



**OPERATION MANGATAWAI**  
**SEARCH AND RESCUE OPERATION**  
**12 AUGUST - 9 SEPTEMBER 2017**

**PREPARED FOR NZSAR COUNCIL BY:**

**WIN VAN DER VELDE**

**MAY 2018**

## TABLE OF CONTENTS

<b>Executive Summary .....</b>	<b>4</b>
<b>Review Methodology.....</b>	<b>5</b>
Scope.....	5
Methodology .....	5
Terms of Reference .....	5
Acknowledgement .....	6
<b>Background.....</b>	<b>7</b>
Scene.....	7
Initial Scene Examination .....	8
Search and Rescue – Day One .....	9
First 111 Call .....	9
Second 111 Call.....	10
Third 111 Call.....	10
<b>SAROP.....</b>	<b>12</b>
Search Day 1 – Sunday 13 August.....	12
Search Day 2 – Monday 14 August .....	13
Search Day 3 – Tuesday 15 August .....	15
Search Day 4 – Wednesday 16 August.....	15
Search Day 5 – Thursday 17 August.....	16
Search Day 6 – Friday 18 August .....	16
Search Day 7 – Saturday 19 August .....	17
Search Day 8 – Sunday 20 August.....	17
Search Day 9 – Monday 21 August .....	18
Search Day 10 – Saturday 26 August .....	18
Search Day 11 – Monday 4 September 2017 .....	19
Search Day 12 – Tuesday 5 September 2017 .....	19
Search Day 13 – Friday 8 September 2017 .....	20
Search Day 14 – Saturday 9 September 2017 .....	20
<b>SAROP REVIEW.....</b>	<b>21</b>
<b>A: The IMT tools and arrangements.....</b>	<b>21</b>

B: Search Areas .....	24
C: Search Resources .....	25
D: Whanau and Iwi.....	27
E: Management of Family and other Volunteers .....	30
F: SAR Skills and Equipment of SAR volunteers, Police, Defence and other searchers. ....	31
G: Media Relations.....	37
<b><i>Opportunity for Improvement.....</i></b>	<b>39</b>
Use of SAR Dogs .....	39
Police Communications Centre .....	40
PCL advancement.....	41
Cell Phone Tracking .....	41
Training and Development .....	42
<b><i>Recommendations.....</i></b>	<b>43</b>
Summary of Findings .....	43
SAR Notifications .....	46
Best Practice .....	48
Technology .....	49
Role of IWI .....	51
Training and Development .....	52
<b><i>Annex 1.....</i></b>	<b>53</b>
Operation Time line.....	53

## EXECUTIVE SUMMARY

At 2.50pm Saturday 12 August 2017, two young men drove a stolen vehicle between Waiouru and Turangi, along SH1, Desert Road at speed. On being observed by a Police Highway Patrol vehicle, the stolen vehicle increased their speed to such a level, the pursuit was abandoned by Police.

At 4.30pm, this vehicle was located by a hunter, parked in bush approximately 4 km down Tree Trunk Gorge Road from SH1. An initial examination of the scene by the hunter and a responding Police officer revealed two sets of footprints leading from the vehicle, along a power pylon track and into thick bush near the Mangatawai stream, Kaimanawa Forest Park. Due to the length of elapsed time, fading light and potential risk the suspected offenders posed, no search of the bush area was undertaken, the vehicle was recovered, and all Police removed from the area.

The following morning, Police were first notified by the father of one of the young men, and then received three 111 calls from the lost men seeking Police assistance to locate and rescue them. The callers claimed they were suffering from hypothermia, one had a possible head injury and their clothing was wet through, to the point one had removed down to his underwear to stay warm.

The Probable Caller Locate (PCL<sup>1</sup>) telecommunications data was recorded from two of the calls, one being handset data, providing a starting point for the search area. A trained search team comprising sworn Police officers and Police SAR qualified dog and handler were deployed into the bush area by helicopter, and two separate search patterns were undertaken. During the search and appeals, voices were heard, however no verbal or direct contact was ever made.

On night fall, the deployed helicopter, utilising infra-red videography in the area, identified two possible objects of interest. Although now dark, the decision was made for the search team to redeploy into the area and identify the suspect objects. A thorough search of the suspect area was completed until late into the evening, without success.

That evening weather continued to deteriorate, with sleet and rain coming off Mt Ruapehu and temperatures dropped to near zero degrees.

A further 28 days passed with Police and search volunteers continuing to deploy varying sized and skilled search teams to carry out detailed searches of the area, until 9 September 2017, when the bodies of the two men were located approximately 2.5 kilometres from the original PCL handset data location.

Inquiries with a NZDF hypothermia subject matter expert, indicated that the men would have been cold Sunday morning when they made their phone calls, however once the sun rose and air temperature warmed, their behaviour indicated they probably decided to walk out rather than waiting for the Police rescue, and thus avoid arrest also.

There is no indication of any attempt by the missing men, to contact the ground search teams or the helicopter working the area. That night, the temperature was extremely cold, supplemented by hunger and exhaustion, hypothermia would have been highly probable in the 24 to 36 hours that followed.

505 person days were committed to this search, involving 53 sworn police, 22 NZDF and 157 Search and Rescue (LandSAR) members.

---

<sup>1</sup> Probable Caller Location is a system managed by MBIE and available to Police, Ambulance and fire emergency services to locate caller cell phones only in cases of emergency 111 calls.

## REVIEW METHODOLOGY

### SCOPE

This review is limited to all matters relating to the Search, Rescue and Recovery operation known as, Operation Mangatawai. The review covers the period Saturday 12 August 2017 through to the recovery of the bodies of Vincent Taurima and Hakopa Ngaronoa on Saturday 9 September 2017.

The scope of this review does not include the investigation into the stolen motor vehicle, or associated pursuit by Police on Saturday 12 August 2017, nor does it include post the recovery of the men, and the subsequent Coronial investigations.

### METHODOLOGY

I have carried out this review, through examination of existing policy and procedure, interview of several persons actively or personally involved in the SAROP, and through the interview of subject matter experts. I have considered the operational debrief commentary and had the opportunity of looking through the operational file.

### TERMS OF REFERENCE

1. To gain an understanding of the sequence, times of events and key decisions relating to the Search and Rescue Operation (SAROP) Mangatawai conducted in the Tongariro National Park during 13 August to 9 September 2017 inclusive. The operation was successfully resolved by locating the bodies of the missing persons. Due to its complexity, length and scale, this operation presents an excellent opportunity to identify systemic issues and allow the wider SAR system to learn from the experiences gained.
2. Ascertain whether the search and rescue arrangements, documentation and procedures utilised for this SAROP and its Incident Management Team (IMT) are sufficient, relevant and appropriate for an operation of this nature.
3. Review and consider the appropriateness and/or utility of the following specific aspects of the SAROP with a view to improving and/or refining SAR systems, processes, skills, equipment and technology:
  - a. The IMT tools and arrangements including search tools, planning, investigation, intelligence, information flow and information analysis used and applied during this SAROP.
  - b. The positions and sizes of areas to be searched and the teams, skills and equipment applied to those search areas, given the information available at the time.
  - c. The ability to scale, resource and support the search with appropriately trained personnel throughout the SAROP.
  - d. Family and Iwi liaison and support arrangements.
  - e. The management of family and other spontaneous search volunteers.
  - f. The SAR skills and equipment of SAR volunteers, Police, Defence and other searchers.
  - g. Media relations.

4. Identify any skill, equipment, technology, document, process or procedure that may have led to a significant information and / or performance improvement for this SAROP or SAROP of this nature.
5. Make recommendations as appropriate to the New Zealand Search and Rescue Council relevant to improving New Zealand's SAR system, its people, equipment, documentation, skills, processes and procedures.

#### ACKNOWLEDGEMENT

I would like to acknowledge the assistance and support received from members of the Op Mangatawai Incident Management Team, Search and Support personnel, subject matters experts and Iwi who assisted in this review, and allowed the use of maps and photographs to support the reader. Their professionalism and dedication are both respected and appreciated.

*He nui tonu ngā  
whakaaro mō te  
tokorua kua wehe atu.*

*Moe mai ra.*

*The memories  
are still with  
the two deceased.*

*May they rest in peace.*

## BACKGROUND

*To gain an understanding of the sequence, times of events and key decisions relating to the Search and Rescue Operation (SAROP) Mangatawai conducted in the Tongariro National Park during 13 August to 9 September 2017 inclusive. The operation was successfully resolved by locating the bodies of the missing persons. Due to its complexity, length and scale, this operation presents an excellent opportunity to identify systemic issues and allow the wider SAR system to learn from the experiences gained.*

Between late June and early August 2017, a Mazda Lantis was reported stolen in Palmerston North. The vehicle was believed to be in the possession of an associate of the owner, and her boyfriend, who was known to Police and flagged as a weapons user.

At 2.45 pm on Saturday 12 August 2017, this vehicle was observed by a Highway Patrol vehicle travelling at speed along SH 1 near the Tukino Access Road on the Desert Road. The vehicle was observed to have different registration plates front and rear. When the fleeing vehicle reached a speed in excess of 150 kilometres per hour, the pursuit was abandoned due to the level of risk placed on the public, the vehicle occupants and the police officer involved.

At 4.31pm the same day, a hunter contacted Police advising he had located a Mazda Lantis vehicle parked approximately 4 kilometres down Tree Trunk Gorge Road, and about 400 metres down a pylon access track.

At 4.45pm local Turangi Police arrived, and together with the hunter, examined the stolen vehicle and environs.

## SCENE



Tree Trunk Gorge Road runs off SH 1, near the area known as the Three Sisters. It is 38 kilometres from Waiouru and 24 kilometres to Turangi.

Tree Trunk Gorge Road runs for a length of 5.9 kilometres and provides access to the Kaimanawa Forest Park.

Immediately neighbouring Tree Trunk Gorge Road, is very dense, tall bush and scrub that feeds into the gorge and down to the Tongariro River. Tributaries that feed into the Tongariro river, include the Mangatawai Stream.

The search area comprised thick bush. During the day there was around 3 metres visibility, but at night that substantially reduced to less than a metre, even when assisted with torch lights. Along the rivers and tributaries, the bush thinned out to high canopy which made walking a little easier.

The thick bush was disorientating, and it was very easy to walk in circles if you didn't have a compass or GPS for bearings.

Several outdoor pursuits are undertaken in this area, including mountain bike riding, tramping, hunting, trout fishing and river rafting. Tree Trunk Gorge Road provides access to Tree Trunk Gorge track and onto several other tracks which surround this parcel of land.

The land is owned by local Iwi Tuwharetoa, who are the Kaitiaki<sup>2</sup> of the land, waters and surrounding area.

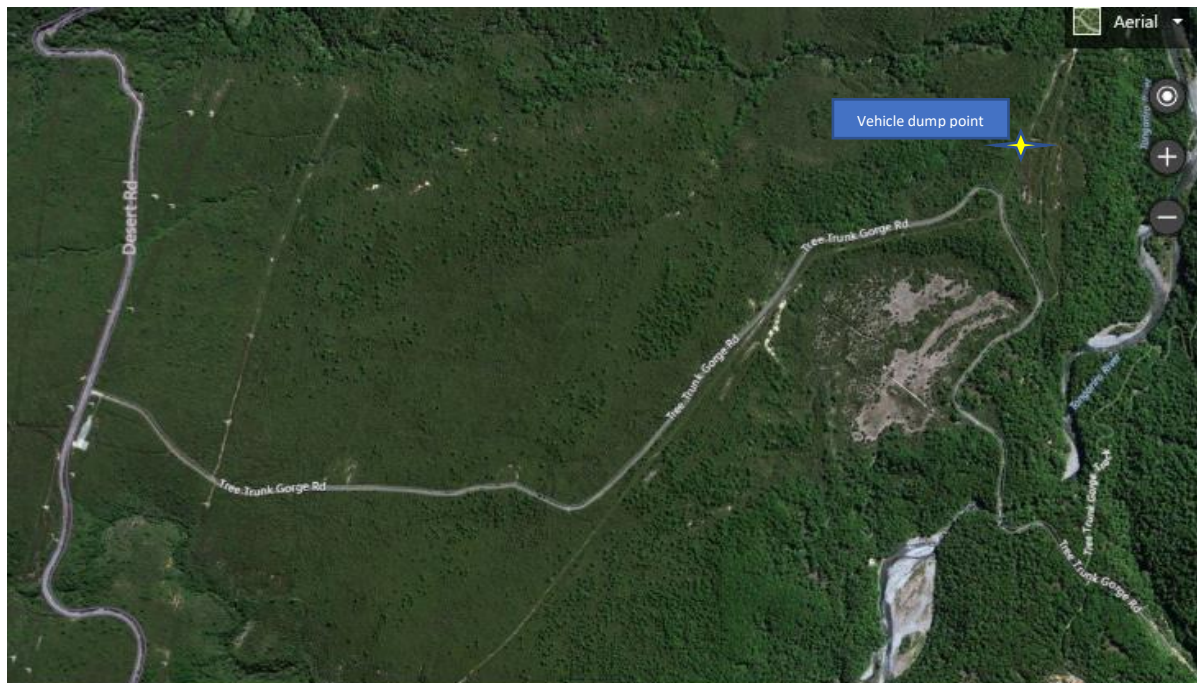


### INITIAL SCENE EXAMINATION

On Police arrival, the attending Police officer and hunter inspected the stolen vehicle and noted footprints that led from the vehicle into the bush, following a weathered pylon track.

At this time, it was unknown exactly how many occupants had been in the vehicle, or who they were, however historic intelligence suggested the occupants could be a female and her partner, who were known to Police and had a history of violence and carriage of weapons.

Due to the length of time that had passed since the original pursuit, and the challenging and changing environment, no Police dog was deployed into the area.



