at 8:26 pm an explosive, relatively small, eruption occurred from Crater Lake. Atmospheric shock waves from the blast were detected by Eruption Detection System (EDS) sensors at Far West, the GNS Observatory at Whakapapa and the geophones of the East Ruapehu Lahar Alarm and Warning System (ERLAWS) on the Whangaehu. The earthquake that accompanied the eruption lasted eight minutes and was too weak (local magnitude 2.9) and too short in duration to provide any meaningful warning of the eruption. It was preceded by about 10 minutes of minor seismicity that appeared normal for this seismically active volcano. Pilots reported an eruption plume that rose to an altitude below 4.6 km. GNS Science raised



the volcano's Alert level to 2 (on a scale of 0-5).

On 26-27 September, aerial observations by GNS and DOC scientists revealed that the summit area was covered with ash, mud and rocks, mostly directed to the north. The pyroclastic surge ("blast") deposits covered an area of about 2 km² over the Summit Plateau to Glacier Knob. Isolated ballistic rockfall impacts up to 2.5 km from the centre of the Lake were recorded by ski area staff (on the Traverse of Fear ski route). The ejected material consisted of old lava and vent-fill debris with mineral cements indicating hydrothermal sealing of the vents prior to eruption and sulphur smears indicating in situ temperatures in excess of 113°C. No juvenile material was detected in any of the eruption debris so it was classified as a phreatic, or steam-driven event. Crater Lake was 2-3 m below overflow, indicating that about 300,000 m³ of water had been permanently ejected during the eruption.

Reports from ski-field operators, scientists from GNS Science, Massey University and DOC, and the Massey/GNS array of lahar research equipment at the Round The Mountain Track (RTMT) indicated that a number of eruption-associated lahars or lahar pulses occurred. The main events occurred as snow slurries, one flowing into the Whakapapa ski area reaching halfway down the Far West T-bar to an elevation of about 2,100 m, and three down the Whangaehu Glacier and upper valley below the lake outlet. Estimates suggest the first pulse down the Whangaehu travelled at 40-60 km/hour (peak discharge 800-1200 m³/sec at the RTMT) while the Whakapapa lahar reached 20-30 km/hour (peak discharge 500 m³/sec). The deposits of these lahars appeared black but were comprised mostly (80-90%) of dirty granular snow with a small percentage of Crater Lake water and mud, and scattered ice fragments and pieces of rock. Deposits were smeared (temporarily) about 2 m high against the base of the bluff below ERLAWS site 2 and Whangaehu Hut, and were 1-3 m thick at the study site near the RTMT Bridge. They thinned rapidly downstream, with a thickness of ~ 40 cm at the bund (10 km), and 10-20 cm at the Rail gauge (28 km).

For years the structure overlooking Crater Lake and designed to house important seismic and monitoring equipment has been known as Dome Shelter. The name is a misnomer because it is not equipped to be a standard alpine shelter but has been used as such. In keeping with its original purpose the name has been changed to Dome Equipment Shed.

Right: Summit area of Ruapehu and lahar paths in Whangaehu after the 25 September eruption. The location of the Dome Equipment Shed near the centre of the blast zone is indicated.

Photo: Harry Keys





Above: Ian McNickle (DOC) surveys the hole caused by the blast of the 25 September eruption in the floor of the Dome Equipment Shed.
Photo: Harry Keys

CIMS: Coordinated Incident Management System. A structure to systematically manage emergency incidents

About an hour after the eruption a non-explosive upwelling of lake water spilled out over the outlet creating a relatively watery lahar flow down the Whangaehu and scouring the snow slurry deposits there. It is tempting to speculate that this represented a discharge of the fluid-charged hydrothermal system in the main (southern) vent following the previous explosive unsealing of the northern vent. A much less active discharge than usual was observed over the usually more active southern vent area in the days after the eruption with more normal discharges over the northern vent.

High level rescue

The eruption very nearly proved fatal. The airborne blast, misinterpreted as a lahar by the media, damaged the Dome Equipment Shed (located 700 m from the centre of the lake) sending boulders and mud crashing through the door and floor (see photos), severely injuring a climber, William Pike, sleeping there. His mate, James Christie, narrowly escaped injury. Shane Buckingham from Ruapehu Alpine Lifts (RAL) who was grooming the Turnpipe run at Far West (in darkness and mist) had 3-4 seconds to recognize the approaching dark mass as a lahar and drive a few metres out of the way. This was a tribute to his very high level of awareness of lahars and rapid, decisive response.

The rescue of William Pike dominated the rest of the night. DOC's management response was rapid following a limited "stage 1" alert by the Eruption Detection System and a phone call from Steve McGill (RAL). A CIMS structure evolved at DOC-Whakapapa incorporating police as well as DOC and Ruapehu District Council with RAL and GNS Science in support (heavy reliance on telephones) to establish the extent of the volcanic hazard, the status of the public on the mountain, the emergency response required, and to monitor the degree of ongoing volcanic risk. This was complicated by misinformation by observers who mistook the groomer lights for incandescent lava. It led to a short-lived evacuation order for the Iwikau lodges which caused confusion and consternation because of the conflict with previous advice that Iwikau is a safe area, and (later) a realisation that response plans, communications and methods need to be rationalised. Most efforts were directed to the very clear priority of rescuing the injured climber as rapidly but safely as possible in a situation where the rescuers (Andy Hoyle, Callum Learmouth, Budgie Woods, Reto Sporrer from RAL, Nicki Hughes and Phil Smith from DOC and Murray McErlich, "retired" groomer driver) were in direct harm's way. If this rescue hadn't been able to be mounted the injured climber would certainly have been dead by the morning. The rescue party delivered William to the advanced ambulance team waiting at Iwikau shortly before 1 am for his transport via Taumarunui to Waikato Hospital.

The media release, on 21 December 2007, advising of the lowering of the risk levels noted that this meant that the risks to people who wish to climb up to Crater Lake are also back to normal, “normal” for Ruapehu meaning that it can erupt at any time without warning, and that anyone in the area directly affected by eruptions is at risk. Conservator Paul Green emphasised that people who go into the summit area do so at their own risk, that they need to make their own decisions about going there and that they are responsible for their own safety.

Eruption Detection Systems

The eruption provided a challenge to the design of automatic warning systems on the volcano. Neither system failed but at magnitude 2.9 the eruption was 7-8 times less powerful than the previous smallest eruption that resulted in a lahar (magnitude 3.4), and less than the magnitude 3.0 threshold needed to fully trigger the EDS. This is now being rectified by GNS Science. ERLAWS detected the lahars down the Whangaehu but did not activate. Although the peak discharge (flow rate) of the lahar was only 2-3 times less than that of the 18 March lahar its density was 3-5 times less and mass flux (500 tonnes/sec) 10 times less. The strongest vibrations were actually the air waves: the geophone sensors located 110-124 m away from the lahar did not detect the lahar pulses well. In contrast the vibrations were easily detected by the Massey/GNS research array at the RTMT site where the geophones are only 15 m from the lahar. We are working with Genesis Energy and the science agencies to replace the redundant ERLAWS site at the crater with this RTMT site.

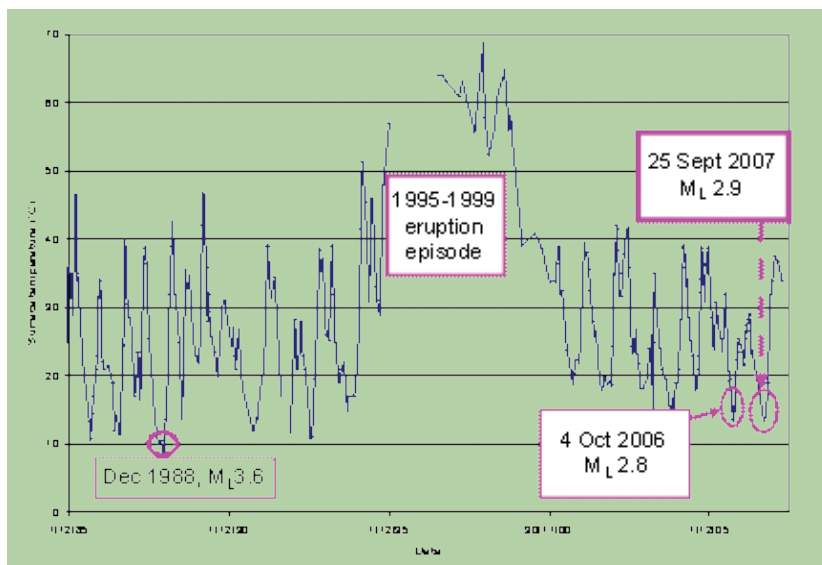
On 9 October, GNS Science lowered the Alert Level at Ruapehu to 1. DOC reduced the volcanic risk advisory in stages from 3 October and on 21 December advised that volcanic activity at Ruapehu was back to normal.

This eruption was similar to the 1969, 1975 and 1988 eruptions, although it was smaller than the 1969 and 1975 events, and larger than 1988 event. Another volcanic earthquake (magnitude 2.2) occurred on 29 September just after 11 pm but no other eruption took place, so it was a “one-off” event typical of most (but not all) short-lived eruptions of Ruapehu.

However there is growing evidence that the “internal workings” of the volcano may have changed as a result of the 1995-1996 eruptions. Bruce Christenson (GNS Science) suspects there may have been some change in the magma column-vent-lake configuration, perhaps a change in the circulation regime beneath the lake or some kind of change in the magmatic fluid input. There may have been some change in the mineralisation rate and vent sealing process. The lake temperature has remained hot for longer than usual after the last eruption, and sulphur dioxide discharge remains relatively high. We suspect that the lake temperature-eruption

pattern may have changed given the last two eruptions have been associated with low minima in lake temperature (see graph) when normally very few of these low minima are. Currently (mid April 2008) the lake is in its less common green colour mode due to dissolved iron, sulphur and silica minerals, consistent with high temperatures and relatively low total gas discharge and turbidity but carbon dioxide discharge may have increased again very recently (Bruce Christenson, personal communication).

Below: Temperature of Crater Lake from 1985 to March 2008, showing the fluctuating temperature pattern and relationship with recent eruptions. Data from DSIR, GNS Science and DOC.



The 2007 eruption and the research being led by Graham Leonard (GNS Science) on how to optimise public response to lahars on Whakapapa ski area gave us an unprecedented opportunity to assess the effect of the eruption on the response to the warning issued by the Eruption Detection System. Each year we attempt to do two public tests of the system and observe public and staff response, focussed in key lahar risk areas. This year that was done before and after the eruption and the results and survey data (Table 2) were extremely useful for telling us about whether and how the eruption increased awareness. As expected the eruption did raise awareness significantly and led to much improved responses under most measures. A significant number of people remained in harms way after the alarm. We conclude that it will be a challenge to mimic eruption-awareness raising through education and engagement campaigns, and without innovative new strategies a significant number of people will remain at risk.