<sup>2</sup> A kaitiaki is a person or group that is recognised as a guardian by the tangata whenua (tribal group with authority in a particular area).



Although physical tracking a short distance was possible, due to the fading light, poor Police radio and cell phone coverage, and unknown risk to the Police officer and civilian by the suspects, the decision was made by Police management to withdraw their staff.

The plan of action taken, was to recover the stolen vehicle by tow truck, and withdraw resources, allowing the offenders to make their way out of the bush area to the State Highway. A media release was made indicating the abandonment of a stolen vehicle in the area and seeking the public co-operation should any persons be seen hitch hiking in the area.

A decision was also made to notify the local Search and Rescue coordinator. This did not occur.

#### SEARCH AND RESCUE – DAY ONE

At 6.37 am Police Northern Communications Centre (North Comms) received a telephone call from a distressed father who was outside the Turangi Police Station, advising that he had received a phone call from his son at 4.00am and his son and a mate were lost in the bush. The father had not heard back from his son and expressed real fears for their safety. The informant was not from the area, was not sure of his son's location, and became extremely upset. He believed his son was in *Green Tree Gorge*.

At 6.48 am, Police Southern Communications Centre (South Comms) received a call, this time from the estranged mother, also concerned for the safety of her son.

At 8.38 am, a Police highway patrol vehicle was tasked to patrol along SH1 to Tree Trunk Gorge Road should that be the area of interest.

Unsuccessful attempts were initially made by local Police to re-contact the father, until 9.03 am when he returned to the Turangi Police Station. He indicated that his son had called about an hour earlier, but the cell phone line had gone dead.

It was ascertained that the two missing boys were Vincent Taurima aged 21 years and Hakopa Ngaronoa aged 26 years. Both men were lost in the bush, lacked bush craft skills, and had been walking for several hours, however remained lost.

It was also ascertained that both men and the father of Vincent, were actively involved with the Mongrel Mob gang.

At 9.43 am the on-call Police Search and Rescue expert at Taupo was contacted by North Comms and provided an initial briefing of the situation. The Bay of Plenty District Operations Manager was also appraised of the situation, and the two men met at Taupo Police Station to plan their course of action.

#### FIRST 111 CALL

At 9.56 am, South Comms received a 111 call. The call lasted 5 minutes and 50 seconds. The caller provided his name as Matiu Ngaronoa (the name used by Hakopa Ngaronoa). Hakopa claimed he had been in the bush for two days, and knew he was somewhere off the Desert Road near Turangi, but that was all.

An attempt was made by South Comms to use a cell phone application known as *Mobile Locate*, to identify the exact location of the cell phone. At the time of attempting this locate, the cell phone battery was at 10% or less, and no response was received from the callers' cell phone.

### SECOND 111 CALL

At 10.26 am a second 111 call was received, this time from Vincent Taurima, lasting 6 minutes. The call was received by North Comms.

Vincent was concerned whether a Search and Rescue team was out looking for him. He identified that he was somewhere between the Kaimanawa Forest and Turangi, and when asked for his GPS location, Vincent indicated that he was at Green Tree hill off the Desert Road. He claimed to have gone into Google maps and ascertained he was in the Kaimanawa Forest.

He gave his identity and indicated to the call taker that they had already pressed the mobile locate beacon but was keen to know how long it would take to locate him.

Vincent advised that all his clothing was drenched, so he was only wearing a pair of shorts, and his skin was purple. He also advised that the person with him had a slight head injury and possible concussion, when he slipped down a hill the previous night. He was also soaked and very cold.

Vincent said that they had been looking for a track for hours and had reached a stage where he couldn't move his legs, couldn't feel his toes and couldn't feel his fingers.

When asked about his cell phone, he said that he had about 2% battery life left, however later in the conversation revealed he had a charger with him and his phone was showing 20%, but that reading could be unreliable.

Vincent requested a helicopter due to the nature of the bush and even the risk to searchers coming to find him.

Inquiries ascertained that Police had not received his locate signal. When queried if Police had sent a text message, Vincent indicated he had limited reading capability. Vincent was then talked through the process and confirmed he had pressed the Mobile Locater accept button. At no stage did Mobile Locate identify his cell phone location.

A search through Probable Caller Locate (PCL) data was made, and a PCL Handset (GPS) data of 175:47:44.8440 and 39:09:18:9360 was identified. This provided a radius search area of 889 metres, and provided a start point for the search team.

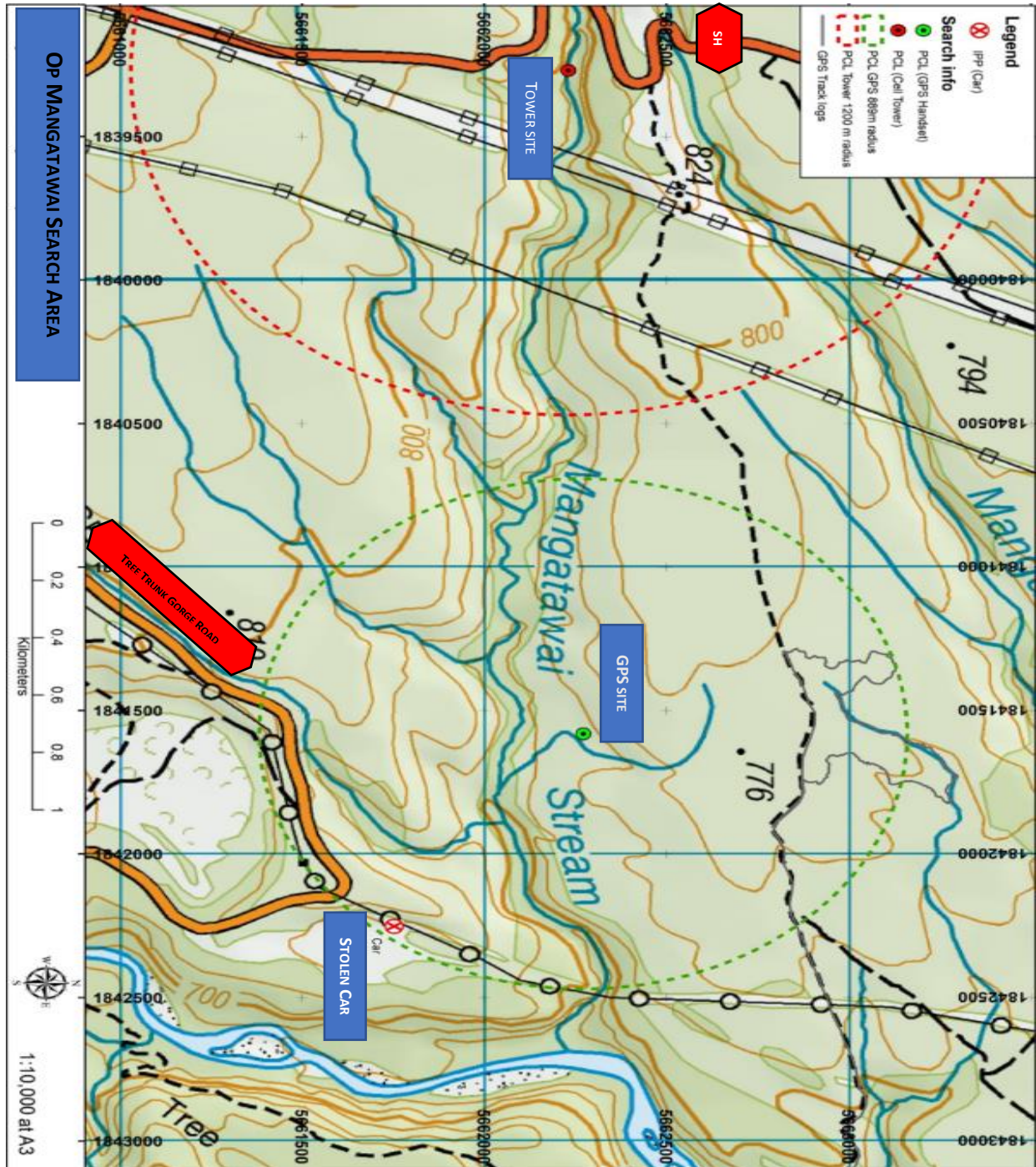
### THIRD 111 CALL

At 11.07 am a third 111 Call was received by South Comms from Vincent. Details of this call were immediately linked to the previous call they received at 9.56 am. This call lasted 8.06 minutes.

Vincent indicated he had just got off the phone from his father, and the searchers were an hour and a half away, and that it would take a further 45 minutes to get to them. His concern was that his friend was now having seizures and wouldn't last that long. Vincent was advised to keep himself, his friend and his phone warm and the searchers would be there as soon as they could.

From this call, PCL (Cell tower) data of 175:46:08:6520 and 39:09:22:5360 was obtained, which provided a search radius of 1200 metres from the PCL location.

### OPERATION MANGATAWAI SEARCH AREA

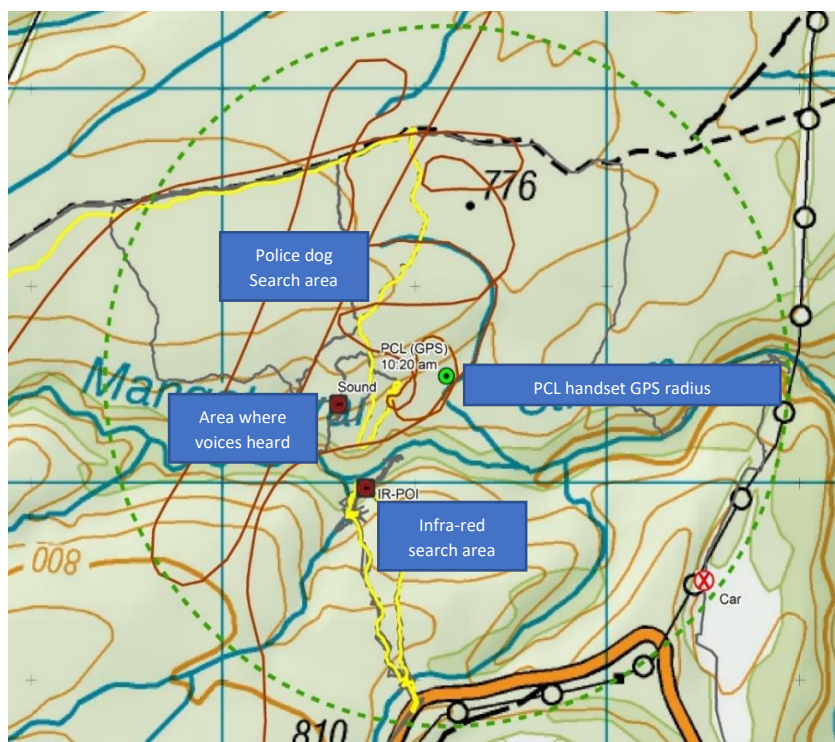


## SAROP

*Ascertain whether the search and rescue arrangements, documentation and procedures utilised for this SAROP and its Incident Management Team (IMT) are sufficient, relevant and appropriate for an operation of this nature.*

### SEARCH DAY 1 – SUNDAY 13 AUGUST

An Incident Control point was established in Taupo for the Search and Rescue operation (SAROP), and an assessment made of the situation. The two missing men were known to Police, were active gang associates who had fled from Police at speed the previous day. The two men had criminal histories including one who had breached his electronic bail for an alleged Aggravated Robbery. The men were also suspected of carrying weapons. The risk assessment carried out concluded that it was unsafe to deploy civilian searchers into the area, and only sworn Police personnel would be deployed.



Apart from the one Police Officer deployed, there were no more trained Police Search and Rescue (SAR) staff immediately available in the Taupo area, and staff from Rotorua were activated. They then drove to Taupo, before being flown into the area by helicopter. In consultation with the Bay of Plenty Police dog section supervisor, a SAR qualified Police dog and handler were also deployed from Whakatane.

At approximately 2.00 pm, the initial Rotorua searchers were split into two teams of two, covering the high probability search areas north of Tree Trunk Gorge Road, west of Tongariro River, South of area known as Pillars of Hercules mountain bike track and East of Desert Road.

At around 3.30 pm one of the search teams using their whistles, got a response in the form of a yell. The team used their compass to mark the direction of the yell and immediately headed in that direction. The search team continued voice and whistle appeals, and then heard voices from behind them. At no stage did they achieve any direct contact.

On being advised of voices on the second occasion, the second search team bush crashed and circled around to come behind where the voices were believed to have come from. Still no contact was made.

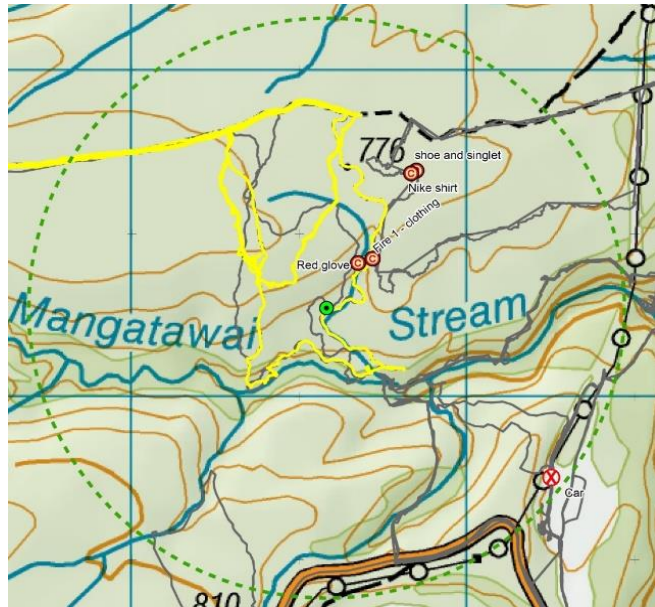
Whilst the ground search was underway, the helicopter also flew the area, carrying out an aerial search of the bush and the Mangatawai Stream. At this point, questions were raised whether the two men still wished to be located or were trying to avoid Police apprehension.

At 4.30 pm the Police SAR dog and handler were flown into the search area and winched into one of the search team locations to assist with the search.

At 5.30pm, as weather deteriorated, and the light started to fade, the decision was made to conclude the day's effort, and the Police search teams walked out to the main road, before being transported to Turangi Police Station for debrief at around 7.30 pm.

Just after dark, an aerial search of the area by helicopter, using an infra-red camera revealed two unidentified objects in the bush near the Mangatawai Stream.

Following consultation with the search teams, the decision was made to redeploy the team, to identify or eliminate this infra-red sighting. Due to deteriorating weather and light, the helicopter had to extract and return to Taupo.



The original search team was supported by 2 additional sworn members from Taupo, and the team of seven re-deployed.

The identified infra-red position and surrounding environs were searched in darkness, accompanied by voice and whistle appeals, however no contact was made, and the team extracted from the bush at 11.00pm.

By this time the weather had continued to deteriorate, and sleet was now falling as it blew from Mt Ruapehu. Temperatures had dropped to near zero degrees in the gorge.

## SEARCH DAY 2 – MONDAY 14 AUGUST

On Monday 14 August 2017, a formal Incident Control Point (ICP) was established at the Taupo Police station, utilising the special operations room designed for such purposes. A forward base was established at the Turangi Police Station.

An Incident Management Team was established, adopting the Co-ordinated Incident Management System (CIMS) framework.

Due to the unresolved level of risk, only sworn personnel were deployed into the bush, and a LandSAR team was deployed to search the bush area near Tree Trunk Gorge Road and where the stolen vehicle was recovered.

Five Police SAR teams with two dogs were deployed into the high probability areas:

- where the infra-red sighting was observed,
- where the voices were heard and
- following natural corridors to the mountain bike track and out to SH1.

During the search, a fire site was located with discarded clothing, drug utensils and a discarded lighter. A short distance away, a red glove was recovered and further to the northeast further clothing comprising a shoe, singlet and t shirt were recovered. These items were later confirmed to belong to Vincent Taurima.

Family liaison officers were appointed for the two families. Due to the gang connections, there was a very low level of trust and a very high level of suspicion as to what was being undertaken by Police.

It became clear early in the operation, that Vincent had been in contact with his father and other gang associates, and a trust relationship was imperative, to ensure the sharing of all known information.



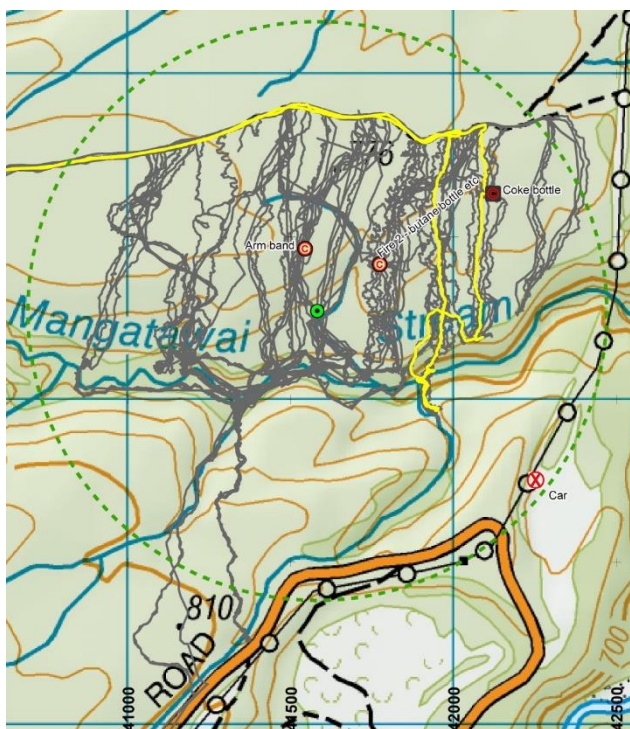
A family meeting at Turangi Police Station was hosted by Police to appraise the families of what was being undertaken. The meeting was open and candid. It was established that the men had taken clothing, blankets and a butane gas bottle with them into the bush, when they abandoned the stolen vehicle. It was also ascertained they had been communicating with associates using social media.

Monday afternoon, Police also contacted Hakopa Ngaronoa's whanau to advise them of the Search and Rescue Operation that was underway in Turangi.

### SEARCH DAY 3 – TUESDAY 15 AUGUST

On Tuesday 15 August 2017, the Police search teams were supported by further LandSAR teams. A total of 11 search teams including the two Police SAR dogs were deployed.

Briefings for the teams were hosted at 8.00am at Taupo station for searchers coming from the north. These teams were then immediately deployed into their search area. A second briefing was held at 10.00am at Turangi station for the searchers from the south, and they were deployed to their search areas. A final briefing was then held at 11.00am for the Taurima whanau and associates of the missing men, advising them of what was underway. Shortly after mid-day the Ngaronoa whanau arrived in Turangi and received their first briefing on what was underway.



Day 3 search teams found a cell phone pouch, second fire site, gas cannister, aluminium can, coca cola bottle and discarded clothing, all later confirmed as belonging to the lost men.

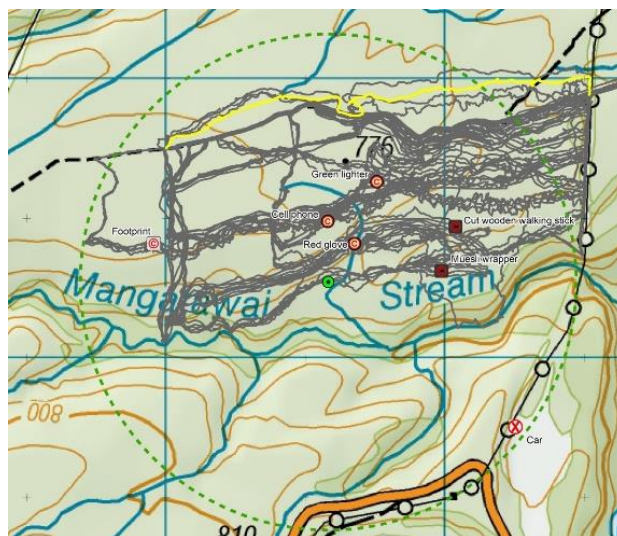
### SEARCH DAY 4 – WEDNESDAY 16 AUGUST

On Wednesday 16 August 2017, search teams were supported by 11 NZ defence force staff, resulting in 12 teams being deployed.

Briefings again occurred as per the previous day, prior to staff deployment, followed by a joint whanau briefing.

Items located on Day 3 were seized as exhibits, and a cell phone was located from the scene search.

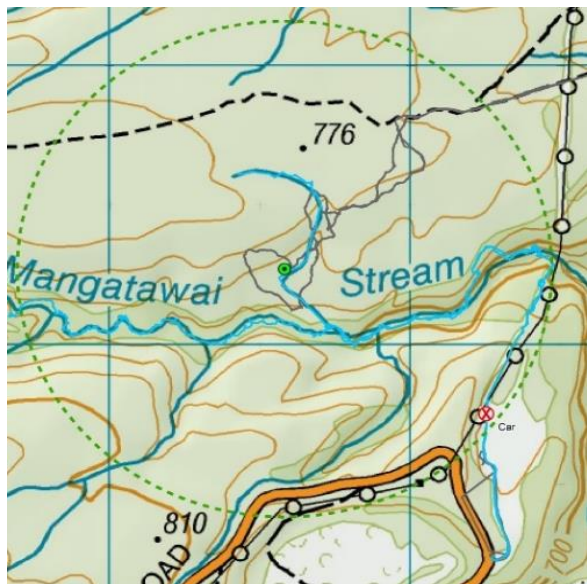
A lot of discarded litter and rubbish was also located, later linked back to associates of the missing men carrying out their own uncoordinated search in the area.



### SEARCH DAY 5 – THURSDAY 17 AUGUST

On day 5, 6 search teams including the support of 13 NZ defence force staff were deployed. During the search a foot print was located, however no new clues were located as to the location of the missing men.

### SEARCH DAY 6 – FRIDAY 18 AUGUST



On Friday 18 August 2017, the Police National Dive Squad was deployed by helicopter to search the Mangatawai Stream and a linking tributary. Each dive team of two was supported by a Police SAR member.

During their searches, the dive teams found a pair of white gumboots and a pair of pants with a debit card in the pocket. These items were later identified as belonging to family members of the missing men.

A care package was arranged and positioned in the bush near a fire site for the missing men, and aerial photos were taken of the search area.





## SEARCH DAY 7 – SATURDAY 19 AUGUST

Day 7 saw 98 people actively involved in the SAROP. LandSAR teams and Police from Auckland, Wellington, Gisborne, Hawkes Bay, Waikato, Horowhenua, Manawatu, Ruapehu, Waikato, Bay of Plenty and Whanganui came to search.

Briefings were again undertaken in Taupo and Turangi, deploying staff following the briefings.

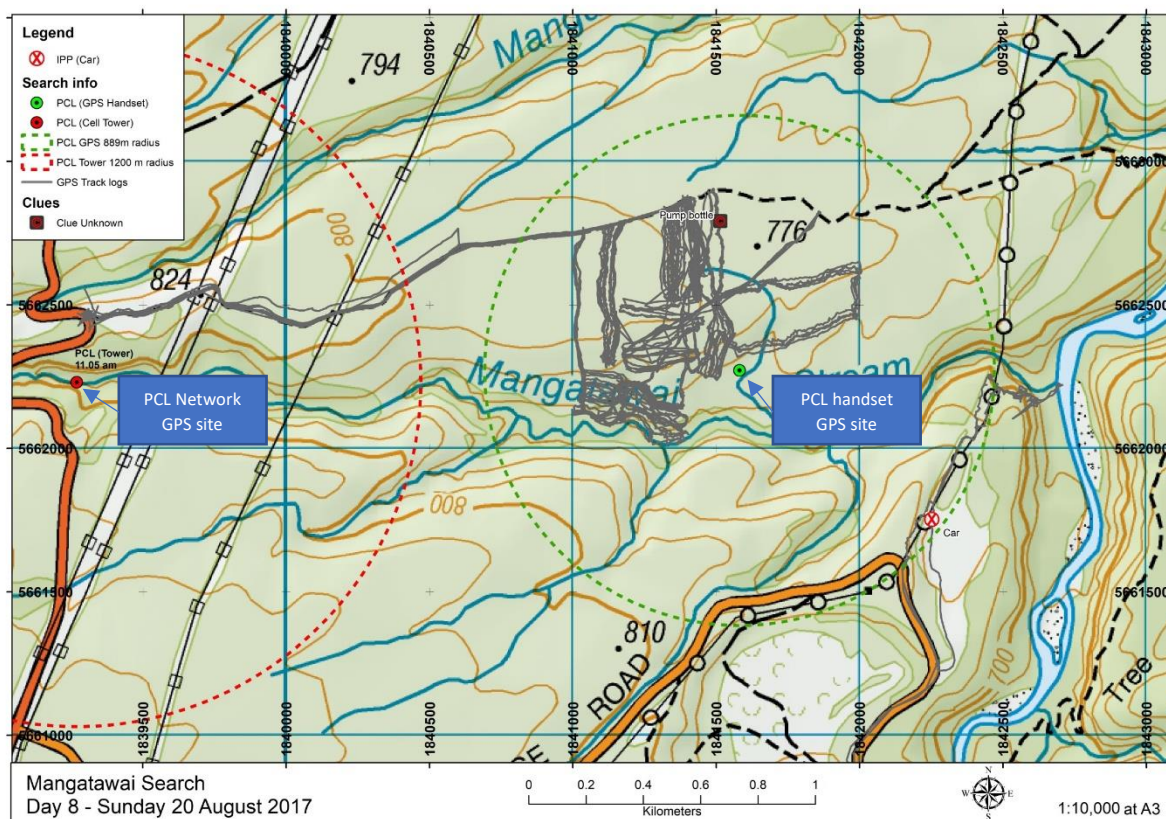
In addition to the search teams, the Police National Dive Squad was also redeployed to continue searching the Mangatawai Stream downstream from the waterfall.

Although the search area was widened, only a radio scanner near where the cell phone was located, was recovered. The scanner was subsequently identified as belonging to one of the missing men.

## SEARCH DAY 8 – SUNDAY 20 AUGUST

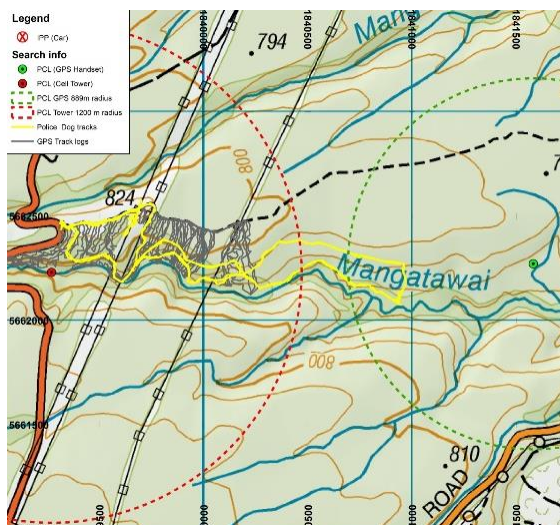
Day 8 a large team of 68 comprising nine LandSAR teams were deployed. No new evidence or clues were located by the searchers.

A review of the Comms chronologies identified that two of the 111 calls had been merged, and as a result network PCL latitude and longitude data was embedded in a lengthy chronology. At this stage it was not known how accurate the network data was in relation to the missing men's movement.