QUESTION AND ANALYSIS OF RESPONDENT PERCEPTIONS	PRE-ERUPTION SURVEY	POST-ERUPTION SURVEY
ERUPTION IN LAST YEAR?	5% ¹	56% ²
ERUPTION IN THE NEXT YEAR?	3%	25%
PROPORTION OF PUBLIC WITH NO IDEA OF LAHAR PATHS	68%	36%
PUBLIC AWARENESS THAT AN EDS EXISTS	34%	65%
PUBLIC AWARENESS OF CORRECT EDS COMPONENTS ON AT LEAST WHAKAPAPA SKI AREA	36%	51%
PUBLIC RECOGNITION OF CORRECT RESPONSE ACTIONS	22%	45%
% REDUCTION IN NUMBER OF SKIERS AND BOARDERS IN LAHAR PATHS 2007 ³	42%	27% ³
% REDUCTION IN NUMBER OF SKIERS AND BOARDERS IN LAHAR PATHS: 2005-07 RANGE	27 - 94 %	

¹ The small eruption in 2006 obviously didn't make much impression on awareness

² It is surprising that this is not closer to 100% as the 2007 eruption received widespread media coverage (enhanced because one climber was severely injured) and the Far West lahar was able to be viewed in person.

³ Includes 35 people remaining in harms way on the waterfall-Staircase area post-eruption. This is a complex area to study and the 2007 data may have been influenced partly by relatively poor audibility of the warning siren and/or voice message.

TABLE 2. INFLUENCE OF 2007 ERUPTION ON AWARENESS OF AND RESPONSE TO EDS BASED ON 400 RESPONDENTS IN EACH SURVEY (MARGIN OF ERROR 4.9% BUT NOT ALL PRE- AND POST- DATA MAY BE EXACTLY COMPARABLE E.G. % REDUCTION OF PEOPLE IN LAHAR PATHS). DATA FROM GRAHAM LEONARD AND NICKI HUGHES.

Ngauruhoe

Earthquake activity under Ngauruhoe which started in late May 2006 is continuing. The quakes originate about 1 km below the north flank of the cone. The number of seismic events declined in mid 2007 but increased again in January 2008 and their magnitudes increased by about 30% over the previous averages. GNS Science deployed additional temporary seismometers to further pinpoint the source and determine if anything has changed. No increased gas has been detected on the volcano and the seismicity is not consistent with the movement of magmatic fluids. There is a growing belief that the geothermal system under the Ngauruhoe-Tongariro massif has become more active under the northern slope of Ngauruhoe, possibly consistent with the increase in the extent of bare (warm) ground visible in this area during the snow season.

The 25 September eruption report is based partly on the Bulletin of the Global Volcanism Network Volume 32, Number 10, October 2007 <http://www.volcano.si.edu/> submitted by GNS Science. I also acknowledge additional information from Vern Manville, Bruce Christenson, Gill Jolly, Graham Leonard, Brad Scott and Steve Sherburn from GNS Science, Shane Cronin, Vince Neall and associates from Massey University, and Nicki Hughes from DOC.

Conservation with communities



Right: Signing the
Memorandum of
Understanding with the
Hatepe pest control group.
Photo: Lucy Roberts

Taupo's lakeshore settlements and reserves are alive to the sound of busy volunteers undertaking various forms of animal pest control. Community predator control continues to multiply and is developing through a domino effect which began five years ago with the very first group now known as the Pukawa Wildlife Management Trust. This group is our most successful to date and has generated lots of awesome publicity and encouragement for community conservation work around the lake.

Currently the department supports four fledgling animal pest control groups in Hatepe, Tauranga-Taupo, Pukawa and Whareroa. At this stage we're keen for the groups to expand and develop at their own rate knowing that the effort they put into their predator control is sustainable and can develop in the future. DOC provides technical support, advice about structures and processes, equipment as well as contacts for funding pools and funding.

Every group differs from the next which brings many challenges from the perspective of interpreting visions, understanding and delivering expectations and developing relationships.

The Taupo district's population is small, and in Conservation with Communities terms this means our groups belong to communities with few permanent residents and many that visit at holiday times only. Their population is generally retired and aging which makes succession planning something of a challenge. To combat this we're brainstorming with the Pukawa Wildlife Trust on ways to recruit younger members. Suggestions include advertising in local Resident Association newsletters and presenting at Resident Association meetings. We've also designed information panels outlining the community projects and will place them at strategic vantage points.

The key is communicating to communities that projects aren't daunting and don't need an over-commitment of time. Thinking small is good. Our



Above: Members of the Whareroa Pest Control group setting traps.
Photo: Ang Paget

tactic is to create achievable visions such as ‘more native birds outside your kitchen window’.

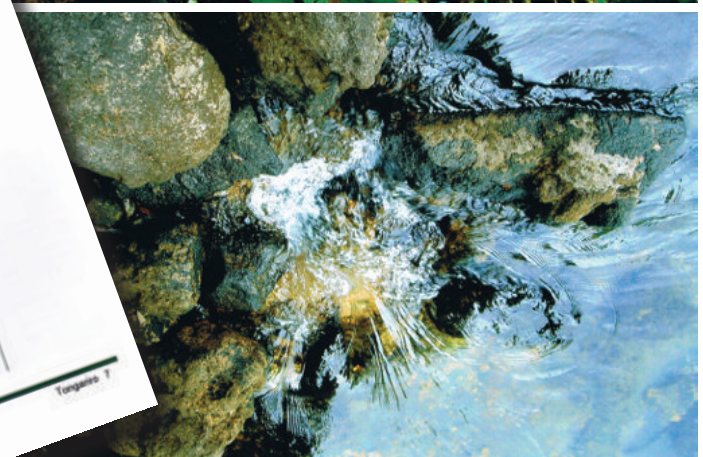
While our local projects don't always work to their full potential as far as DOC Best Practice Animal Pest Control is concerned, the effort achieves results which benefit the communities through community participation and conservation awareness.

There is great potential. Holiday-makers often retire to their holiday homes and increase their efforts. Young family members get involved and continue the tradition as baches are passed from generation to generation. And all these people, living elsewhere, hopefully take their conservation ethic home.

Sometimes community group work doesn't seem like a job at all, merely a day out with enthusiastic people from a wide range of employment and socio-economic backgrounds. They're all ‘mucking in’ for a common good. It's this enthusiasm, generated by people who are so passion driven which gives my colleagues and I such an appetite for engaging in working with community groups.

Below: Back in 1994 we reported in the Tongariro Journal about Dave Lumley rediscovering the ‘gurgler’, a drain hole near the shore of Rotopounamu. The gurgler has re-appeared as these photos show!
Photo: Sarah Gibb

The Rotopounamu Gurgler



The Rotopounamu 'Gurgler'

A Visitor's Guide

On 3 November 1994, I single handedly rediscovered the Rotopounamu Gurgler! The gurgler was first discovered by Alan Rainier and Tom May from the Turangi Field Centre some two months ago.

The gurgler was in relatively silent mode when I rediscovered it, so I had to use all my partner like stalking skills to track it down. However, once discovered it managed to approach close enough to get off a couple of well aimed shots with my old but trusty Pentax K1000.

I will now attempt to answer the readers most likely questions.

What is it?

The gurgler is a small drain hole in the bed of Lake Rotopounamu.

Where is it?

Approximately 10 minutes walk along the track heading south west from the south end of Long Beach.

How do I find it?

Stroll along in the direction indicated and a little way past the wooden seat, you will see a large kauri tree which has fallen into the lake. The gurgler is located approximately 20 metres south west along the lakeshore from the tree. If it is a relatively windless day you will hear it gurgling.

It is located approximately 15 metres from the track and about one metre into the lake from the current lake edge. In water that is presently 30 centimetres deep.

The gurgler is unremarkable in itself, just a small whirlpool disappearing into a small device in the lake bed. However,



as I discovered when I put my arm down into the crevice, quite a volume of water (as indicated by the powerful suction which threatened to drag me down into the bowels of the earth) disappears down the gurgler.

It is unlikely that the gurgler will completely drain Lake Rotopounamu as it is situated only a metre from the lakeshore in shallow water. However, I found it interesting that I have seen it in my time been higher than I have seen it in my time here, has with the past local walk dropped significantly. The gurgler is an interesting feature on a great local walk and I suspect that many visitors will discover it when walking past when the lake is still. However, on most days the gurgler is so close to the shore that it is difficult to locate and they will stroll past completely oblivious to the presence of the new phenomenon only a few metres away.

Dave Lumley
 Manager
 Turangi Field Centre

Tongariro 7

Lest we forget

The Tongariro Natural History Society (TNHS) was born out of tragedy following the untimely deaths of five people on the inhospitable slopes of Mt Ruapehu in Tongariro National Park. While testing lights for night flying and search and rescue operations, the helicopter they were in became disorientated and crashed into the mountain, killing all those on board. It was less than two weeks before Christmas, 1982, 25 years ago. Those in the helicopter were

Keith Blumhardt - Ranger Whakapapa

Bill Cooper - Senior Ranger Ohakune

Doug McKenzie - pilot

Derek White - Ranger Whakapapa

Marie Williams - Park Assistant

The close-knit mountain community was stunned by the loss of life. A memorial service was held at The Chateau and people gathered from many parts of New Zealand to pay tribute to the personal qualities of these outstanding individuals, share memories and to grieve. In the weeks and months that followed the idea of some kind of memorial to those who had lost their lives was discussed, and money was donated for this purpose.

Below: Family and friends were pleased to be able to attend the memorial.

Photo: TNHS

In an inspired move Bruce Jefferies, who was the Tongariro National Park Chief Ranger, Roy Lynch, a long time mentor for many park staff and who later became the society's inaugural president, and a number of colleagues and friends of the deceased came together and, from a series of discussions, suggested that a natural history society be established. The main idea was to establish a cooperative network of people who loved the national park and were prepared to work



alongside park staff, particularly in park interpretation and conservation education. Societies with similar objectives to the TNHS and associated with a particular national park are common in America, and it was this concept that fired the imagination of people from many different walks of life.

In 1984, when the Society was formally founded, it became the living memorial to the night fliers. The money donated was incorporated in a memorial fund and was used to seed the publication of *“Volcanoes of the South Wind”*. This book, by Karen Williams (sister of Marie Williams), was the trail blazer for the Society and gave confidence to members to continue publishing information about the park.

An essential connection was forged with the Department of Conservation (originally The Department of Lands and Survey) through the development of a Memorandum of Understanding between the Society and DOC. This provides the society with a special status, particularly in its relationship with DOC, and enables both parties to plan cooperatively and to work towards meeting a wide range of conservation objectives and ideals. The inherent mutual benefits that are a part of this relationship are on-going and durable. Following the filming of parts of the Oscar winning trilogy *“Lord of the Rings”* in the park, the society received a boost in funding for undertaking the restoration of sites that were used in the film. The society now has professional staff, which has resulted in a significant increase in restoration projects, volunteer activity as well as accessing funding from philanthropic organisations. The aspirations of the creative thinkers that came together and started the society are progressively being realised through a wide variety of activities.