## SEARCH DAY 9 – MONDAY 21 AUGUST

On day 9, three search teams including a Police SAR qualified dog and handler were deployed into the second PCL data site, in the proximity of Mangatawai stream from the Desert Road, and the Pylon tracks. No fresh clues were identified.

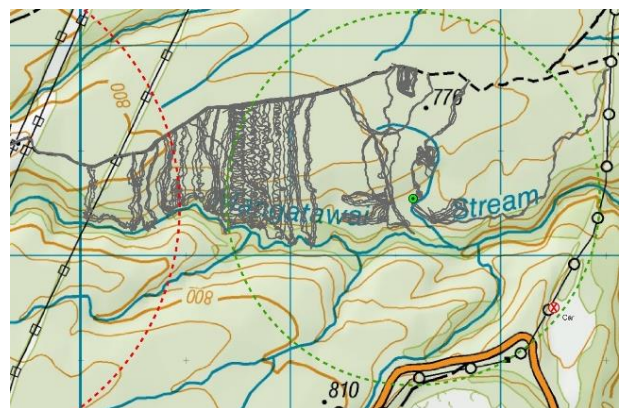


It was later ascertained, that the 'network data' only provided a 360°, 1200 metre radius of high probability, based on general usage data for that area. The data compiled for this PCL is a statistical average, taken from calls triggering the nearest cell phone tower. The data suggested there was a 68% possibility the men may have been in the area, and a 32% possibility they were not. Given that the Desert Rd is immediately adjacent to the search area, the call data is 'skewed' towards that direction. The subsequent advice given to members of the IMT was that this 'network data' PCL should be ignored for search purposes.

As there was no fresh information or evidence as to the missing men's whereabouts, the search was paused until Saturday 26 August 2017.

## SEARCH DAY 10 – SATURDAY 26 AUGUST

On Saturday 26 August 2017, 10 search teams were deployed into the search area between the pylons and the first PCL data site. It was accepted that the searchers were now looking for bodies, and a partial Rahui<sup>3</sup> had been placed on the land by Tuwharetoa. No fresh clues were found.



<sup>3</sup> Rahui is a form of tapu restricting access to or use of an area or resource. Rahui may be imposed for many reasons including a perceived need for conservation of food resources or because the area concerned is in a state of tapu, due, for example, to a recent death in the area and respect for the dead and to prevent the gathering of food from there for a specified period.

### SEARCH DAY 11 – MONDAY 4 SEPTEMBER 2017

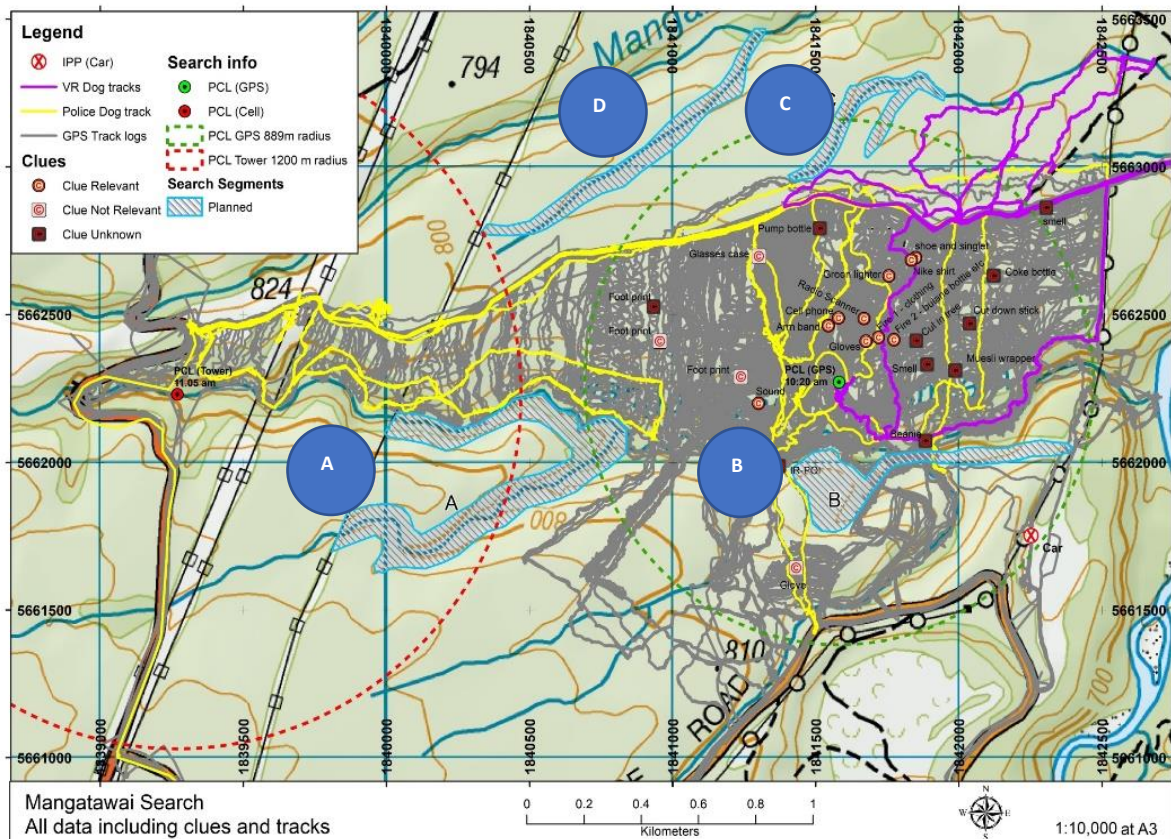
On Monday 4 September 2017, 3 Victim Recovery (cadaver) dogs and their handlers were deployed into the area, however no new evidence was located.



### SEARCH DAY 12 – TUESDAY 5 SEPTEMBER 2017

On Tuesday 5 September 2017, the 3 Victim Recovery dogs were re-deployed into the area of the first PCL handset data and where most exhibits were located, however no new evidence was located.

Following the deployment of the victim recovery dogs, an assessment was made of the final areas that required searching. The shaded areas identified as areas A, B, C, and D were identified and arrangements made to complete the search.



### SEARCH DAY 13 – FRIDAY 8 SEPTEMBER 2017

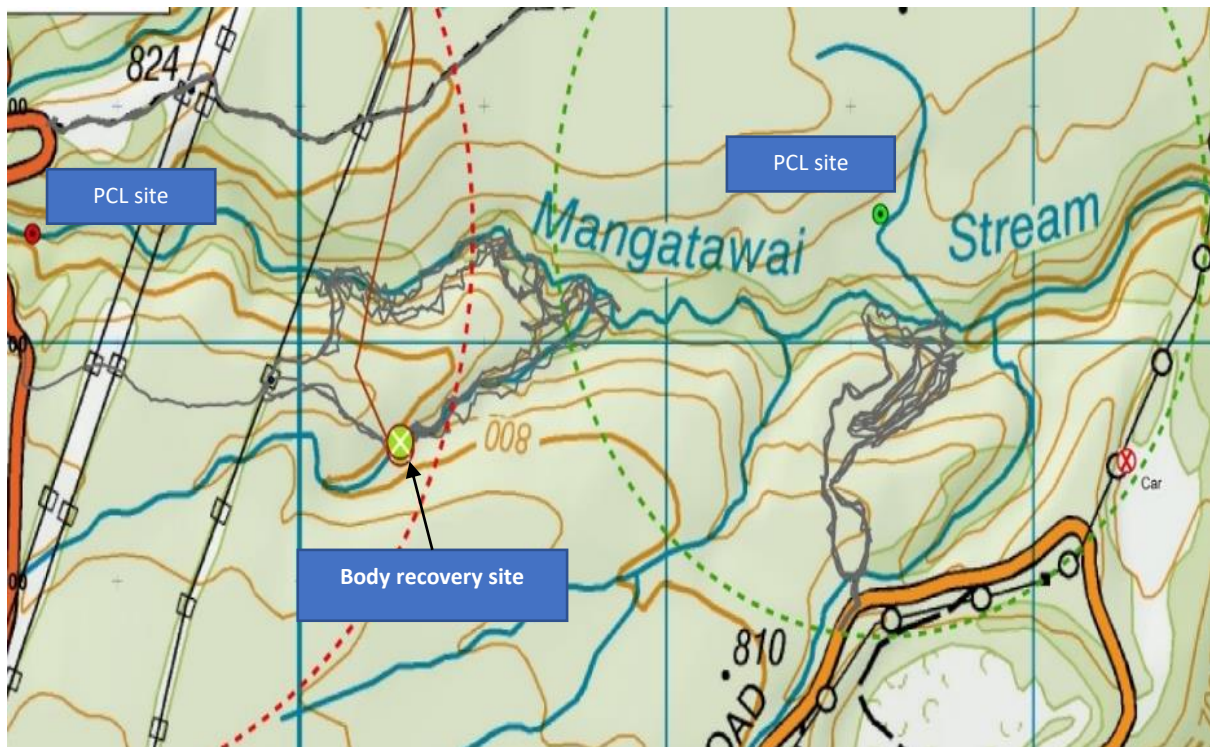
On 8 September 2017, one search team was deployed to complete the search area north of the mountain bike track and around the area known as the pillars (Area C). No new evidence was located.

### SEARCH DAY 14 – SATURDAY 9 SEPTEMBER 2017

On 9 September 2017, two search teams were deployed to search the streams south of Mangatawai Stream (Area A) and a third search team was deployed to search the stream north of the mountain bike track (Area D).

At 1.17 pm, the body of Hakopa Ngaronoa was located, and 20 metres from his body, the body of Vincent Taurima was located.

The bodies were recovered approximately 2.5 kilometres from the handset GPS location, and were removed from the bush by helicopter.



# SAROP REVIEW

Review and consider the appropriateness and/or utility of the following specific aspects of the SAROP with a view to improving and/or refining SAR systems, processes, skills, equipment and technology:

- a. The IMT tools and arrangements including search tools, planning, investigation, intelligence, information flow and information analysis used and applied during this SAROP.
- b. The positions and sizes of areas to be searched and the teams, skills and equipment applied to those search areas, given the information available at the time.
- c. The ability to scale, resource and support the search with appropriately trained personnel throughout the SAROP.
- d. Family and Iwi liaison and support arrangements.
- e. The management of family and other spontaneous search volunteers.
- f. The SAR skills and equipment of SAR volunteers, Police, Defence and other searchers.
- g. Media relations.

## A: THE IMT TOOLS AND ARRANGEMENTS

### INCIDENT MANAGEMENT TEAM

The SAROP was first brought to the attention of the on-call Search and Rescue coordinator at 9.43am on Sunday 13 August 2017. From that call the district Operations Manager and On-call SAR coordinator activated.

These two members went to the Taupo Police Station, where they established an initial Incident Control Point, assessed the situation, and put together an initial Incident Management team comprising Incident Controller, Planning / Logistics and an Operations Manager / Forward Incident Controller. Police SAR personnel were activated from Rotorua and Whakatane, and later deployed.



On Monday 14 August 2017, adopting the CIMS structure, a formal Incident Management Structure was established, and the decision made to maintain the Incident Control point in Taupo police Station. Additional roles including Information and Investigation, mapping, family liaison and media were also formalised.

Over the length of the operation, 23 people moved through various roles in the Incident Management Team, including relieving the Incident

Controller role with a trained SAR Coordinator from Wellington district.

The planning, mapping and staff movements were all managed within the IMT, with search teams being coordinated by the Operations Manager, and staff movement managed and updated on a whiteboard.

*Observation:*

*The Incident Management team was well structured from day one, with capable resource carrying out pivotal roles. Photos were produced of the IMT organisational structure taken by the Incident controller which proved invaluable to the reviewer.*

*Staff involved were exceptionally passionate, working some very long hours, and it is imperative District Command and the Incident Controller ensure staff are given sufficient time to manage mental and physical fatigue.*

## LOCATION

The ICP was initially established in Taupo on Day 1 of the SAROP, and remained there for the duration of the operation, as the IMT human resource was locally based, and Taupo Police Station operations room was purpose designed with resources including radios, computers, whiteboards, mapping and break out rooms for such an event.



Turangi Police Station also has a purpose designed garage outside the Police station for such operations, and this area was utilised for briefings, media interviews, and managing of family and associates of the missing men.

Feedback reflected both positive and negative commentary on this decision. The positive related to resource availability, separation from media, family and associates and ability to work long hours and then return home to rest.



Some negative identified time lost, when northern search groups were briefed in Taupo, then southern search groups briefed in Turangi. This process did result in some time lost as the southern searchers waited for their briefing prior to deployment. The opportunity for collective briefing and feedback from all searchers was also lost.

At the end of the day, because the IMT was Taupo based, teams downloaded their GPS units, and then left to return to their respective home areas. No team leader debriefs took place at the end of the day, primarily due to consideration of the weather conditions, the different home destinations and different times the teams exited the bush.

The teams were wet, cold and fatigued and the IMT did not wish to delay their departure home. Opportunity was available whilst in the field, to raise any issues or concerns, and similarly the opportunity existed for team leaders to debrief their teams and complete a SAR debrief form.

*Observation:*

- *A detailed appreciation needs to be undertaken, considering the location of any ICP and/or forward ICP, for all major operations. There will always be strengths and weaknesses, and these need to be identified and mitigated prior to any final decision.*
- *By hosting a collective end of day team leader debrief, an opportunity is provided to bring together a collective 'think tank' that enables an informal operational review, ideas to be bounced around which may assist planning and decision making. As there was no team leader debrief, this opportunity was lost.*

## **SEARCH TOOLS**

During the search, SARtrack, the recognised software for Search and Rescue was utilised, and searchers were deployed into the bush utilising handheld GPS units, which were downloaded at the end of each day to assist in mapping and planning.

It was found that SARtrack had its limitations, a key one being the inability to populate the fields on the LandSAR team briefing form. These were carried out utilising MS Word and attached. It was identified that there was a need for ongoing investment in software development, and a need to provide on-line training capability, so searchers could upskill themselves in this technology in their own time.

*Observation:*

- *with the development of all new techniques and technology, including the use of handheld GPS devices, subject matters experts need to be identified, and ongoing training needs to be available.*
- *SARtrack has been sponsored by NZSAR as the preferred software to be utilised in SAROPs. Investment needs to continue to ensure it delivers the capability required for all sizes and types of searches undertaken.*

## **REVIEW**

On Wednesday 16 August 2017, an independent SAR coordinator and assistant from Wellington made themselves available to assist in the IMT and provide a fresh set of eyes to the operation. An initial assessment was made of what had been done, what was underway and what was planned. No formal review was undertaken.

On Friday 18 August 2017, a hypothermia subject matter expert was consulted around hypothermia behaviour, and their assessment on the boys' potential movements. This meeting followed with the external subject matter experts feeding into a scenario weighting assessment, and segment analysis, looking at the prioritised areas where searchers should be deployed.

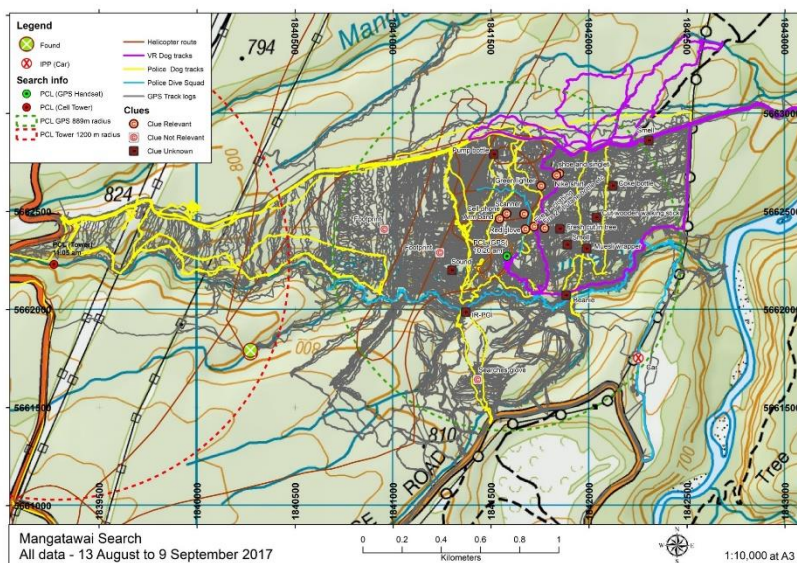
On Wednesday 30 August 2017, a meeting was held to discuss and review the first 10 days of the SAR operation. This was attended by several key Police personnel, Iwi representation and LandSAR personnel from Taupo and Turangi, that had been actively involved in the search. The outcome of that meeting was that there was more work to be done, and the planning for further searching continued.

Preparation for an independent review was also being considered, prior to the formal suspension of the SAROP. This review did not occur as the men were located.

**Observation:**

- *there are no formal time frames, terms of reference, qualification of persons to carry out review or formal reporting of a SAROP review*

**B: SEARCH AREAS**



The initial search areas were identified based on vehicle recovery location, handset PCL GPS location, and key corridors such as the mountain bike track.

As the search advanced into days two and three, exhibits belonging to the missing men provided a clue rich environment which dictated the search area. As the clues diminished, the planning team explored the

Mangatawai stream with the

use of specialist divers and identified the second PCL network GPS location as a priority search location. The identification of the network GPS PCL location caused some initial concern among members of the IMT until there was clarification of what the network data meant. Once a full understanding of this was obtained, limited additional resource was committed to this area. That is, network GPS data is a statistical aggregation of calls and of limited to no value for search purposes.

As time progressed, the search area expanded into travel corridors and linear features including beyond the mountain bike track, and the associated tributaries that feed to the Mangatawai Stream. On 18 August 2018 a care package was also left in the bush in the clue rich environment. The same day, the IMT reviewed the likely scenarios of whether the missing men were still in the search area



or had successfully left the area. The overwhelming outcome was that they were still within the search area, although probably deceased.

With the benefit of hindsight, it was agreed that the areas being searched were clue rich environments and provided indications of high likelihood where the men should be located. It would have been beneficial had the primary teams searched the areas that were clue rich, whilst a secondary search group deployed to search the travel corridors and linear features which may have resulted in the men being discovered within an earlier timeframe.

Most teams provided positive feedback that they received their tasking, loaded their GPS and could deploy into and complete the search of their identified area. Some teams indicated a lack of familiarity with handheld GPS units, and preferred the concept of searching within linear features of North South and East West map coordinates.

During the SAROP, two qualified Search and rescue dogs and their handlers were operationally deployed for three days early in the search. Concern was raised that the dogs weren't utilised to their best potential, being deployed into areas where search teams had been deployed, as opposed to virgin bush areas where the possibility existed for increased likelihood of scent detection.

On 4 and 5 September 2017, 3 victim recovery dogs were also deployed into the search area.

*Observation:*

- *the deployment of any care package needs to be considered early in the SAROP*
- *there currently exists the LandSAR guidelines, but no nationally agreed Manual of Best Practice as it relates to land based Search and Rescue.*
- *the use and downloading of handheld GPS units provided a record of the exact areas searched and the areas requiring search. On occasions, some teams lost their stored data, or were not familiar with the equipment, which is an ongoing training issue as earlier identified.*
- *the IMT need to be aware of the existence, availability and capability of resources such as Search and Rescue qualified dogs and their respective handlers and deploy accordingly.*

## C: SEARCH RESOURCES

### **Human Resource**

This search occurred at a time, when Bay of Plenty Police were conducting several homicide investigations across the district. From day one, no request for staff was denied, and as the SAROP advanced, staff was brought in from across the north island.

Constricting factors that impacted on staff deployment during the early stages of this SAROP, was the potential risk the missing men posed, and therefore the need to mitigate risk to civilians by only deploying trained sworn personnel.

On Day 1 resource was deployed from across the Bay of Plenty district, and on Day 2 this was widened to include staff from Whanganui. By Day 3, as the risk to civilians was mitigated, LandSAR personnel were brought in and deployed. Trained personnel were available to assist on Day 1 of the

search, including a Police SAR qualified dog from Whanganui, but were not requested as it was expected the missing men would be readily located by the deployed search teams.

Subsequent Search teams were compiled and managed by the IMT, and often involved cross-pollinating the teams with searchers from different areas. Although this was well managed, it did result in some searchers having to be withdrawn from the field early, as their remaining team extracted to return to their home districts.

*Observation:*

- *an opportunity existed to deploy an additional trained Police SAR qualified dog and handler unit from day one. Consideration should be given to consulting with District Dog NCOs to identify local and neighbouring qualified resource that could be available for early deployment.*

## **NZDF**

On Day 4, 11 NZDF personnel deployed with search teams, and on day 5, 12 personnel deployed. The NZDF personnel were not search trained, were spread across various trained LandSAR teams, and were not equipped for tight grid searches, i.e. they were wearing camouflage as opposed to hi-vis clothing.

The visibility of the defence personnel was however seen as a very positive move by the family and associates of the missing men and could possibly have been deployed in other productive roles such as secondary search areas based on linear features and natural corridors.

A NZDF subject matter expert (SME) was also contacted, to discuss the 111 calls and men's behaviour on day 1 of the search, and associated hypothermia. What was established, was when persons suffering from hypothermia remove their clothing, (a behaviour known as 'paradoxical undressing'), they usually do this *unknowingly*, to cool the body, after the body muscle suddenly releases blood causing a sensation of overheating. In this SAROP, Vincent had *knowingly* removed his clothing because they were wet, which suggested he was wet and cold but not hypothermic at that time.

It was the SME opinion, that as the gorge warmed, and the men started to move, they would have generated body warmth, building self-confidence they could get themselves out, without waiting for Police apprehension. The experts' opinion is the boys would have survived for a possible 24 – 36 hours in those conditions.

*Observation:*

- *NZDF personnel were well received by the family and community but need to be better briefed and prepared prior to Search and rescue deployment.*
- *There is clearly supporting roles NZDF can actively assist in, ground search personnel would have been ideally placed to assist in searching linear features and wider search corridors.*

## **IMT**

The incident management team was largely made up from Taupo personnel, due to a recognised lack of qualified capability for those roles in the Turangi area. The IMT was supported on Day 4 by a trained coordinator from Wellington, which enabled some staff to have a day off.

Over the duration of the operation, 23 individuals passed through the IMT, but key personnel continued to work long hours and many days in succession seeking the desired outcome. Those in the IMT received praise from whanau and associates for the passion and perseverance on returning the men to their families.

### *Observation:*

- *there exists a need to further grow the skills and capability of personnel, to manage the various IMT roles.*
- *Regular rotation of staff enabling review and the fostering of fresh thinking needs to be encouraged, whilst still providing a high level of continuity.*

## **COMMUNICATIONS**

Communications between the search teams and the ICP was very good, with cell phone coverage in most areas, and radio communication through SAR repeater on Pihanga and Department of Conservation VHF Ch. 5.

### *Observation:*

- *the success or otherwise of operations depends upon the quality of communications. Only positive commentary was received, in relation to SAROP communications by staff in the field.*

## **D: WHANAU AND IWI**

### **WHANAU – FAMILY**

The two missing men were associated to the Mongrel Mob gang. The father of Vincent Taurima was a patched gang member, and because of their involvement, several associates came into Turangi, wanting to assist in finding the men and extracting them from the bush.

The relationship between Police and gang associates was tested, with the associates constantly challenging Police that they weren't doing enough, and subsequently went into the bush themselves to carry out their own search.

The Taurima whanau and associates were in Turangi from the commencement of the operation.

The Ngaronoa family, were not gang related, and as a result kept themselves divorced from the gang members. They were first informed their son was missing on Monday 14 August 2017 and travelled to Turangi the next day.

Both groups were keen to be kept apprised of what was occurring and be provided with progress reports. This was achieved with briefings in the morning, and evening family meetings hosted by Tuwharetoa. It was not unusual for 50 – 60 family and associates to attend the meetings.

Although this was initially agreed to by both whanau, as time progressed they were frustrated by the unnecessary interruptions and distractions of associates and followers, who were not direct family of the missing men.

Due to the gang association, the level of trust was low between the family gang members and associates, and Police, however the relationship was imperative as Police were aware that the missing men were in contact through Social media with family and associates.

Through open dialogue by Police, and the assistance of Tuwharetoa, a relationship was established. Family representatives from both families were invited to view the operational base in Taupo and get a better appreciation of the effort going into the search by Police and volunteers. This was a turning point for the father of one of the missing men, who largely became the spokesperson on behalf of the family and gang member associates.

On reflection, family were very disappointed with the Police communications centre, and the lack of advice or reassurance that were given to the missing men. It was the family view, that because of the lack of trust the boys had of Police, and the lack of reassurance or advice to remain where they were, the boys have decided they had to save themselves, and that is why they were not found at the original 111 call site.

Family acknowledged the cultural awareness and sensitivities that were shown during this operation, including culturally aware Police liaison members, and several Maori Police officers, whose presence certainly made a visible difference with the gang associates.

Family raised their limited awareness around media interest and media management, and felt an early safety briefing with whanau, providing some insights on what to expect would have been helpful. Concern was also raised around the lack of awareness of Coronial process, once the men had been recovered, but were still not returned to family.

Family also raised concern around the management of exhibits by Police during this operation. Following the recovery of the boys, exhibits were returned to the Taurima whanau, without any consultation with the Ngaronoa whanau. Similarly, family were advised that the drug paraphernalia had been destroyed without any examination identifying what drug had been used.



### Observation:

- *A family briefing document needs to be compiled, that initially provides awareness for family in the form of a safety briefing, assisting them with insight around media management, search process, and then as time advances, a subsequent briefing around expectations of body management, exhibit management and potential Coronial process.*
- *Following notification of a SAROP emergency, Police should be looking to advise next of kin, where possible, of the commencement of an emergency operation, unless directed otherwise.*
- *Where the SAROP involves multiple families, return of exhibits needs to be managed through consultation, with all families having input, prior to final return or disposition.*

### TUWHARETOA

The search was conducted on Tuwharetoa land and Tuwharetoa CEO and Kaumatua were advised of what was occurring early by Police. It became apparent to Tuwharetoa, of the lack of trust that existed between family, associate gang members and Police, all be it Police remained totally focussed on locating the missing men.

On the evening of day 3, Tuwharetoa Ariki<sup>4</sup> and Kaumatua met alongside Police and the families of the lost men in a local Senior Citizens hall, and adopted a support role to the families, associates and Police. Tuwharetoa supported the need for family to be briefed and ask questions without media present.

The meeting adopted standard Tikanga Maori protocols, commencing with a Karakia<sup>5</sup>, mihi<sup>6</sup> and waiata<sup>7</sup> and closing with Karakia. By adopting a strong independent liaison role, bridges of trust were forged. As issues were identified by Police such as contamination of scene by associates of the missing men, or concerns raised by associates of woman being involved in searches on land under Rahui, Tuwharetoa were able to address those issues.



There were a lot of family and associates including patched Mongrel Mob members in town. As time went on, accommodation and feeding became an issue. Tuwharetoa felt a sense of responsibility, and arrangements were made for family and associates to stay at Rongomai Marae on Hautu Pa. There were some strict rules around expectations of behaviour and respect of facilities.

<sup>4</sup> Ariki is the Paramount Chief of Tuwharetoa, Sir Tumu Te Heuheu is the eighth Paramount Chief of Tuwharetoa.

<sup>5</sup> Karakia is a prayer used to invoke spiritual guidance and protection.