Arising from a tragedy twenty five years ago is a vibrant organisation that recognises, in all its endeavours and activities, the spirit of the people who died that night on the cruel but starkly beautiful slopes of Mt Ruapehu. From despair and sorrow have come fresh ideas and the progressive realisation of an enduring dream.



Right: Shirley Geering, Derek White's mother, gave a tribute.
Photo: TNHS

Sunday 9 December 2007 – time for reflection - Dona White

For the families of those killed in the helicopter crash on Mt. Ruapehu 25 years ago, and for the members of the Tongariro Natural History Society, the commemoration was an emotional and unique opportunity for reflection.

The grief for all remains huge, yet the knowledge that the society has flourished in the aftermath of the helicopter tragedy is comforting. The weather verged on rain, but held back until all members of the families that wished to could share their thoughts and express their grief. Representatives from Tongariro Natural History Society and DOC also spoke and the service was closed with the reciting of the poem 'In Blackwater Woods' by Mary Oliver.

Family members then all shared in the tasks of staining the memorial sculpture, tidying the name plaque and placing flowers on the crash site. Once everyone had walked out from the site, the rain began to fall.

Ruapehu Area highlights 2007-2008



Above: Taking on the challenges of the Tree Trunk Gorge in this year's Summer Programme.

Photo: Jonathon Spring

Below: DOC staff enjoy taking visitors down into the Okupata Caves during the Summer Programme.

Photo: Dean Corrigan

As a relative newbie to the Ruapehu Area, the eruption in September last year (my first eruption) really made me consider the dynamic environment that we live and work in. The nature of our environment is reflected in the way we work at the Ruapehu Area office, changing our work plans to fit in around weather conditions, volcanic hazards, fires, the breeding cycles of birds and even the flowering of plants! Nature dictates the terms to us and we have to adapt. It's part of what makes working for DOC so exciting and interesting. 2007 was no exception. We want to thank our local communities and volunteers who have supported our work over the year and hope you enjoy reading about our highlights of 2007.

Summer Programme

Our summer programme got off to a great start this year with the Fly a Kite Day on the Chateau golf course. It was a beautiful day and a lack of wind early on didn't stop the crowds coming to make a kite or fly a kite. The weather continued to be kind and this summer we only made one postponement due to rain. We're pretty sure that's a record! We had an online booking system for the first time and received 35% of our bookings from the Internet. We were lucky to have our usual wonderful volunteers with us this year, as well as some new volunteers, all working alongside DOC staff to make the trips memorable and enjoyable. Many thanks to them for all their efforts.



New Area Manager

He doesn't like to make a fuss but we can't leave him out of the highlights. Although we were sorry to say goodbye to Nicola Patrick, we have been happy to have Kevin Cannell join us this year as our new Area Manager. Kevin came to us from Opotiki, with his wife Jenia and son Nicholas. He quickly made his presence felt with practical jokes and strong leadership; a great combination! Welcome Kevin and family.

Tongariro Alpine Crossing Deviation

Work on the deviation of the Tongariro Alpine Crossing began over summer and was completed rapidly thanks in part to the fantastic weather right throughout January. The new track is about 800 metres longer than the Devil's staircase but the gradient makes for a gentler ascent (or descent) and will take trampers right through some stunning volcanic formations. The Devil's Staircase will be closed to allow the area to regenerate and recover from erosion.

LEARNZ

The LEARNZ team visited Mt Ruapehu in June 2007 for a virtual volcanoes field trip. Schools around the country had the chance to audio-conference with DOC staff, asking many hard questions that even required some research on our behalf! It is great to see the high level of learning that is being achieved through this programme. A highlight of this trip was the students having an audio-conference with Francesco Bandarin, Director of the World Heritage Centre and Chris Carter the (then) Minister of Conservation. Overall 159 classes were involved with this virtual field trip. 101 classes took the trip in real time and 58 used the archive material. In total 3957 students were engaged in through this field trip. This is a fantastic way for DOC to engage and inspire learning in lots of kids. For more information check out www.learnz.org.nz

Whio

Staff and over 50 willing volunteers have been very busy monitoring, catching, and banding blue ducks over the 2007/08 summer season. Volunteers from TNHS, Genesis Energy, other departmental staff, and other members of the public, all helped out and their support is very much appreciated. The results of all this effort have been outstanding. Of the 32 pairs on the three rivers, 29 pairs nested producing 86 chicks in 23 broods. A record 67 ducklings survived to fledge and are now happily exploring the rivers looking for territories and mates.

Staff installed 'DOC 200' type predator traps along the Whakapapa and Mangatepopo rivers during the 2007 winter to help maintain the gains already made. Installation of the trap lines is an arduous task due to the terrain however they have already proved effective as nearly 100 mustelids (mostly stoats) have been killed in addition to large numbers of rats. This coming winter more trap lines will be installed along the Whanganui River.

The Ruapehu Area would like to extend a huge thanks to all the



Above: Volunteers and DOC staff release a family of Whio after banding.
Photo: Paul Smith

volunteers involved during the year, but in particular the Central North Island Blue Duck Conservation Charitable Trust, Ngati Hikairo, Mount Cook Airlines, Landcorp and other landowners.

	NO. PAIRS	NO. CHICKS HATCHED	NO. CHICKS FLEDGED
2004/05	30	24	30
2005/06	22	26	16
2006/07	27	48*	25*
2007/08	32	86	67

TABLE 1. PRODUCTIVITY FROM ALL RUAPEHU RIVERS COMBINED (WHAKAPAPA, MANGATEPOPO AND WHANGANUI), 2004-2008. ALISON BEATH.

* This is wild-hatch chicks only; there were an additional 6 chicks (from nests at risk of flooding) that hatched in captivity at Peacock Springs.

Tapapakurua Falls Track

The newest track in the Ruapehu Area takes visitors through regenerating broadleaf - podocarp forest to Tupapakurua Falls lookout. There is wonderful birdlife in the area and the four hour return trip makes a nice change from the stark volcanic terrain found on many of our other tracks. The reconstruction of this old Forest Service track in Erua Forest is the result of a successful community partnership between the National Park Progressive Association and DOC. Together DOC and the N.P.P.A. led an inaugural walk to the Falls lookout as part of Conservation Week in August. The walk is open to the public and is signposted off Fishers Track which begins in National Park. Parking is best at the Station Café.

In unity we have strength

Mā te mahi ngātahi e whai kaha ai tātou

In unity we have strength



Right: Micheal Bangalang (Board member), Nic, Jacob Nayinggul (chairman of the board) & Bubs. This was a real honour and highlight of our Kakadu visit.
Photo: Nic Etheridge

In 2006 I was honoured to receive an award from the Director General of Conservation for Excellence in Leadership and People Management. This article is a summary of what I did with the opportunity the award presented.

I focussed on the topic of co-management with iwi as one of the key issues confronting Tongariro/Taupo Conservancy is the Tongariro National Park treaty claim. The key message to come from the evidence of iwi groups amongst a range of views and issues, is a feeling of being disconnected to their place as tangata whenua, having no real decision-making ability, not being listened to and that the original gift presented to the crown has not been accepted in the way it was intended.

I had the freedom to explore this topic for three months in more of a student role, than as a manager. I didn't attempt to compare sites, as they each have strengths and weaknesses based on their respective circumstances.

I set out on my journey hoping to identify;

- examples of how co-management and in particular shared delegation works.
- what factors contribute towards functional co-management agreements between conservation agencies and indigenous people
- the impediments that cause dysfunctional co-management.
- potential management options in both the short and long term between the Department of Conservation and iwi groups in the Central North Island. Consider the national and local context.
- areas of improvement that the Tongariro/Taupo Conservancy, can make

towards co-management and relationships with tangata whenua.

- ways to use examples to explore how cultural values and recreation values, including commercial use, can be balanced.

Co- and joint management

Co-management is not an end point in itself. It is a term that describes a relationship between two cultures who are trying to understand each other for the greater good of natural and cultural protection. Joint management means the establishment of a legal partnership and management structure which reflects the rights, interests and obligations of the indigenous owners of a park, as well as those of the relevant government, acting on behalf of the wider community.

Several models for joint management are currently in operation. They differ according to provisions of a legal framework, provisions of a plan of management, levels of resourcing and particularities of on-ground management arrangements. Joint management arrangements represent a trade-off between the rights and interests of indigenous peoples and the government conservation agencies.

Bubs Smith (Ngati Tuwharetoa) and I travelled to Australia in June where we were hosted by Parks Australia on visits visited Kakadu and Booderee National Parks.

Kakadu National Park sits west of the Arnhem Land, in the Alligator Rivers Region of the Northern Territory of Australia. It is one of Australia's 15 World Heritage Sites, listed for its natural and cultural values. It is jointly managed between the Director of National Parks and the Aboriginal clans and communities of the region, referred to collectively as Bininj/Munnguy.

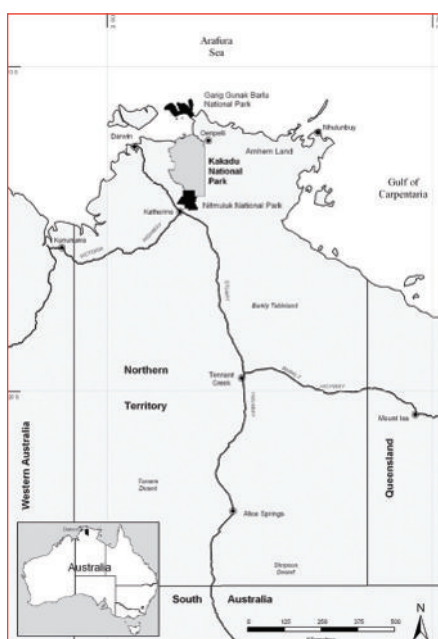
Approximately 50% of the land in the park is Aboriginal land under the Aboriginal Land Rights (Northern Territory) Act 1976, and most of the remaining area of land is under claim by Aboriginal people. Title to Aboriginal land in the park is held by Aboriginal Land Trusts. The land trusts have leased their land to the Director of National Parks for the

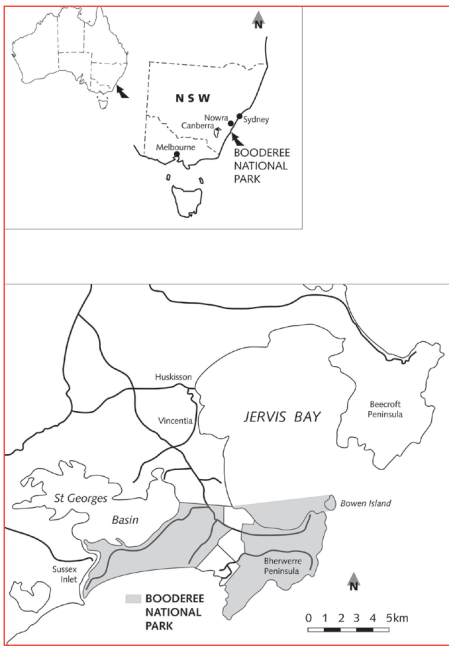
purpose of a National Park for the enjoyment and benefit of all Australians. Traditional owners have expected that having their land managed as a National Park will assist them in looking after their land in the face of growing and competing pressures. They see a National Park as establishing a way to manage the land that can protect their interests and is sympathetic to their aspirations.

Booderee National Park and Booderee Botanic Gardens are jointly managed by the Wreck Bay Aboriginal Community Council and Parks Australia. A memorandum of lease between the Director of National Parks and Wildlife and the Wreck Bay Aboriginal Community Council was signed in December 1995. The Park and Botanic Gardens are managed in accordance with relevant legislation, a management plan and the decisions of the Board of Management, which was established in 1996.

Joint management arrangements in Australia represent a trade-off between the rights and interest of traditional owners and the rights and interests of government conservation agencies

Below: Map of Kakadu National Park.





Above: Booderee National Park

and the wider Australian community. A key element of the Kakadu and Booderee arrangement is that the transfer of ownership back to the Aboriginal people was conditional on their support (through leases) for the continuation of the National Park. If, for example, the Director of Parks Australia is no longer the lessee, the designated area is no longer a National Park, thus all the resources that come with that title no longer exist.

The Agreement allows traditional use of the area for hunting, food gathering and ceremonial purposes in areas of the park determined by the Director and the Aboriginal Traditional Owners.

Boards of Management are established for parks on Aboriginal land. Both Booderee and Kakadu Boards of Management have an Aboriginal majority. The Board determines policy for managing the park and is responsible, along with the Director, for preparing plans of management for the parks. The Plan of Management is the main policy document for the parks and strives to balance strategic or long-term goals and tactical or day to day goals.

The Canadian journey

From Australia I travelled with Keith and Mercia Wood (Ngati Rangī) to Canada with British Columbia our first stop.

Gwaii Haanas is a National Park of the Queen Charlotte Islands (or Haida Gwaii), which lie northwest on the British Columbian coast. The area is occupied by tribes of the Haida Nation. Gwaii Haanas lies in the southern part of Haida Gwaii/Queen Charlotte Islands, 130 kilometres off the British Columbia coast and 640 kilometres north of Vancouver. It is a wild and remote area made up of some 138 islands that stretch 90 kilometres from North to South.

In 1974, controversy over the future of what would become the Gwaii Haanas protected area began with the advent of plans for the logging of

the area, and the “South Moresby Wilderness Proposal” was put forward in an effort to prevent destruction of the area through the exploitation of its natural resources. In 1985, the Haida Nation designated Gwaii Haanas a “Haida Heritage Site.”

The Government of Canada and the Council of the Haida Nation’s have equal governance. From this the Archipelago Management Board was formed to manage the Gwaii Haanas National Park and Preserve.

The Archipelago Management Board (here after referred to as AMB) is made up of two members of the Council of the Haida Nation (CHN) and two members of Parks Canada. They seek consensus for their decisions on park management, and neither the CHN nor Parks Canada have final authority over decisions.

The Haida agreement is very specific to their situation i.e. Lyall Island logging. There is very strong evidence that Haida Nations are connected to the land historically, which is why

Gwaii Haanas National Park





Above: Lawrence Joe and Sean Sheardown with kids. They method used to catch these fish would be considered poaching in Taupo, however there its called cultural harvest!

Below: Kluane National Park and Preserve.
Photos: Nic Etheridge

the government stopped logging and the memorandum of agreement was written up. Haida won't engage in the concept of the crown owning the land, hence the "agree to disagree" statement at the front of the MOU.

From British Columbia we flew to the Yukon, on the Trans Alaskan Highway, where Haines Junction was our destination for five days.

In 1942, recognising the impact of the newly constructed Alaska Highway, a Privy Council Order of Canada withdrew more than 25,000 km² of land lying to the South of the Alaska Highway, west of the Haines Road and east of the White River. In 1972, more than 22,000 km² of the Kluane Game Sanctuary was set aside as a national park. Official proclamation of Kluane National Park Reserve took place in 1976, pending the outcome of comprehensive land claims.

In 1993, the Champagne and Aishihik First Nations Final Agreement was signed by the Government of Canada, the Champagne and Aishihik First Nations (hereafter referred to as CAFN) and the Government of Yukon. This agreement established approximately 5,900 km² of the south eastern portion of the park reserve as Kluane National Park.

The Champagne and Aishihik First Nations Final Agreement ushered in a new era in the management of Kluane National Park. The Final Agreement, which came into affect in 1995, identifies specific rights and responsibilities of the Kluane National Park Management Board (the Board), Champagne and Aishihik and Kluane First Nations and Parks Canada in the management of the park - a cooperative management regime based on shared responsibility. The Board was established in 1995 and work of its members currently relates to the national park, not the park reserve, as the board was created from the Champagne and Aishihik First Nations Final Agreement.

The Board consists of four voting members; two are nominees of CAFN and two are nominees of the Government of Canada. All are appointed by the Minister responsible for Parks Canada. Kluane National Park is represented by the park superintendent, a non-voting member. The Board provides a vehicle for public involvement in park management and may make recommendations to the Minister on any matters related to management or development in the park.

As an aside it was evident that climate change is having a significant impact in this region on ecosystem processes. The spruce beetle is killing Spruce Trees at a rapid rate due to the mild winters, that are not keeping the beetle numbers under control.

The most significant issue for the First Nations peoples and Parks Canada around management of Kluane is cultural harvesting rights. Numbers of moose, salmon and caribou in particular are monitored and allocated per year. However despite this there seems to be a downward trend in numbers.

Co-management is a journey where at times the road is rough and you constantly have to look at the terrain. However the main thing is you're on the road together and you have a good sense of direction.



Right: Keith, Mercia, Cyndy, Captain Gold (current Haida Nations members of the AMB) and Nic. We had an amazing feed of Alaskan crab this evening - yum!!
Photo: Nic Etheridge



Much was learnt from the four site visits. The key messages that emerged were;

- Co-management comes down to constructive relationships. They tend to work best when there is mutual respect, empathy, open minds around the table, a willingness to learn, transparency and honesty from all individual's involved.
- Unity over a common goal amongst the individual's of both partners involved in the relationship is essential to establishing a good relationship between the indigenous and conservation government agency. A common goal/vision that everyone agrees to means that the partners are always brought back to the conservation purpose, which keeps people honest and focused on the outcome (not themselves).
- A good relationship isn't concerned with who owns the land. As maori say - the land owns us, we don't own the land. Listening to each other, being open, clear, informative, honest, behaving with integrity and working to a common goal about protecting culture, biodiversity and recreational values is essential to making it work.
- More often than not it was intense conflict that brought about legislative change for joint management between the parties involved at each site. Like most newly formed situations that involve a lot of people, those sites went from storming, forming, norming and finally performing.
- Relationships on the ground with staff and the community are an important element to making co-management work. Indigenous and non-indigenous people need to learn off each other. It is important to be professional and business-like on both sides. This takes a long time.
- It is good to have a range of tools in the tool box to suit different situations. For example, New South Wales Parks use Memorandum of Understanding's, joint management and everything in between. They apply which ever tool suits the local situation.
- Co-management is dynamic not static. You never get to a stated end point of success or failure. It is an evolutionary arrangement, not one where there is one right answer.
- Achieving a balance between the aspirations of indigenous people for community development and the aspirations of managers and park users for protecting the natural and cultural values of the park is a major global issue. The challenge therefore is to provide economic rewards to indigenous people through the park management process itself e.g. rental payments, employment within the park and associated activities such as tourism.
- The tourism industry is really demanding at high use sites. Indigenous people want respect for their land by tourists. It's up to the government agency and indigenous people to seek sufficient balance for both views with the industry.
- Being resourced to engage is fundamental to a relationship working. Payment is also acknowledgement for the time it takes and recognition of skill.

In search of the past...



Above: How to find a pit - fall in it - which is exactly how Dave Wilton found this one!
Photo: TNHS

Over the past three years members of the Tongariro Natural History Society (TNHS) have been working to improve recording the conservancy's many historic sites. As part of its 2005 Historic Resources Strategy, the conservancy committed to what was termed a passive site survey—a survey of all the historic sites in the conservancy that are not “actively managed”. While some work of this type had been done in the early 1990s, it was more an identification of sites. The new survey aimed to visit each site, record its location and features, photograph it, complete a site record form, gather all known information about each site and compile all the information into a hard copy file system (in addition to the electronically held site record forms). Relevant sites would also be submitted to the New Zealand Archaeological Association's (NZAA) site

recording scheme. Tongariro Natural History Society members offered to work with DOC on this survey.

To kick the project off, in 2005 TNHS were provided with maps with red dots and boxes of assorted historic information and photos. Often the dots said little or nothing of what was there, other than that there was some type of historic site there. Volunteers' initial task was to match items in the box and on the files to the dots on the maps, and to tap into the knowledge of members of DOC staff. Often, however, this only added to the complexity of the task they'd been given and even to the list of sites they needed to visit as “helpful” locals informed them of continually more potential sites.

With the office-based work in hand, a hardy core of Kaye Rabarts and Dave Wilton began the field component, attempting to track the many, often elusive sites down. The value of Kaye's background in surveying soon became apparent, with the maps and site plans she produced drawing wide admiration of a dying art in an electronic age. Over the summer period, the volunteers worked tirelessly to visit as many sites as possible, balancing successful days out in the field with the occasional frustrating day when a site failed to be located. Kaye's enthusiasm and meticulous attention to detail, in particular, sometimes worked against this being an easy summer survey, as she continually located more sites. The variety of sites provided constant stimulation, too, from sites related to pre-European occupation and the New Zealand wars, to logging, tourism, and development history. Some of the discoveries also raised some interesting debates within the conservancy—when does rubbish become an historic asset? Everything aside, by the end of the first summer it was clear this was a much bigger—and probably far more exciting—project than initially estimated.

Such was the quality of the survey work the TNHS volunteers led by Kaye were completing, in 2006 they were contracted by NZAA in full to complete the local site visit component of the national upgrade of site

Right: A deep pit surrounded by bare earth, another pit found by the TNHS team.
Photo: TNHS



records on public conservation land. Work on investigating new sites was put on hold for a time while old sites (sometimes not visited since the 1960s when they were first recorded) were revisited. Again Kaye and her team's meticulous research and recording was noted. There were even a few coups, when Kaye's team were able to find sites that archaeologists had previously failed to locate. It is exactly this type of determination that led to Kaye receiving a conservation award for her long-standing commitment to volunteering in the conservancy in December 2006.

With the lesson learnt that this is a much bigger project than initially envisioned, work is now being broken down to a map by map approach to be pursued as funding allows. The current slow-down in resources, however, has not halted work completely, with the passion and interest of the volunteers meaning favourite sites are still being surveyed. Dave Wilton's recent survey of the Boyd airstrip area, for example, has added greatly to the conservancy's knowledge of the history of the Kaimanawa Forest Park, while Kaye's continuing investigations into logging at Ketetahi are expanding our understanding of the many historic logging operations around Tongariro National Park.