<sup>6</sup> Mihi is the official welcome speech of speech of greeting acknowledging those present

<sup>7</sup> Waiata is a song or chant.<sup>9</sup>

These conditions were agreed to, and when they left, they restocked the dry supplies with more than they used and provided a koha<sup>8</sup> to the Marae.

Once the missing men's bodies were located, a time was arranged for a karakia to take place on Tree Trunk Gorge Road. The Karakia was performed by Kaumatua who translated for the living, but occasionally only spoke in Te Reo, directly to the two men who were now considered to be in a better place. This Karakia gave closure to the family and search personnel.

Everybody has spoken very positively of Tuwharetoa support and involvement.

#### *Observation*

- *the early utilisation of key Police personnel, in this case Iwi Liaison Officers and local station supervisor also enhanced cultural awareness, respect and bridged any cultural gaps*
- *the early involvement of Iwi bridged a divide that existed between Police and the family gang members and associates. As a direct result of Iwi involvement, senior gang members were able to retain mana whilst working with Police, and issues such as accommodation and logistics of associates were managed separate to the SAROP, by Iwi.*

#### **E: MANAGEMENT OF FAMILY AND OTHER VOLUNTEERS**

Following the initial notification to Police on Sunday 13 August 2017, Turangi was soon swamped with family members and associates of the missing men, especially Mongrel Mob associated gang members.

The associates had a high level of distrust of Police, and as a result were regularly at the Turangi Police station, challenging Police as to what they were doing, or undertaking their own activities including searches, to locate the missing men.

To alleviate the level of distrust, Tuwharetoa and the Police Iwi Liaison officers together with the Incident Management team actively engaged with family and associates, ensured transparency in decisions, and attempted to keep them fully informed daily.

On day 4, search teams discovered discarded food waste and rubbish, initially thought to be clues of the missing men's movements. It was later established this had originated from associates that had been carrying out their own search in the bush.

On day 6, whilst the National dive squad was deployed, gumboots, track pants and a debit card were also found near the Mangatawai Stream. These were later discovered to belong to family of one of the missing men that had also been searching in the bush.

As the search progressed, it was ascertained that the missing men had been communicating with family and associates by social media. On the first night the men were in the bush, an associate had travelled into the area, to signal by car horn, headlight and talk the men by social media, out of the bush.

---

<sup>8</sup> Koha is a gift, present or donation

Tuwharetoa were invaluable as it related to issues being encountered by the search teams. When the discarded rubbish was found in the bush, Tuwharetoa reminded the family and associates they were kaitiaki to the bush, and therefore by disrespecting the bush they also disrespected Tuwharetoa. They highlighted to the family and associates, because of discarding their rubbish, searches had been distracted from finding the men, as they spent time processing and recovering the refuse.

On a second occasion, associates of the missing men were culturally concerned that woman made up part of the search teams going into an area that had a Rahui placed upon it. Tuwharetoa were able to put this matter to rest.

By locating the ICP in Taupo, the management team were able to focus on deployment and planning without being distracted by the associates who were frequenting the Turangi Police Station.

#### *Observation*

- *no family or associates were officially utilised in the coordinated search effort.*

## **F: SAR SKILLS AND EQUIPMENT OF SAR VOLUNTEERS, POLICE, DEFENCE AND OTHER SEARCHERS.**

### **COMMS CENTRES**

On Saturday 12 August 2017, this incident commenced, with the pursuit of a stolen vehicle on the Desert Road, Waiouru. This incident was managed by staff from Central Police district and monitored by Central Comms. At 4.31 pm, the stolen vehicle was located by a hunter of Tree Trunk Gorge Road, Turangi, and the matter reported to Police. The response was managed by North Comms, and the Turangi Police Constable tasked to attend the scene and meet with the hunter. An initial scene examination was completed identifying two sets of tracks leading from the vehicle, down a dirt track and into thick bush.

At this time, North Comms also contacted the Bay of Plenty District Command Centre to discuss what was occurring. As a result of a risk assessment carried out by the North Comms Commander (Police Inspector), in consultation with the District Command Centre (Police Senior Sergeant), taking into account the potential risk the occupants of the stolen vehicle posed, the presence of a civilian and only one Police person present, and the fading light, the decision was made to desist in tracking the offenders, for the Constable and Hunter to return to their Police vehicle, and for the local on-call Search and Rescue coordinator to be notified.

At 5.58pm the Turangi Constable confirmed they had safely extracted from the bush. The District Command Centre conducted an appreciation of the situation, considering the nature of the terrain, lack of visibility due to darkness, availability of a Police dog unit, and risk to personnel. Taking these factors into account, in consultation with North Comms Commander, the course of action decided was to recover the stolen vehicle, withdraw personnel from the area, allowing those in the bush the opportunity to extract themselves, and complete a media appeal advising motorists to contact police should hitch hikers be observed in the area.

The on-call Search and Rescue coordinator was not contacted.

At 6.37am Sunday 13 August 2017, North Comms received the first notification from Vincent Taurima's father, advising that his son had phoned at 4.00am, indicating he and a friend were lost in the bush, were very tired of walking and could not find their way out. The father was very concerned as he had been unable to reconnect with his son, with his cell phone going direct to voicemail.

At 6.48am the same morning, Vincent's mother contacted South Comms advising of her same concerns. She advised that the men were stuck in the bush with hypothermia.

At 8.28am Turangi Police were advised of the incident and attempted to contact Vincent's father unsuccessfully. At 9.02 am Vincent's father called at the Turangi Police Station, where he again advised what had occurred.

At 9.48am local Search and Rescue coordinators were first made aware of the situation, and the first search teams were not in the search zone until 2.00pm that day.

At 9.56am, Hakopa Ngaronoa made the first 111 call to Police, received by South Comms. The call lasted 5.50 minutes. Hakopa indicated he had a 10% charge on his cell phone and was hypothermic. Arrangement were then made to send him a data message, which would enable Police to utilise Mobile Locate, a software package that would pinpoint the cell phone location.

No cell phone location was received by Mobile Locate.

At 10.26am Vincent Taurima made the second 111 call, received by North Comms. Vincent indicated that he was cold and wet, and his friend had a slight head injury. He said that his phone was down to a 2% charge and he had activated the mobile locate beacon from his last call. Vincent indicated he was close to a little creek or stream in the Kaimanawa forest.

As the call progressed, Vincent indicated he was going purple and his friend had a heavy concussion and wasn't really speaking like he normally did. He indicated he was sitting in just his shorts and nothing else because his wet clothes just made him feel colder. He had been looking for a track for hours and had now reached the stage where he couldn't move anymore. He couldn't move his legs, couldn't feel his toes, couldn't feel his fingers and could barely hold the telephone. Vincent asked if he could talk to the person in charge of the search party.

The call taker advised Vincent that the cell phone track using Mobile Locate was not successful, and he needed to reactivate the signal. Vincent indicated he had trouble reading but had responded to the text from Police and had received a message saying he was being tracked. Together Vincent was talked through the process again and confirmed he had activated Mobile Locate.

The call taker then confirmed that Search and Rescue were on their way, and he needed to keep himself and his friend warm, and if anything changed he was to call Police back, otherwise save his cell phone battery.

Whilst this call was underway, North Comms were also relaying the call information through to the Taupo Incident Control Point. In addition to attempting to activate Mobile Locate, the PCL Handset (GPS) data of 175:47:44.8440 and 39:09:18:9360 was captured from the call, and this provided the starting point for the subsequent search deployment.

At 11.07am a third 111 call was received by South Comms and was subsequently merged with the first call they had received earlier that morning. Vincent indicated his friend was deteriorating and was now having seizures and was hypothermic. Vincent indicated he had just got off the phone from



his father, who had indicated that search party would be there in 45 minutes. Vincent suggested it would take the searchers another hour and half to get to them which would be too long. He also advised that his battery power is running out.

Vincent was told to stay close to his friend, keep his phone and themselves warm and the search and rescue team would be there as soon as they could. PCL data was also obtained from this call. This was cell tower data of latitude 175:46:08:6520 and longitude 39:09:22:5360.

Subsequent attempts were made by the Incident Management Team to directly contact Vincent, however the calls all went directly to voice mail.

A review of the three 111 calls by the Communications quality assurance team identified several opportunities where the information could have been better extracted. At no stage was Vincent advised to stay static, and only limited reassurance that Police would find them in a short space of time.

From the second and third 111 calls, Vincent had indicated he had very limited battery time on his phone, and although the calls were lengthy, very little information was extracted describing the area, vegetation, hillside, or the path they had been taking in daylight i.e. walking the stream edge.

Following the first call being merged with the third call, the PCL Cell tower data was not located by the Incident Management Team until day 8, 20 August 2017, and the area search. As it transpired, this data was ever only of little value, however for future searches this may not be the case.

#### *Observation*

- *Communications Centre Commander is in charge of an operation, until it is formally handed over to an Incident Commander in district. It was the Comms Commanders responsibility to ensure taskings were completed. In the initial response to the recovery of the stolen vehicle, an identified action was to notify the on-call Search and rescue coordinator. This did not occur.*
- *the current standard operating procedures in Comms, as it relates to the collection of information and advice to be given to persons lost in the bush needs to be reviewed. The call taker at the centre cannot be expected to be an expert in all areas, so they need current, precise and succinct aide memoirs at their fingertips to gather information that will benefit the caller and subsequent searchers and provide advice and reassurance to the caller.*
- *Three Comms Centres and the Police Crime Reporting Line all respond to 111 calls – when multiple calls come in about the same incident, they will invariably be answered by call takers at different centres. A process needs to be identified, where an active incident can be advised to all four centres. In this case, the calls went to two different centres and the subject's cell phone battery time was consumed, seeking unnecessary information.*
- *Once an ICP is established, consideration should be given by Comms to any subsequent contact with the missing person being diverted to the ICP. The third 111 call came in from missing men after Taupo ICP had been established. Had the call been forwarded to the ICP, a different set of questions unique to the environment and terrain would have been asked.*

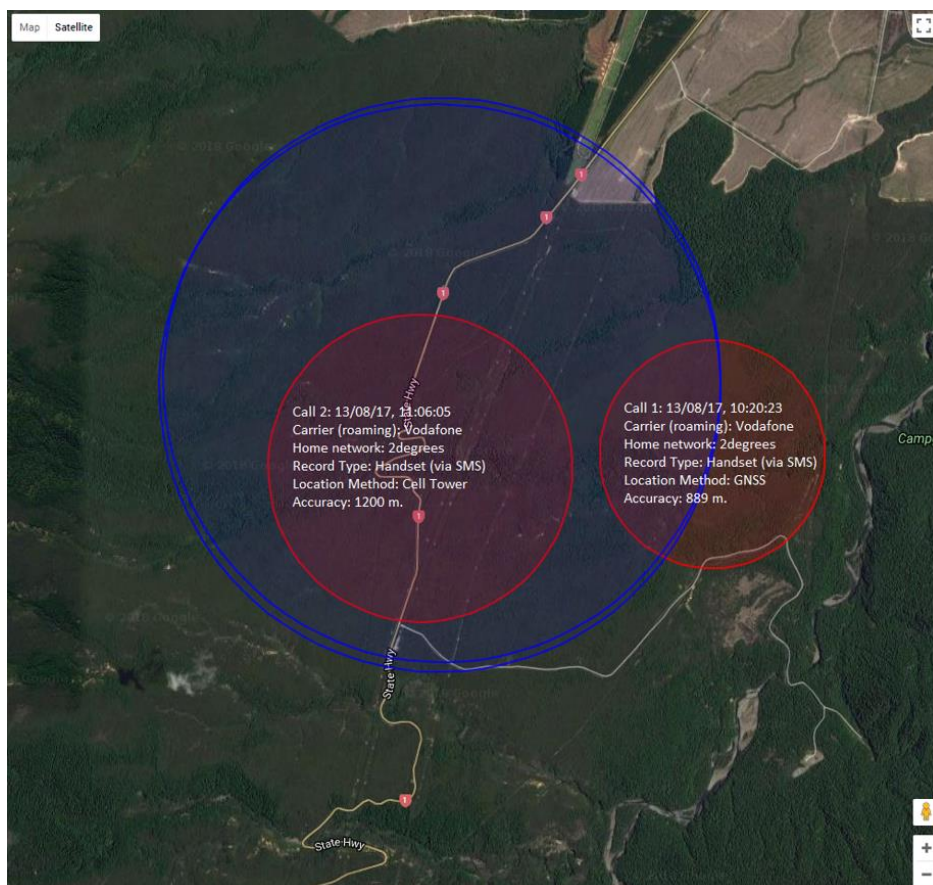
## PROBABLE CALLER LOCATION (PCL) DATA

PCL data, is a relatively new concept to emergency services and is managed by Ministry of Business, Innovation and Employment (MBIE)<sup>9</sup>. The location data became available to emergency services in 2017, and MBIE continues to work with telecommunication (telco) providers to enhance this capability.

PCL may provide information in the form of network (cell tower) information, location-based Wi-Fi information the caller's phone can see, or GPS coordinates for the caller's cell phone handset. The information is only available to emergency services when a 111 call is made from the phone, and the information can only be captured whilst the call is being made.

The accuracy of the data will be limited to the environment the cell phone is being operated in, the number of satellites the cell phone can see, the quality of the cell phone being used, and level of charge in the cell phone battery, and the telco provider the cell phone is registered to.

Network data, identifies the number of cell phones being used across that network in that specific cell tower area, and then assesses the likely radius the call may have come from. In Operation Mangatawai, the call came from within the Kaimanawa Forest Park to the East, but most traffic and therefore callers utilise SH1 to the west of the tower, therefore the radius would include the high likelihood the call came from SH1 or within that 1200 metre radius.



In the case of handset data, the GPS location is on average within a 10-metre radius, up to as tight as a 2-metre radius of the user's location. On this occasion the radius given was 889 meters, in dense bush and scrub.