The work of the TNHS volunteers also further cements and perpetuates an incredibly important partnership for the conservancy. Tongariro Natural History Society is heavily involved in all types of historic work around the conservancy, including the ongoing restoration at Tokaanu, the restoration and maintenance Waihohonu Hut, and the huge restoration project at Hapuawhenua viaduct, where their work complements the amazing efforts of Ohakune 2000 on the Old Coach Road. With resources for historic work so limited and fiercely contested nationally, the partnership with TNHS is enabling us to move our historic programme forward in a way that is the envy of many bigger conservancies around the country. Stay tuned-this year in historic is certainly one to watch!

Case Studies

With my prior archeological knowledge being based on gold mining, kauri logging and Maori sites on the rocky headlands and clay hill of the Coromandel, it was interesting to work in an area of recent volcanic geology. I was surprised at how well Maori earthworks have held up, and totara fence posts have remained intact in the pumice soils around the mountains and lakes. After spending 3 summers searching for the early footprint of man on this land, I am left with an overall admiration for the hardiness of the people who have gone before us.

An 1883 Survey plan shows a series of small Maori villages along the bush edge of the southern boundary of the Tongariro forest (just to the north of State Highway 47 between Lake Roto Aira and the Bruce Road to Whakapapa) These villages were tucked into small natural indentations in the bush line, which would have given some protection from cold winds sweeping over the mountains, which can be seen across the tussock lands to the south. At the three village sites we located, the bush line appears to have changed little and there are good numbers of “bell” food storage pits, some in very good condition. A bell pit consists of a entrance hole, averaging 50cm across, dug vertically into the ground and then opening into a larger rounded chamber, up to 1.7 m in diameter. Sometimes these pits were dug obliquely into a slope or bank with the entrance holes protected with a lid or shelter. One cold wet day as we searched this area I couldn't help relating to a young Maori mother trying to keep her children warm in this often bleak and beautiful place.

Below: Steff Green, Dave Carley and Annette Dench on an old road grader found by the team in the Hinemaiaia Valley.
Photo: TNHS

A more favourable, but sometimes less peaceful location is the Hinemaiaia Valley, near Hatepe. Beside a lovely trout stream, which runs west from the Hinemaiaia dam to Lake Taupo, and below high pumice cliffs, are numerous Maori habitation sites. The sites of this well lived in, sheltered, north facing valley are concealed in the scrub beside the fishermen's walking track. Hut sites and food storage pits indicate long term occupation while earthworks of walls, trenches and rifle pits point to a time of unrest. Many of these features are very well preserved and the whole valley would lend itself to an interesting study of occupation over time. The remains of a small, very old road grader, probably left where it was last used, on a now disused road, was a tantalising artifact from more recent use of this lovely valley.

A 1997 study, by John Mazey, records the attempts by both local Maori and European pioneers to sheep farm areas in and adjacent to Tongariro National Park from 1855 to 1918. 15 kilometres from Lake Taupo, south east of Motuoapa, just on the edge of the Kaimanawa State Forest Park, we found the remains of a small sheep farm run by the Grace brothers until approximately 1920. Almost 100 years on the outline of a small holding paddock can be identified near the timber remains of the “homestead”, a building startlingly small compared with what we expect of a home today. Nearby a 70 metre stretch of the remains of a post and rail fence has survived a fire, but empty post holes indicate it hasn't been so lucky with firewood or artifact collectors. In a small, flat bottomed valley, a series of posts indicate a pen system for a wood lined sheep dip which is still readily identifiable. Against the valley wall is a hut platform with the fire place carved into the pumice soil cliff.



Whakaipo Bay - Mapara Valley

Planning in Action

Over recent years there has been considerable land use change proposed for the Mapara Valley area adjacent to Lake Taupo. A very complex planning situation has arisen for the area with several major subdivision resource consent applications made for land in the Valley; the completion of the Taupo District Councils 'Growth Management Strategy' identifying the area for future growth; and subsequently a council led 'Structure Plan' being developed for the Valley.

The Department of Conservation is a key stakeholder in the planning discussions for the Valley, our main focal point being the presence of Whakaipo Bay Recreation and Scenic Reserves situated on the lakeshore right in the heart of the Valley. Both of these reserves are administered by the Department of Conservation. Throughout the planning discussions for the Valley it has frequently been raised that significant increases in development in the Valley will have an impact on these lakeshore reserves, with the potential to change how the reserves are used, the visitor experience at the reserves and the numbers of people using them.

During public open days held for the Council 'Mapara Valley Structure Plan', the department invited public input into the future management of the Whakaipo Bay Reserves. We drafted a landscape plan for the Whakaipo Bay Recreation Reserve and presented this at the open days. During this process it was obvious from the feedback received that the Whakaipo Bay Reserves are a highly valued resource to the local community, and

Below: DOC staff with Mel Scott (second from left), the original Lands and Survey ranger at Whakaipo Bay.
Photo: DOC



that concern for the protection of this public space is paramount.

The department put forward a suggested set of 'values to be maintained' in the Whakaipo Bay Recreation Reserve. These values include: an openness, a sense of freedom, quiet, undeveloped (the way things used to be), landscape diversity, natural landscape, views, recreational opportunities and accessibility. We received considerable support from the community for protection of these values, and acknowledgement that we were 'spot on' with the value set. This was a key outcome for the department.

Following the success of the open days, we also hosted a public discussion held in the Whakaipo Bay Recreation Reserve. This was attended by more than 40 members of the public. We discussed landscaping ideas such as the potential for new tracks, re-vegetation of gullies, additional car parking and beach front access.

One idea that received strong support was the plan to re-vegetate some exposed gullies with native species. There were several community groups who kindly offered their voluntary time to help with this task. Again, this was a great outcome for the department.

The proposal to create access and tracking in a large section of the Recreation Reserve that is currently difficult to access was also well received. Many members of the community were unaware that this section was part of the Reserve and welcomed the opportunity to better utilise the space.

Whilst the planning process for the greater Mapara Valley Area will continue for some time to come, there have at least been some positive steps made towards further protection and management of the precious and cherished Whakaipo Bay Reserves.



Right: Along the Spa Park to Huka Falls track, beside the Waikato River, 1000 plants were planted as part of team building during an Office Products conference.

The local Taupo Office Products team with Murray Cleaver.

Photo: DOC

The Waimarino

The Waimarino River in Kaimanawa Forest Park harbours a multitude of small communities that thread together and form a valuable habitat especially for the nationally endangered blue duck, whio.



Above: Controlling buddleia will also retain the scenic value of the river.

Below right: Spraying the Waimarino River margins.

Photos: Ang Paget

The wordy 'Waimarino River Riparian Weed Control' project title does little to reflect that it is a popular work programme and always well anticipated by staff. The numerous river crossings, unique infestation areas, and often priceless overnight stays sees seasonal and permanent staff returning to the project every year with intense enthusiasm for back country adventure and conservation gains.

Colloquially called 'the Waimarino', Turangi Taupo biodiversity staff have been working along the river margins since 2004 to control and eradicate a range of invasive weed species. These weeds threaten the long-term survival of some indigenous animals by changing or destroying their habitat, reducing availability of food or breeding sites or influencing the way native and introduced animals behave.

Buddleia, that woody purple-flowering plant so popular with butterflies, is a priority control plant in the Waimarino. Its invasive, hardy nature and ability to form dense growths and crowd out other plants means it is a significant threat, especially to whio. Many buddleia-clogged streams now offer poorer living environments for fish and plant life and reduced biological diversity. In the Waimarino, whio are at risk of losing their habitat if buddleia is left to establish.

Since 2004, biodiversity crews have methodically treated the spread of buddleia within the Waimarino using a range of ground and aerial tools. Helicopters are used to control buddleia on hard to reach cliff faces and steep slip areas, but the grunt work is undertaken by ground crews of five to eight who lug 15 litre knapsacks and spend hours scouring each river flat for buddleia and grey willow. Chainsaws and vigilant gel are also used especially on large adult buddleia.

Four years on and buddleia infestations are now a third of their original infestation as mapped in 2004. This is great news for whio who need high water quality with low sediment loadings, stable banks and a habitat abundant with invertebrate communities.



Junior Kaitiaki Rangers

Vision: To engage young people in the care of their environment through hands on conservation and leadership.

This is an exciting new programme involving ten schools from around the Ruapehu district. Each school has chosen two Junior Kaitiaki Rangers to be the leaders of conservation projects in the school. The students are in Year 6, 7 or 8 and are chosen for their interest in conservation and their leadership skills.

The 20 students began the programme with a weekend training course held at the Sir Edmund Hillary Outdoor Pursuits Centre. Over two days the students learnt about leadership, planning and team work. They shared their ideas for conservation projects to initiate at school, and experienced hands on conservation tasks, such as stoat trapping.

The students have worked hard during the year to implement conservation projects at each of their schools. With support from DOC, the students have chosen a project, identified the knowledge and skills they would need to help lead the project, and discussed how to motivate and involve their school and community. The projects have ranged from re-vegetation to waste minimisation, and the students have done a wonderful job of leading the projects at school.



Above: Ruapehu Districts' Junior Kaitiaki Rangers on their weekend training course at OPC.
Photo: Pat Lacy

In November the students were together again to work on the restoration of a small wetland in Ohakune. The land was generously retired from farm use by Atihau Corporation. The students planted over 120 native trees in and around the wetland. The area was fenced by local contractor John Luff and DOC staff, while volunteers from the Tongariro Natural History Society helped with the removal of weeds.

Since then a small weir has been built to stop the water draining out of the wetland, and a picnic table has been donated so that the area can be visited and used by the local community. All this would not have been possible without the generous support of many people. First and foremost the school principals who saw the value in this project and agreed to the students having time out of school to work on their projects. We also wish to extend a huge thanks to Atihau Corporation, Ngati Rangi, Ohakune 2000, Taupo Native Plant Nursery, Tongariro Natural History Society, OPC staff, John Luff and Custom Fleet for their support.

The Junior Kaitiaki Ranger programme will continue this year and will be one of the many tools that we use in the Ruapehu district to encourage life-long commitment to environmental protection and enhancement. Well done to all the students for their hard work and efforts last year.

Conservation Support Team highlights



Above: The whole team
enjoying a break from the
office.

Photo: Dave Wakelin

While we have been busy with ‘business as usual’ over the last year, much of the Conservation Support Team’s energy has been directed towards implementing the new national Strategic Directions. These were released in 2006, and are intended to guide shifts in what the department does, and the ways it does them. In particular they commit the department to moving to a more integrated approach to conservation. This is really exciting from our point of view as it means we are charged with finding new and innovative ways to engage the wider community in conservation. Hopefully, looking back from the perspective of 2016, we will see that the Department of Conservation has really shifted to engage more fully with our communities, and as a result conservation has a broader and deeper resonance in New Zealand.

The department developed its new focus based on the idea that New Zealanders want their natural and historic heritage conserved, and in order to foster this commitment to conservation, people must see there is value in it for itself, and for people’s enjoyment and benefit.

The over-arching purpose of the department is to increase the value that New Zealanders attribute to conservation.

This means as employees we are charged to try and achieve the following things.

“The department will seek to entrench conservation as an essential part of the sustainable social and economic future of New Zealand.”

Twenty years ago, when the department was established, conservation was perhaps viewed as a “nice to have”, where we could save pretty things if resources allowed. Thankfully times have changed, and it is increasingly understood in New Zealand that conservation and environmental protection are crucial to a sustainable future. Conservation areas are also core to our national identity, and our cultural and physical health.

“The department will be recognised as an effective manager of the lands, waters, species, historic places, and roles entrusted to it.”



Right: The survey team seem pleased to have finished a hard few days in the back country.
Photo: DOC

One third of New Zealand’s land is entrusted to the department’s care, and beyond that we have marine and freshwater roles, as well as responsibility for a large number of our nation’s historic places. Being an effective manager does not mean a universally applied standard. It requires judgement on what is appropriate at each individual site, as well as nationwide.

“The department will lead, guide, and facilitate conservation gains throughout New Zealand, wherever conservation is most needed.”

Increasing amounts of crucial conservation work is done by Councils, Iwi, business, and community groups. As a national conservation organisation with a great deal of conservation expertise, the department will offer its support for the best possible conservation outcomes. This is leadership of a “how can we work together” type rather than the “follow me” type, and

means we need to get out into the community to find out what people want from us.

“The department will weigh society’s values, nature’s inherent qualities, and scientific criteria in its decision-making.”

Our work is not simply a matter of acting on science. The science is invaluable but it cannot give us the entire picture. Conservation efforts take place within a social context. We both respond to that context, and work to expand the value attached to conservation.

“The department will actively promote outdoor recreation for New Zealanders, especially through fostering recreation, use, and enjoyment on conservation land.”

The resources we are responsible for provide extraordinary opportunities for outdoor recreation, and we will promote their prudent use for recreation and other activities. Recreation is often the gateway through which people begin to develop a wider appreciation for conservation.

Consequently, a major focus for our year has been the development of non-statutory, internal strategy documents. Their purpose is to give clearer internal guidance to the Areas’ operational plans, and to align the work that is done on the ground to the national Strategic Directions. This will ensure the best conservation outcomes from the limited resources that we have.

Joint conservancy-area functional groups were established to work through issues and to balance strategic and operational components. They have involved some frank discussions about the future, and have made some tough calls identifying those projects that will deliver the best bang for buck. We have to acknowledge we can’t ‘conserve’ everything on a limited budget, so we need to internally prioritise our work, and seek ways we can engage the community to help protect those things they see as a priority. While this process has so far been fundamentally internally



Above: Herwi Scheltus works the crowd at the Whakaipo Bay open day.
Photo: DOC

focused, in this way the strategies all look toward opening increased lines of communication with the wider community. Ultimately, this will be incorporated into the conservancy's new Conservation Management Strategy over the coming five years.

While this has been a fantastic opportunity to take stock of where we are, and how we want to move forward in the coming years, we haven't lost sight of some of the other major successes for the team

this year, which have included:

- Involvement in the new Tongariro Alpine Crossing Deviation.
- Successful involvement in securing joint funding to complete restoration of the Hapuawhenua viaduct, a New Zealand Archaeological Association project in partnership with Tongariro Natural History Society
- Development of a well-received Whakaipo Recreation Reserve landscape plan
- Completion of the Whakapapa Village Site and Landscape plan
- Completion of the Kaimanawa Forest Park Management Plan
- The implementation of a research project investigating the impact of deer browse on Kamahi regeneration.
- Strong involvement in the didymo incursion response, as well as increased work with large events around didymo advocacy and protection of freshwater values
- Involvement in a multi-agency response to the lahar, and broader volcanic risk management work in Tongariro National Park
- Presentation of lessons of the lahar experience at an international volcanology conference and workshop where the Crater Lake lahar and management were major items
- Response to 25 September Ruapehu eruption and subsequent reviews of ERLAWS and EDS to take into account lessons, and to prepare for future eruptions.
- Role in Antarctic Treaty governance as speaker for NZ delegation on Committee for Environmental Protection

While this year is also now seeing some upheaval, with a national review of conservancy staff, I am proud of what the team has accomplished over the last year and think this will stand us in good stead. They have taken the new directions by the horns, moving quickly to stimulate changes and innovations in the conservancy and to lead change by example. As the team moves forward to new challenges and opportunities for the conservancy, I can feel confident that they are continuing to strive towards the vision of our team charter-to use our collective ability to advance conservation.

Back to School

Weeds management is a key focus of my work for DOC. In England, I worked as a Countryside Officer and Ranger so I've had no trouble identifying weed species in my adopted country - after all most of those exotic plants had originated from my home country. However, coming to terms and being familiar with New Zealand's native plants and animals proved much more of a challenge.



Above: Lucy gets to know one of New Zealand's introduced pests a little too well!
Photo: DOC

New Zealand's native flora, fauna and ecology often left me stumped. I was frustrated, yet excited and challenged at the same time. Walking through the New Zealand bush was a restless experience because I didn't know the names of plants and couldn't identify birdsong. And while I was eager to learn I just couldn't do it quickly enough.

Whether it's a weed, animal pest control or a restoration project I believe it's important to know how to manage the threats and to understand what you're trying to achieve in terms of conservation outcomes. It's enormously satisfying to share information with the public and work colleagues and my lack of in-depth knowledge of the New Zealand bush began to make me feel unfulfilled.

I decided to return to university to study for a Post Graduate Diploma in Science (Conservation Biology) at Massey University. The course combined strong practical field work with conservation and ecology theory and had been designed in consultation with conservation and environmental organisations like DOC, Landcare Research and Regional Councils.

I chose four papers: Conservation Biology, Wildlife Management, Plant Ecology and Environmental Education: Policy and Practice. To ease myself into once again being a student I enrolled in a summer paper, Vegetation Studies in New Zealand; otherwise known as 'botanical boot camp'!

As a mature student I thought taking a year off work to study would be the main challenge but there were others. Being twice the age of some of the students, commuting and finding accommodation for a few days every couple of weeks and studying all hours were some of the many I recall. But working my way through the collected fieldwork data, sorting, analysing and finding results gave me a real buzz.

The highlights were many from listening to kiwi on Ponui Island in Hauraki Gulf to Spirit Bay swamp. The year was over all too quickly. I now know a whole lot more about New Zealand's ecology, flora and fauna, my guesses are closer to the mark and my Latin and Maori have both improved. Getting a good pass mark was enormously rewarding and being able to share my knowledge is immensely satisfying.

I love to walk in the New Zealand bush, hear a bird sing and think, "I know you!"

World Heritage chairmanship

DR TUMU TE HEUHEU - DCNZM



Above: Tumu te Heuheu giving his opening address at the 31st session of the World Heritage Committee.
Photo UNESCO

Heritage is our legacy from the past, what we live with today, and what we pass on to future generations. Our cultural and natural heritages are both irreplaceable sources of life and inspiration. Places as unique and diverse as the wilds of East Africa's Serengeti, the Pyramids of Egypt, the Great Barrier Reef in Australia and the Baroque cathedrals of Latin America make up our world's heritage.

What makes the concept of World Heritage exceptional is its universal application. World Heritage sites belong to all the peoples of the world, irrespective of the territory on which they are located.

New Zealand's Involvement

In 2002, Hugh Logan who was the Director General of the Department of Conservation at that time, put New Zealand's name forward to be nominated as one of the 21 countries that make up the World Heritage Committee. After much lobbying, New Zealand was appointed to the committee in 2004 for a four year term.

Tumu te Heuheu, paramount chief of Ngati Tuwharetoa was appointed as the head of the New Zealand delegation, and the Department of Conservation was chosen as the host government agency.

The New Zealand team included representatives of the Department of Conservation, New Zealand Historic Places Trust (NZHPT), Te Puni Kokiri and Ministry of Foreign Affairs & Trade (MFAT). The NZ team at Christchurch consisted of Tata Lawton (DOC, Tumuaki, Kahui Kura Taiao), Paul Green (Conservator, Tongariro-Taupo), Prof. Alexander Gillespie, Aiden Challis (NZHPT) and Linda Te Puni (MFAT).

Also integral parts of the team were two advisors to support Tumu te Heuheu, John Paki and George Asher, nominated and sponsored by the Ministry of Maori Affairs and Ngati Tuwharetoa respectively.

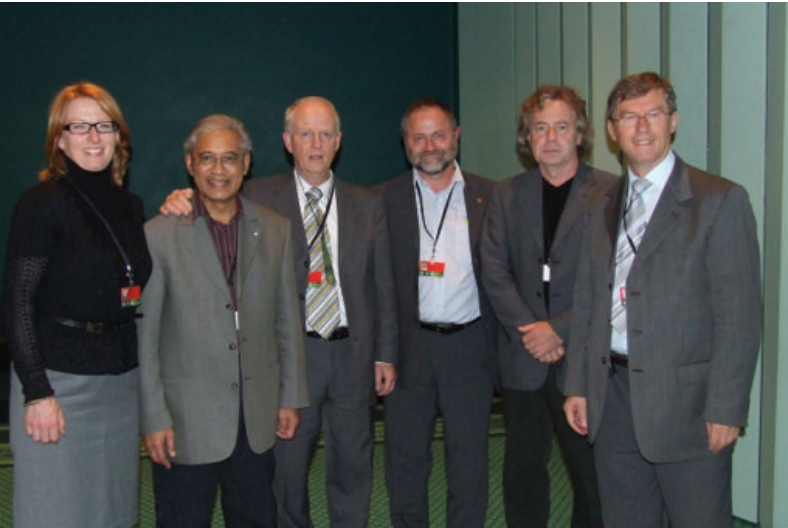
The term for New Zealand was from 2004 to 2007.

New Zealand takes over chairmanship

In July 2006 at the 30th Session of the committee in Vilnius, Lithuania, New Zealand's representative Tumu te Heuheu was nominated to take over the chairmanship of the 31st Session for 2007.

The appointment of Dr Tumu te Heuheu as chairman of the world Heritage Committee was important for several reasons. Not only was it a prestigious post reflecting confidence in New Zealand's international role and ability, there is a unique link between Mr te Heuheu and the Tongariro World Heritage site. Mr te Heuheu is a direct descendant of Ngati Tuwharetoa Paramount Chief te Heuheu Tukino IV, who in 1887

The 21 countries were made up from Argentina, Benin, Chile, China, Colombia, Egypt, India, Japan, Kuwait, Lebanon, Lithuania, Netherlands, New Zealand, Nigeria, Norway, Oman, Portugal, Russian Federation, Saint Lucia, South Africa, United Kingdom of Great Britain and Northern Ireland.