<sup>9</sup> <http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/communications/emergency-call-services/ecli>

On analysis, it was identified that the cell phone was of a poorer quality, the area provided limited satellite visibility, the cell phone battery was low, the phone was in roam mode and therefore did not permit data share, and the capture was made within the first 25 seconds of the call. To capture any location information was a positive outcome.

The IMT of Operation Mangatawai was not familiar with the finer points of the PCL data, and initially focussed their effort correctly on the handset data location. On Day 8, when the IMT identified the network data, they again deployed a search team into the area, addressing it as a high likelihood location for the missing men. In fact, there was a 68% likelihood the men may have been within the 1200 metre radius, or a 32% likelihood they were outside that radius.

#### Observation

- *PCL continues to develop, and will be a powerful tool going forward, for SAR teams to utilise as a starting search point. It is imperative that IMT and search team leaders are aware of the PCL capabilities, and prioritise accordingly.*

#### MOBILE LOCATE

Mobile Locate is a website and programme used to acquire the location of a mobile phone and track its movements. Mobile Locate simply sends a text message to the cell phone inviting the caller to allow Mobile Locate to track the cell phone movements. Mobile Locate requires the cell phone to have reception, be a 'smart' phone with internet capability, and the programme request must be accepted by the cell phone user.

During Operation Mangatawai, two attempts were made to utilise Mobile Locate. Inquiries with the programme manager revealed that on the first occasion, at 9.53am, the cell phone link was accepted however no location information was received back from the cell phone. At 10.50am the text was again accepted, but no data was received from the cell phone. At 2.20 pm a request was sent to, but not received by the cell phone.

Inquiries with Mobile Locate confirmed:

- a text message was sent to the cell phone with the required web address link
- the user clicks on the link and if the data is enabled on the device and there are sufficient funds to allow data, then
- a request returns to the server webpage.

It was confirmed that the above three stages occurred. The next stages are:





Once the link is touched this permission box appears on their phone, they need to allow this "OK"

- the user will be displayed with a page that states it is trying to share their location and seeks their permission. The user is then required to click on Don't Allow or OK.

One of a few things can then occur:

- Location information is gained and sent to the server
- A timeout on the device occurs
- The user denies the request
- No location information is available due to lack of satellite visibility or environs
- An error occurs

No more information was received after the original request was received back by the server. This may have been because the acceptance request was not clicked, or they lost data reception at this point, or they assumed everything was done and okay, and didn't do anymore, which timed out the process. With the limited cell phone coverage in the area, the high likelihood was the data packet was lost from poor reception and cell phone in roam mode and therefore no data packet was shared.

CREATE NEW EVENT

Mobile Number

Persons Name

Short Description

Text Message

Status | All Events | Current Event | Reports | Help | Admin

[11066] Win

PHONE: +94272496118

DESCRIPTION:

WATCH: None

CREATION TIME: Today 09:39:39

TEXT RECVD TIME: Today 09:39:43

DATA RECVD TIME: Today 09:39:39

LOC RECVD TIME: Today 09:41:35

STATUS: LOCATION INFORMATION RECEIVED FROM DEVICE

DETECTED DEVICE:

MAP OPTIONS: [VIRTUAL VIEW](#) [SHOW TRACK](#)

Send additional TXT

Close Event

Send to tracker

Notify Change

TYPE	AGE	TIMESTAMP	LATITUDE	LONGITUDE	ACCURACY	SPEED/HEADING	MAP	PLACE
📍	1s	Today 09:41:35	-41.287715	174.776977	17.1 metres	0/0	<a href="#">MAP</a>	152 metres SE of Wellington
📍	7s	Today 09:41:29	-41.287883	174.776944	18.7 metres	0/0	<a href="#">MAP</a>	148 metres SE of Wellington
📡	1m	Today 09:39:39	SEND	RCVD	NZ Police trying to locate you, please select the following Link: <a href="https://dev.mobilelocate.nz/loc?id=6681">https://dev.mobilelocate.nz/loc?id=6681</a>			

### Observation

- It is possible that literacy may also have been a contributing factor to the lack of information received from Mobile Locate, as it seems to be at the point where the user had to allow or deny the sending of the location information, that the flow of information stops. It is imperative that when callers are talked through the process, consideration is given to the literacy and technical capabilities.

## SEARCH PERSONNEL

A total of 505-person days were committed to this SAROP, a large proportion made up from LandSAR men and women volunteering their time. The commitment and dedication of all staff involved, whether Police, Defence, Civilian or Iwi cannot be under-stated.

The deployment of NZDF has been highlighted earlier in this document. Defence personnel are not trained for Search and Rescue, and therefore any such deployment needs to be carefully considered, and defence personnel briefed on expectations prior to their arrival in the search location.

LandSAR members were dedicated to the search, with individuals bringing varying levels of skill to the search, some having never used handheld GPS units and some being unfamiliar with SARtrack. Some members prefer to utilise maps, and search using grid referencing and linear features. Although with differing skills, the search area was completed with thoroughness, identifying several clues left by the missing men, clues left by associates of the missing men, and equipment lost by searchers during their search, but located by other searchers as they moved through the bush and environs.

The search area was thoroughly mapped and managed, resulting in the bodies of the missing men being located and returned to their families.

An observation by one Maori member, was the age and ethnicity of most of the searchers, being older male Caucasians. The challenge was for Iwi to assist in the identification and training of young Maori to become actively involved in Search and Rescue.

### *Observation*

- *With the benefit of hindsight, the initial areas searched were clue rich environments and provided indications of high likelihood for the men's location. It would have been beneficial to search the travel corridors and linear features which may have resulted in the men being discovered within an earlier timeframe.*
- *An opportunity exists for NZSAR to work with Iwi to assist in the recruitment of future Search and Rescue volunteer personnel.*

## G: MEDIA RELATIONS.

Media seek to gather information which may produce a story of interest to the wider community. Media sources initially focussed on the gang element, driving at high speed, in a stolen vehicle, and then abandoning vehicle in the bush and now lost. Reporters then looked to infiltrate family meetings, and speak with those involved in the search, following Police briefing, or by visiting hotels seeking information or opinions from searchers who were there to dine.

Family were approached by a number media for interview. A constructive interview by TV3 The Hui was conducted focussing on the impact the search had on the two mothers of the two lost men. The reporter respected the request for identity protection of one of the mothers, and sought a balanced

picture involving Police in the overview. The brief documentary was filmed during the search but did not go to air until after the men had been recovered.

The primary media message from the police media liaison officer, was that the search was to locate the missing men, irrelevant of their backgrounds. Initially it was about saving lives, and latterly about returning the bodies of the men to their loved ones.

Family raised concern that within 45 minutes of the family being advised that the boys bodies had been located, they were hearing about it on the news. Family felt that did not have enough time to contact extended family, before they would have heard about it through media.

#### *Observation*

- *It is imperative that a media liaison officer is available from the outset with very clear messages to be communicated to the media*
- *Media awareness needs to be included into briefings to staff involved with the Search, and family victims of the search*
- *Family need to be briefed on what to expect from media, including how quickly they will report, as an incident unfolds.*

## OPPORTUNITY FOR IMPROVEMENT

*Identify any skill, equipment, technology, document, process or procedure that may have led to a significant information and / or performance improvement for this SAROP or SAROP of this nature.*

### USE OF SAR DOGS

NZ Police general duties dogs that are SAR qualified, are trained in both tracking and area search, as well as cadaver (Victim Recovery). Police have 10 qualified Victim Recovery dogs and 15 SAR qualified general-purpose dogs i.e. they are trained for general purpose roles such as tracking and holding but are also trained and qualified in SAR to area search or track, without adopting an aggressive approach toward the found victim.

To qualify as an operational SAR Police dog, the dog and handler undergo a week-long training at Waiouru, followed by successfully completing the national SAR person course at Dip Flat in the Nelsons Lakes region. The dog course concludes with tests on a bush track that is 3 hours old, and 24 hours old. They regularly complete tracks up to 40 hours old and are around 1.5 kilometres in length.

In relation to SAROPs, SAR dogs should always be deployed into identified start points such as the last footprints, vehicle location etc. The area should have otherwise been preserved for that purpose.

Similarly, when voices are heard in the bush, what is heard is often the echo and searchers invariably start looking in the wrong direction. The dog has such attuned hearing, they will always look in the direction of the voice and often scent or track to that voice.<sup>10</sup>

Scenes are often contaminated, usually by people trying their best, whether from attending Police officers trying to ascertain what has occurred, or field searchers finding exhibits. In either case, the SAR dog can be brought in, and commence tracking from the last identified point of contamination. In the case of finding an exhibit, again you control the remaining area around the exhibit, identified where searchers have and have not been, and allow the dog to search in the uncontaminated areas. Areas such as fire sites are ideal, because the missing person has been active in that one area, and then headed off. The dogs normally, will track a scent from such a site.<sup>11</sup>

Victim Recovery dogs usually pick up the scent from about 3 days, but they are all general duties SAR trained also, not uniquely Victim recovery, so they can be deployed at any stage for either rescue or recovery.

LandSAR also has a dog capability, with trained dogs and handlers through NZ, usually trained in either area searching or tracking. No LandSAR dogs have been certified as cadaver dogs.

---

<sup>10</sup> On this occasion, the SAR dog had not arrived in the search area, when the voices were heard by the search team.

<sup>11</sup> On Operation Mangatawai, heavy rain had impacted on the SAR search capability, and attempts were made to scent from the located fire site without success.

Consideration needs to be given early, to assessing the availability of Police and LandSAR dogs to better search areas. During high-risk period, the Police dogs would simply be supported by one or two sworn and armed cover personnel.

#### *Observation*

- *Operation Mangatawai saw the deployment of one SAR qualified dog on day 1, and a second brought in on day 2. On day 11, three Victim recovery dogs were brought in for two days. Through early contact of district NCO dog handlers, the availability and subsequent early deployment especially into potential traffic routes and linear features should be considered.*

## POLICE COMMUNICATIONS CENTRE

During the three 111 calls received by the two Comms centres, the call takers populated an event log of the telephone content, whilst also reviewing a second screen of what should be asked. Currently the information being sought, relates to lost individuals who have drifted off a track, or have an idea of the area they are in.

Call takers cannot be subject matters experts in all areas, therefore the development of drop down screens as additional boxes are checked, such as injured party, drop down box to hypothermia with associated medical information for the caller, or lost but no idea where, drop down box describe land features, bush, can photos be forwarded of environment, can climb tree to get elevated view etc.

#### *Observation*

- *The development of computer software for call takers to enable the right type of questioning based on information being extracted, would be beneficial for all lost or missing persons related incidents*

Interpretation of the Comms chronology - The Comms chronology is difficult to interpret especially when different calls relating to the same incident are merged or cross referenced. This document should be easy to follow for all end users, especially Incident Management Teams. With Op Mangatawai, the first and third 111 call were merged resulting in the third call not being identified for some days, and the associated PCL data initially missed.

#### *Observation*

- *The reviewer found it difficult interrogating the chronologies. I was able to access all 16 event chronologies that related to this operation, all of which had been cross referenced or merged*



## PCL ADVANCEMENT

PCL data is currently available for a 60-minute window if linked to a 111-emergency call. The data is either handset data, Wi-Fi data or network data. The technology around this capability continues to develop, with MBIE working with Telecommunication (telco) providers to identify other ways a cell phone can be located, especially in relation to a cell phone tower position, i.e. round trip (frequency) delivery between handset and tower to identify distance from tower, or satellite.

MBIE continue to advance business case proposals to government around enhanced capability across all telco networks. The current business development will enable:

- measuring the distance between a cell phone handset and cell tower and reducing from 360-degree to a 120-degree arc, creating a substantially reduced search window.
- Increased coverage of cell phones. Currently Android phones, that make up approximately 65% of the market place, can be located however the Apple network that makes up 30% cannot. Work needs to continue internationally, to enable to emergency location capability for the Apple network also.
- Repeat sending of location records. The ability to recover repeat location records at regular intervals which would help track the person whilst a 111 call is in progress. Location data will stop being sent when the 111 call is disconnected, however in cases such as Op Mangatawai, there would likely have been a few more location records obtained from the three calls made.



## CELL PHONE TRACKING

Technology continues to develop, with drone, mobile cell tower, cell phone tracking and computer capability. The ability to recover lost or injured individuals within the shortest possible timeframe, or substantially reduce deployment of personnel in the field, both from a time/cost and personal risk, must be primary considerations.

The need exists for international awareness around technology development that may change the way searches are carried out i.e. ability to track a cell phone from an aerial platform where no cell coverage is present, the use of drone capability, modified mapping etc.

Vodafone network have trialed a portable cell tower in the sky, enabling cell phones to work where they would otherwise have no reception.

Owl Optics / Centum claim to have the capability (Lifeseeker) where they can utilise mobile phones as a beacon, tracking the presence of a cell phone signal without collaboration from the cell phone user.

Spark have indicated an interest in exploring cell tower in the sky / cell phone identification utilising aerial capability.

MBIE continue a programme of work looking to address Mobile Black Spot locations across New Zealand, and NZ Police continue a programme of work on Next Generation Crisis Communication systems.

#### *Observation*

- *Cell phone tracking capability needs to be closely monitored by NZSAR, identifying research opportunities and coordinated cross-agency support in technology awareness.*
- *The two key focus areas must be:*
  - *cell phone location in cell receptive areas, and*
  - *cell phone location identification utilising new technology in non-receptive areas. This would enable an initial aerial scan of a wide target area with substantially reduced resource, to identify early lost subjects in possession of cell phone or similar technology.*

## TRAINING AND DEVELOPMENT

This review identified a real passion from those involved in Search and Rescue roles, and this needs to be grown with ongoing role development from searcher to team leader, or from search group to a role in the IMT. This also applies to the skills youth bring to Search and Rescue, and their knowledge and capabilities as it relates to new technology, especially computer based.