Above: Tumu te Heuheu with Olaf Briseid and the rest of the Norwegian delegation.

Photo: Kim Alexander-Turia

‘gifted’ the sacred peaks of Tongariro to the nation, creating the first national park in New Zealand and the fourth in the world.

As chair he visited a number of countries and World Heritage sites to gain an appreciation of their significance, and also to look at a number of endangered sites. Some of the visits included, The Tower of London and Stonehenge in Britain, Historic Centre of St Petersburg in Russia, Taj Mahal in India and the Galapagos Islands straddling the Equator in the Pacific Ocean, to name but a few.

A major goal for Dr te Heuheu during New Zealand’s time on the committee was to advance the interests of the Pacific peoples and ensure the United Nations communities no longer overlooked the outstanding value of the Pacific and its cultures.

Leading up to the 31st Session of the committee being held in Christchurch New Zealand, Dr te Heuheu also hosted the Pacific World Heritage Workshop at Waitetoko Marae, Lake Taupo in February 2007. These Workshops focused on assisting Pacific Island nations in identifying potential World Heritage sites and preparing formal applications for World Heritage status.

A number of key outcomes were established by the end of the workshops. Vanuatu stood out as having made considerable progress by completing their nomination and management plan for Roi Mata to be inscribed on the World Heritage list. Roi Mata is an area that includes the principal kastom places connected with the history of Chief Roimata. Vanuatu also announced its intention to stand for the Reserve Seat on the World Heritage Committee at the elections in October 2007. The workshop also prepared a Pacific position paper that was presented at the 31st session. The Pacific is significantly under represented for World Heritage sites and the paper addressed ways in which this situation remedied. Another important development during the workshop was the signing off of the management plan for East Rennell World Heritage Area - the only Pacific site other than Australia and New Zealand to be on the World Heritage list.

New Zealand also proposed that a “Fifth C” - Communities - be added to the four existing strategic objectives which were adopted by the World Heritage Committee in 2002 (Credibility, Conservation, Capacity-building and Communication). The paper from New Zealand proposed that “communities can take many forms, including local, traditional and/or indigenous peoples”. The World Heritage Committee welcomed New Zealand’s proposal and added the “Fifth C” to the existing strategic objectives of the committee.

An untimely interruption

Whilst visiting the Galapagos Islands on his final world heritage visit the chairperson suffered ill health, and upon his return to New Zealand Dr te Heuheu required some time for recuperation. He continued to provide leadership with the support of Mr Ole Briseid, Head of the delegation

from Norway and deputy chair.

Mr Briseid agreed to share the chairmanship of the conference, an arrangement which worked exceptionally well, and on the final day Tumu presented Ole with a pounamu Taonga in appreciation of his help and assistance.

New Zealand hosts the 31st Session in Christchurch – 23rd June to 2nd July

The venue of the 31st session was held at the Christchurch Convention Centre and Town Hall. It hosted over 800 delegates including the UNESCO World Heritage secretariat team, consisting of around 40 people and DOC staff. As Dr te Heuheu reminded us all at the opening ceremony ‘the committee is an amazing forum where people and cultures come together and exchange distinct views of natural and cultural heritage with the rest of the world’.

The Department of Conservation, along with Ngati Tuwharetoa and the host tribe Ngai Tahu worked together to ensure the event was one to be remember. Dr te Heuheu felt it was appropriate to introduce a uniquely New Zealand component to the conference, and waiata became a normal part of the daily routine. The waiata, Ko Tenei te Wa was sung before the delegates commenced work each day. This helped to soften the ‘business-like’ atmosphere of the conference, and gave the proceedings a distinctively cultural and spiritual feeling.

Throughout the conference the days were long and arduous with the shared chairs and advisors meeting at 8am, followed by a bureau meeting at 8.30am and then the 31st Session commencing at 9am everyday.

The bureau consists of seven States Parties elected annually by the committee: a chairperson, five vice-chairpersons, and a rappateur.

The bureau of the committee coordinated the work of the committee and fixed the dates, hours and order of business of meetings. When the Session started to exceed its timeframe night sessions were held to play catch up and adding to what was already an exhausting schedule.



Right: The Pacific had a large presence at the 31st Session of the World Heritage Committee.
Photo: Kim Alexander-Turia

The Kohatu – rock

Ideally Tumu wanted to hold the conference in Tongariro but logistically it could not happen. He had the idea to bring a little piece of Tongariro to the 31st Session and Herwi Scheltus; Landscape Architect for the Tongariro-Taupo Conservancy was sent on a mission up the mountain to find an appropriate Taonga. From those identified, Tumu chose a two tonne kohatu. Logistically it was going to be a challenge to get it off the mountain and down to Christchurch. But these minor issues were overshadowed by the cultural importance of the kohatu which symbolized the important link between Tongariro and the role of the World Heritage Committee. A steel frame was made up by an engineering firm to help transport the kohatu with a special kete (flax basket) made by local weavers to protect the kohatu for its long journey to the South Island.

The kohatu, a gift to Ngai Tahu, was the centre-piece attraction at the Christchurch venue of the 31st Session of the World Heritage Committee. At the conclusion of this session it was transported to Tuahiwi Marae for safe keeping awaiting its final journey to its ultimate destination, the DOC Visitor Centre on Aoraki, Mt. Cook.



Above top right: Herwi Scheltus and Tumu te Heuheu inspecting the kohatu. Above bottom right: Centre stage at Christchurch.

Photos: Kim Alexander-Turia

Right: Tumu te Heuheu presenting UNESCO with a tapa cloth from the people of Tonga.

Photo: Herb Christophers

A great deal of the chair's role was committed to meeting delegates. These delegates were seeking advice and support in bringing sites to the attention of the World Heritage Committee for consideration. One such site which was being put forward to gain World Heritage status was the Hindu temple of Preah Vihear which Cambodia unilaterally proposed to get world heritage listing. The difficulty with this site is that it is on the border between Thailand and Cambodia, and includes the territory of both states, which meant the Dr te Heuheu had to facilitate an agreement between two independent nation states. It is often hard enough to find agreement when the site is contained within a single nation, so this example provided a new set of challenges. There was much political position taking before the state parties agreed to the future listing of the temple as a world heritage site for joint tourism development and mutual benefit.

As the 31st Session came to an end a new chairperson was nominated to run the 32nd Session. That honour went to Mrs Christina Cameron from Canada, who will chair the next Session to be held in Quebec, Canada, mid 2008.

The Outcome

The 2007 session ended with the singing of the waiata 'Maranga,' composed by Bill Prentice, which was sung by all the staff who took part behind the scenes, including the World Heritage Secretariat and Ngati Tuwharetoa.

The 31st Session of the World Heritage Committee inscribed 22 new sites on UNESCO's World Heritage List during its session in Christchurch. The new inscriptions include 16 cultural, five natural and one mixed, cultural and natural property.

Sydney Opera House (Australia) was listed as a cultural property, a great architectural work that brings together multiple strands of creativity and innovation both in architectural form and structural design.

The Arabian Oryx Sanctuary (Oman) was de-listed from the World Heritage List on the grounds that it had lost its Outstanding Universal Value and its integrity.

It was reported that the current population of Arabian Oryx on the property was no longer viable, that the State Party had reduced the size of the Arabian Oryx Sanctuary to approximately 14% of its former size, and that hydrocarbon exploration is to be pursued within the original boundaries of the property. This is the first ever de-listing of a World Heritage property.

After the additions made this year, UNESCO's World Heritage List numbers 851 sites, including 660 sites of cultural significance, 166 natural sites and 25 mixed sites.

They were 12 action packed days, and Lianne Fraser and I returned to work at DOC in Turangi feeling in desperate need of a holiday. Needless to say, I have only briefly touched on what was a huge effort by those of us from the department who were lucky enough to be involved, and apologies must go out to those I haven't had the space to mention.

The final words are given to Mr Tumu te Heuheu who refers to Māori whakatauki (proverb) that signifies the importance of our heritage to the land

Mā te Rautāwhiri e tobu mai me pēhea rā The Rautāwhiri tree shows me how to plait the rope

I te taurabere i te tangata That binds me from the land to the sky

Mai i te whenua ki te rangi The sky to the land, to my family

Mai i te rangi ki te whenua My sub-tribe

Mai i te Tangata ki tana whānau My tribe

Ki tana hapū My world

Ki tana ao Indeed my lineage is the binding rope

Ko taku whakapapa tonu te here

It is this one focus that underpins the combined efforts of all countries to protect those sites that reflect who we are as a nation, as a country and as a people.

What's in a name?



Above: A truly alpine experience.
Photo: Jimmy Johnson

It's still an 18.5km trek over some of the most dramatic scenery in New Zealand. At the end your knees may still be a bit shaky and that cold drink you cleverly arranged to leave in the chilly bin is just as welcome. The difference is in the name.

New Zealand's most popular one-day trek across Mt. Tongariro in the central North Island is now called the Tongariro Alpine Crossing. The new name better reflects the nature and terrain of the track and coincides with the start of the Great Walks season.

The name change was decided at a meeting between representatives from Tourism New Zealand, the Department of Conservation, the Tourism Industry Association, the Ministry of Tourism and the New Zealand Police. The meeting was held to discuss safety aspects of the track and follows concerns that many visitors who undertake the Crossing are under-prepared both in terms of equipment and expectation.

Advising the public and the tourism industry of the name change is complex. Think of all the signs, brochures, websites, t-shirts, books, tramping guides, advertisements and vehicle livery that need updating and you start to get the picture. We're working closely with Tourism New Zealand, local I-sites and tourist operators to get the message across. Realistically it will take several years.

Other practical initiatives to improve public safety included upgrading the track surface and constructing an alternative track which avoids the steep climb up the 'devil's staircase'. New signs at strategic points suggest visitors turn back if their fitness or the weather is failing. Volcanic hazard signs have also been added. We hope to improve the descent from Red Crater to Emerald Lakes, where many injuries are known to occur.

The Tongariro Alpine Crossing is easily accessible and impressing the changeable nature of its alpine conditions is an ongoing challenge.

"It's an 18.5 kilometre rugged trek over a mountain and also has some of New Zealand's most stunning landscape," says Dave Lumley, the Turangi Taupo Area Manager for DOC. "People often get caught out because they don't realise how quickly our weather changes or the level of fitness needed."

Dave says that although guiding is not currently allowed on the Tongariro Alpine Crossing, DOC has indicated that using professional guides is one of several tools that will assist to improve public safety. A section of the track crosses private land and the owners are in the process of preparing a management plan for permitted activities. It's not yet known whether this will include guiding.

An estimated 65,000 people traverse Mt. Tongariro each year.

See the article on the new deviation on page 31.

Free information leaflets on the Tongariro Alpine Crossing are available from the Whakapapa Visitor Centre.

After the volcanic events of 2007 - towards improved management of volcanic risk

Following the events of 2007 we began a learning period of review with an eye to improving management of volcanic risk posed by Mt Ruapehu and other volcanoes in Tongariro National Park. We have a unique opportunity at present to improve and consolidate this management by using resources, experience and goodwill gained from successful management of the 18 March dam-break lahar risk in the Whangaehu Valley, and from the reminder given by the September eruption.

The greatest volcanic risk to people in Tongariro National Park is on Whakapapa Ski Area and in the Summit Hazard Zone on Ruapehu. To most people this reality had been obscured by the 1953 tragedy, the pending dam break lahar and uncertainties with it. The sudden eruption on 25 September 2007 highlighted again the real situation.

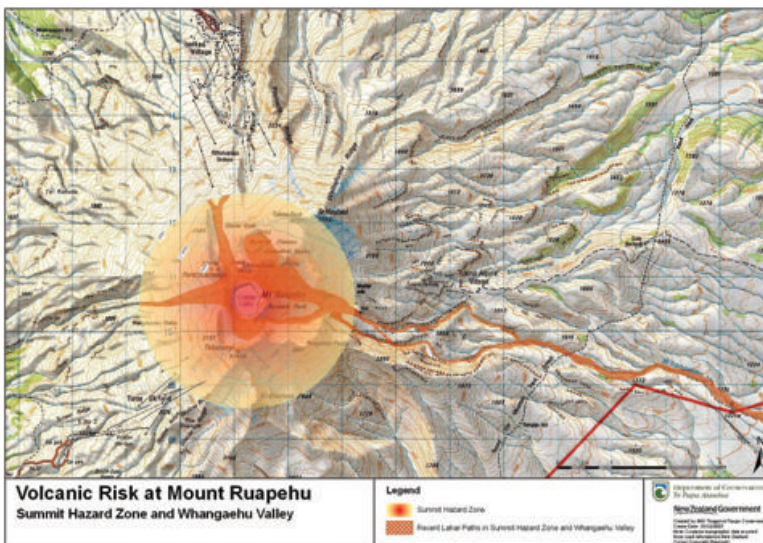
Ruapehu is a very active volcano and even small eruptions create threats to people and challenges to civil authorities. Since January 1945 there have been six major eruptions or lahars that posed significant threats to people and property beyond the boundaries of Tongariro National Park, including the infamous 1953 tragedy. In this same 63 year period there have been 11 eruption episodes which have been large enough to threaten anyone within about two kilometres of Crater Lake (the Summit Hazard Zone) and to generate volcanic mudflows or lahars large enough to be hazardous in at least one valley on the volcano. There have been five documented cases of serious injuries to people or near-misses during these 11 eruption episodes on Ruapehu, three of which occurred in the last two episodes. One lahar-generating episode has occurred per 5.7 years on average.

During four of these eruption episodes lahars have flowed into or through parts of Whakapapa Ski Area. This represents on average 1 “Whakapapa”

event per 15.7 years since 1945 at intervals of 6, 20 and 12 years apart. In 1995 lahars were measured at speeds of up to 90 km/hour entering the area serviced by the Far West T-bar in 1 minute 33 seconds (Three Boys Bowl) to 2 minutes 23 seconds (Turnpipe) and to the Far West T-bar queue site (since moved from there) within 3 minutes 28 seconds.

Due to the ever-increasing popularity of Mt Ruapehu and demands on it, DOC managers and civil authorities must now expect that during any eruption it is highly likely there will

Below: Map showing the area within two km of the centre of Crater Lake which defines the generalised Summit Hazard Zone on Ruapehu that is subject to eruption blasts and fallout of flying rocks, and the main areas where erupted water collects to form lahars.
Map: DOC



be one or more people within three kilometres of the crater, in either the Summit Hazard Zone or a lahar path in Whakapapa Ski Area. These will be climbers, skiers, snow boarders, outdoor instruction and school groups or other recreationists, tourists trekking up to view the crater, or snow groomers or other staff of Ruapehu Alpine Lifts. Given average return periods we think it is now quite likely there will be a fatal eruption on Ruapehu within the next 6-13 years unless something changes.

It is clear that the level of risk management successfully achieved in the Whangaehu Valley has not been achieved elsewhere in the Park. Given the unpredictability of Ruapehu where about half of the hazardous lahar-producing eruptions happen without warning, some expectations of the media and communities at risk may be unrealistic, particularly when they

compare the successful management outcome of the dam break lahar. However, it is clear that the current residual risks to people from lahars in Whakapapa Ski Area and in the Summit Hazard Zone on Ruapehu are too large with just the existing management arrangements. While not all risks to people can be eliminated in this dynamic environment some can be better mitigated than they are at present.

We believe it is quite feasible to improve the ability for systems, and management in general in Tongariro National Park and around it, to warn people and agencies. The Eruption Detection System can be upgraded

and integrated with the Eastern Ruapehu Lahar Alarm and Warning System, at least as far as management and response are concerned, both inside and beyond the boundaries of TNP. Applying lessons learnt about what is involved in operating reliable warning and response systems on Ruapehu will reduce the residual risk from lahars and volcanic hazards generally. Continuing to support research and monitoring of the volcano will assist the prediction of volcanic events and response of people to warning systems. Raising awareness among target groups will also help.

Current and Planned Actions

Our current actions and plans to help reduce risks can be summarised as:

- focussing more on volcanic risk management in the Whakapapa Ski Area and the Summit Hazard Zone on Ruapehu, while retaining and improving roles in support of the police, GNS Science, Ruapehu Alpine Lifts and others in regard to public safety on all the volcanoes and a somewhat reduced role for lahars in the Whangaehu;
- supporting the regional councils who are leading the reconstitution of lahar planning groups into a “Central Plateau Volcanic Advisory Group” with three subgroups: science, planning and response, and



Above: Aerial view of Mt. Ruapehu's Crater Lake taken in April 2008, showing snow discoloured from the ash and debris of the 25 September 2007 eruption.
Photo: Dave Conley

Right: Allan McKenzie (DOC) and Tony Hurst dismantling ERLAWS site 1 in January 2008, with the effects of the 25 September eruption on the modified lake outlet area and Crater Basin Glacier visible behind.
Photo: Karen Williams



- public education and media links. DOC was well represented at the first meeting on the first anniversary of the 18 March lahar;
- discussions with regional councils to clarify the legal responsibility for warning and response systems on Ruapehu and Tongariro National Park generally;
 - reviewing the Eruption Detection System with the Institute of Geological and Nuclear Sciences, including achieving some level of integration with the Eastern Ruapehu Lahar Alarm and Warning System;
 - reconfiguration of the Eastern Ruapehu Lahar Alarm and Warning System to take account of the changed risk environment since 18 March 2007, and lessons learnt following the ERLAWS review (December 2007).
 - updating of our response plans during and following this work, and continue working with other agencies around the volcanoes, advocating that their response plans be extended to cover all significant volcanic hazards and integrated with each others' plans;
 - increasing work with communities particularly at risk (skiers etc and ski clubs at Whakapapa, users of the Tongariro Alpine Crossing) to raise their awareness, and manage their expectations.

We are confident that through our relationships with agencies individually and within the CPVAG we can achieve the desired outcomes. Improving the efficiency, reliability and efficacy of warning and response systems are key to reducing the residual risk from lahars in Whakapapa Ski Area and volcanic hazards generally.

Learning from the lahar and documenting the lessons

We learnt the importance of learning lessons from the 1995-97 eruptions and of documenting them. This process commenced with the Tongariro Journal and immediate science reports straight after the 18 March lahar and will continue for some time yet. With Horizons and Ruapehu

councils, DOC co-sponsored a major workshop on 4 September 2007 which debriefed the well planned and coordinated response to the 18 March lahar and received updates on the research done on it. A workshop on 19 December 2007 convened by DOC in conjunction with the police debriefed the response to the 25 September eruption. The management of the Crater Lake issue and research on the 18 March lahar were major topics of interest at the international Cities on Volcanoes 5 conference held in Shimabara, Japan, in November 2007, and a subsequent workshop at the Hokkaido University in Sapporo. Analysing data on the 18 March lahar obtained by teams lead by Drs Shane Cronin and Vern Manville from Massey University and GNS Science will take some years yet but is already showing its national and international significance.

Work is ongoing to fully understand the factors which determined the size, and flow rate of the 18 March lahar. Table 1 summarises these updating them from the 2007 Tongariro Journal. The breach in the dam developed more rapidly than predicted and the lahar discharge at Tangiwai was somewhat smaller than predicted by the Science and Technical Advisory Panel. The apparent contradiction between these two factors is likely to be due to the complexities in calculating lahar discharge and sediment concentration which are major themes of the ongoing research. However most of the predictions about the most likely dam break and resulting lahar were accurate, and as Paul Green noted last year this demonstrated the excellent science that was able to address and understand this particular hazard. This should give us confidence that, with further improvements in research, monitoring, information transfer and integration, science will help reduce the residual risk from volcanic hazards in and around Tongariro National Park.

PARAMETER	18 MARCH	PREDICTION (MOST LIKELY CASE)	SOURCE
ANTECEDENT DAM BREAK CONDITIONS	Lake rising, seepage through dam causing retrogressive toe erosion & breach, waves, rain	Lake rising, seepage through dam causing retrogressive toe erosion, waves, etc	Fell/STAP 2003, Gillon et al 2005
LAKE LEVEL AT BREAK	2535.8 m	Nearing or >2536 m	Fell 03 etc as above
LAKE LEVEL AT BREAK	2529.3 ± 0.05 7.6 m	2529.3 ± 0.3 7.6 m	Keys 2005 & R Forrest
WATER RELEASED	1.3 million m ³	1.4 million m ³	DOC/STAP 03
BREACH WIDTH	40 m	Up to 60 m	Webby/STAP 03
BREACH DEVELOPMENT TIME	10-12 minutes	15-45 minutes	Webby/STAP 03
SEDIMENT BULKING & DEBULKING RATES	peak ~ 3-4; quite rapid debulking	peak ~ 4; slow peak ~ 5; rapid	STAP 03 Manville 05
DISCHARGE AT TANGIWAI	990 m ³ /s (70% larger than 1953)	1200 325-650	STAP 2003, Manville/Cronin 05, 07
FLOW DEPTH AT TANGIWAI	5.5 m plus bow wave	6.9 m	Webby & co/STAP
TRAVEL TIME	2.0 hr	2.1 hr	Webby & co/STAP

TABLE 1. COMPARISON BETWEEN ACTUAL AND PREDICTED PARAMETERS INFLUENCING THE LAHAR INITIATION AND HAZARD. DETAILED REFERENCES ARE AVAILABLE ON REQUEST.



Hands up if you want to make a difference

Hands up - if you want to be part of a active group that for more than 23 years has lent a helping hand to Tongariro National Park and other conservation areas.

Hands up - if you like helping conserve our heritage in a practical fashion

Hands down - onto paper or keyboard if you want to know more

Write to us at
Tongariro Natural History Society Inc.
P O Box 238, Turangi

email: info@tongariro.org.nz
or find us online at www.tongariro.org.nz





New Zealand Government