Currently the only training development opportunities exist in formal seminars hosted a few times a year, or whilst operational. The need exists for the availability of on-line training, for volunteers to develop their capabilities both as searchers and users of field technologies. This technology would create a SAR chat room capability, where those interested can explore new technologies being developed internationally and bring these concepts and ideas to the NZSAR forum.

As technologies develop, search managers need a *register of experts*, that identify a 'go to' point of reference for subject matter experts and trainers.

#### *Observation*

- *NZSAR needs to explore the opportunities of working with existing institutes that can provide an on-line learning capability to upskill volunteers in the use of SAR technologies, methodologies and role responsibilities.*
- *NZSAR should also develop an expert register that can be captured on their website, as the go to resource for subject matter expertise.*

## RECOMMENDATIONS

*Make recommendations as appropriate to the New Zealand Search and Rescue Council relevant to improving New Zealand's SAR system, its people, equipment, documentation, skills, processes and procedures.*

### SUMMARY OF FINDINGS

- *The Incident Management team was well structured from day one, with capable resource carrying out pivotal roles. Photos were produced of the IMT organisational structure taken by the Incident controller which proved invaluable to the reviewer. Staff involved were exceptionally passionate, working some very long hours, and it is imperative District Command and the Incident Controller ensure staff are given sufficient time to manage mental and physical fatigue.*
- *A detailed appreciation needs to be undertaken, considering the location of any ICP and/or forward ICP, for all major operations. There will always be strengths and weaknesses, and these need to be identified and mitigated prior to any final decision.*
- *By hosting a collective end of day team leader debrief, an opportunity is provided to bring together a collective 'think tank' that enables an informal operational review, ideas to be bounced around which may assist planning and decision making. As there was no team leader debrief, this opportunity was lost.*
- *With the development of new techniques and technology, including the use of hand-held GPS devices, subject matters experts need to be identified, and ongoing training needs to be available.*
- *SARtrack has been sponsored by NZSAR as the preferred software to be utilised in SAROPs. Investment needs to continue to ensure it delivers the capability required for all sizes and types of searches undertaken.*
- *There are no formal time frames, terms of reference, qualification of persons to carry out review or formal reporting of a SAROP review*
- *The deployment of any care package needs to be considered early in the SAROP*
- *There currently exists the LandSAR guidelines, but no nationally agreed Manual of Best Practice as it relates to land based Search and Rescue.*
- *The use and downloading of handheld GPS units provided a record of the exact areas searched and the areas requiring search. On occasions, some teams lost their stored data, or were not familiar with the equipment, which is an ongoing training issue as earlier identified.*
- *The IMT need to be aware of the existence, availability and capability of resources such as Search and Rescue qualified dogs and their respective handlers and deploy accordingly.*

- *An opportunity existed to deploy an additional trained Police SAR qualified dog and handler unit from day one. Consideration should be given to consulting with District Dog NCOs to identify local and neighbouring qualified resource that could be available for early deployment.*
- *NZDF personnel were well received by the family and community but need to be better briefed and prepared prior to Search and Rescue deployment.*
- *There is clearly supporting roles NZDF can actively assist in, ground search personnel would have been ideally placed to assist in searching linear features and wider search corridors.*
- *There exists a need to further grow the skills and capability of personnel, to manage the various IMT roles.*
- *Regular rotation of staff enabling review and the fostering of fresh thinking needs to be encouraged, whilst still providing a high level of continuity.*
- *The success or otherwise of operations depends upon the quality of communications. Only positive commentary was received, in relation to SAROP communications by staff in the field.*
- *A family briefing document needs to be compiled, that initially provides awareness for family in the form of a safety briefing, assisting them with insight around media management, search process, and then as time advances, a subsequent briefing around expectations of body management, exhibit management and potential Coronial process.*
- *Following notification of a SAROP emergency, Police should be looking to advise next of kin, where possible, of the commencement of an emergency operation, unless directed otherwise.*
- *Where the SAROP involves multiple families, return of exhibits needs to be managed through consultation, with all families having input, prior to final return or disposition.*
- *Cultural awareness should be foremost when looking to identify suitable family liaison officers*
- *The early utilisation of key Police personnel, in this case Iwi Liaison Officers and local station supervisor also enhanced cultural awareness, respect and bridged any cultural gaps*
- *The early involvement of Iwi bridged a divide that existed between Police and the family gang members and associates. As a direct result of Iwi involvement, senior gang members were able to retain mana whilst working with Police, and issues such as accommodation and logistics of associates were managed separate to the SAROP, by Iwi.*
- *No family or associates were officially utilised in the coordinated search effort.*

- *Communications Centre Commander is in charge of an operation, until it is formally handed over to an Incident Commander in district. It was the Comms Commanders responsibility to ensure taskings were completed. In the initial response to the recovery of the stolen vehicle, an identified action was to notify the on-call Search and rescue coordinator. This did not occur.*
- *The current standard operating procedures in Comms, as it relates to the collection of information and advice to be given to persons lost in the bush needs to be reviewed. The call taker at the centre cannot be expected to be an expert in all areas, so they need current, precise and succinct aide memoirs at their fingertips to gather information that will benefit the caller and subsequent searchers and provide advice and reassurance to the caller.*
- *Three Comms Centres and the Police Crime Reporting Line all respond to 111 calls – when multiple calls come in about the same incident, they will invariably be answered by call takers at different centres. A process needs to be identified, where an active incident can be advised to all four centres. In this case, the calls went to two different centres and the subjects' cell phone battery time was consumed, seeking unnecessary information.*
- *Once an ICP is established, consideration should be given by Comms to any subsequent contact with the missing person being diverted to the ICP. The third 111 call came in from missing men after Taupo ICP had been established. Had the call been forwarded to the ICP, a different set of questions unique to the environment and terrain would have been asked.*
- *PCL continues to develop, and will be a powerful tool going forward, for SAR teams to utilise as a starting search point. It is imperative that IMT and search team leaders are aware of the PCL capabilities, and prioritise accordingly.*
- *It is possible that literacy may also have been a contributing factor to the lack of information received from Mobile Locate, as it seems to be at the point where the user had to allow or deny the sending of the location information, that the flow of information stops. It is imperative that when callers are talked through the process, consideration is given to the literacy and technical capabilities.*
- *With the benefit of hindsight, the initial areas searched were clue rich environments and provided indications of high likelihood for the men's location. It would have been beneficial to search the travel corridors and linear features which may have resulted in the men being discovered within an earlier timeframe.*
- *An opportunity exists for NZSAR to work with Iwi to assist in the recruitment of future Search and Rescue volunteer personnel.*
- *It is imperative that a media liaison officer is available from the outset with very clear messages to be communicated to the media*

- *Media awareness needs to be included into briefings to staff involved with the Search, and family victims of the search.*
- *Family need to be briefed on what to expect from media, including how quickly they will report, as an incident unfolds.*
- *Operation Mangatawai saw the deployment of one SAR qualified dog on day 1, and a second brought in on day 2. On day 11, three Victim recovery dogs were brought in for two days. Through early contact of district NCO dog handlers, the availability and subsequent early deployment especially into potential traffic routes and linear features should be considered.*
- *The development of computer software for call takers to enable the right type of questioning based on information being extracted, would be beneficial for all lost or missing persons related incidents*
- *The reviewer found it difficult interrogating the chronologies. I was able to access all 16 event chronologies that related to this operation, all of which had been cross referenced or merged*
- *Cell phone tracking capability needs to be closely monitored by NZSAR, identifying research opportunities and coordinated cross-agency support in technology awareness.*
- *The two key focus areas must be:*
  - *cell phone location in cell receptive areas, and*
  - *cell phone location identification utilising new technology in non-receptive areas. This would enable an initial aerial scan of a wide target area with substantially reduced resource, to identify early lost subjects in possession of cell phone or similar technology.*
- *NZSAR needs to explore the opportunities of working with existing institutes that can provide an on-line learning capability to upskill volunteers in the use of SAR technologies, methodologies and role responsibilities.*
- *NZSAR should also develop an expert register that can be captured on their website, as the go to resource for subject matter expertise.*

## SAR NOTIFICATIONS

On Sunday morning, Police Communications received several calls from the missing men's father and mother, and three 111 calls from missing men indicating the men were lost and hypothermic, however little advice was provided to the men, they were never told to remain where they are, and Search and Rescue personnel were not aware of the situation until 10.00am, resulting in the first searchers not arriving in the search zone until 2.00pm.

### 1. **RECOMMENDATION (POLICE)**

*A review of the current standard operating procedures in Comms, as it relates to the collection of information and advice to be given to persons lost in the bush. The call taker at the centre cannot be expected to be an expert in all areas, so they need current, precise and succinct information at their fingertips to gather information that will benefit a subsequent search. Alternately the call could be forwarded to a SAR subject matter expert who will be involved in the search, if available.*

#### **Proposed Action Plan.**

- i. That a review be undertaken of the standard operating procedures as they relate to Lost persons (1L) and Missing persons (2M) and updated by the Police Response and Operations Group.
- ii. That a business analyst be contracted to look at the current technology and possible technology solutions that would allow the call taker to check a box which would automatically trigger an associated screen i.e. has hypothermia – summary of behaviours and severity of hypothermia / advice to assist in mitigating hypothermia, or lost in area not known to caller – seek description of environs bush, trees, hills, streams, obtain cell phone photos of area etc.

### 2. **RECOMMENDATION (POLICE)**

*Three Communication Centres (Comms) and the Crime Reporting Line all respond to 111 calls – when multiple calls come in about the same incident, they will invariably be answered by call takers at different centres.*

*A process needs to be considered, where an active major incident can be advised to all four centres. In this case, the calls went to different centres over an extended period, and call takers repeatedly sought similar information which impacted on the cell phone battery time.*

#### **Proposed Action Plan.**

- i. Comms centres are currently able to identify active jobs through a search on location or even caller ID. The ability to provide a desktop heads up to all call takers of active major events would stream line initial incident identification and reduce information duplication.

### 3. **RECOMMENDATION (POLICE)**

*The Comms chronology is currently difficult to interpret, especially when different calls relating to the same incident are merged or cross referenced, and when utilised as the formal log to brief operational staff, needs to be easily followed.*

*In this SAROP the first and third 111 call were merged. As a result, the third call was not identified for some days, and the associated PCL data not identified in a timely manner.*

#### **Proposed Action Plan.**

- i. A Business analyst needs to review the current Comms Chronology and identify opportunities where it can be enhanced to enable ease of reading and review by front line end users
- ii. A review of existing Comms policy and procedure to ascertain what jobs are merged ensuring major incidents such as Lost or Missing persons, are not merged whilst the incident is active.

**Action underway:**

CAD 9.4 Event Chronology Enhancement will review and update the current Comms Chronology format.

#### BEST PRACTICE

LandSAR has a recognised methodology that considers potential points of attraction, decision points, linear features and travel corridors. During Operation Mangatawai, there were two clear start points, the stolen vehicle scene, and the Probable Call Location data. This was then followed up with the thorough search of clue rich bush and environs.

NZSAR is delivering on SARtrack as the software of choice, and different search teams are either utilising technology such as hand-held GPS mapping or maintaining topographical maps and utilisation of grid references.

Operational reviews are considered and carried out with little structure, terms of reference or reporting requirement.

#### 4. **RECOMMENDATION (NZSAR)**

*It is recommended that a Manual of Best Practice is developed for Land based Search and Rescue operations, and adopted nationally*

**Proposed Action Plan**

- i. Nationally recognised subject matters experts are brought together to identify the structure for a Manual of Best Practice.
- ii. Individual subject matter experts are identified to coordinate and deliver chapter specific, with wider consultation as the content is developed.
- iii. The final Manual of Best Practice is endorsed by NZSAR Council, and any major reviews of the Manual are agreed on an annual basis and signed off by Council.

**Action underway:**

NZSAR Council currently have an active programme of work addressing SAR Guidelines.

#### 5. **RECOMMENDATION (NZSAR)**



*Operational reviews of SAROPs are completed in a regular and formatted manner. The review should be undertaken by qualified and independent personnel. Although most SAROP's undergo reviews at various stages, there is no formal structure or reporting of that review.*

**Proposed Action Plan.**

- i. It is imperative to have ongoing SAROPs independently reviewed, with a formalised Terms of Reference, and requirement to report back on the outcome and recommendations from that review.
- ii. The reviews should be completed at set periods of time i.e. initial review after 48 hours searching, a detailed review after 7 days, a follow-up review after each 7-day window, and a full independent review prior to the Search being suspended.
- iii. The current NZSAR post-operation independent reviews be incorporated into the review policy.
- iv. The structure and draft terms of reference for such reviews are formalised as part of the Manual of Best Practice.

**Action underway:**

NZSAR Council endorsed the proposal for renewed *independent post-operational reviews* in February 2018.

## **6. RECOMMENDATION (POLICE)**

*Family liaison is a primary role for Police during SAROP's. Advisory Instructions need to be available for the liaison officer, considering key needs and concerns of the family such as media management, SAR process and Coronial process.*

**Proposed Action Plan.**

- i. *A Culturally aware advisory document needs to be developed, providing the liaison officer with key information around media management, SAROP process, and Coronial process, should this arise.*
- ii. *Early notification of next-of-kin in a SAROP situation needs to be assessed and treated with urgency, unless otherwise advised.*
- iii. *At the conclusion of the SAROP, all interested parties need to be consulted prior to the return of destruction of any located exhibits.*

**Action underway:**

NZSAR Council currently have an active programme of work addressing SAR Guidelines.

## **TECHNOLOGY**

This SAROP involved a total of 232 people, deployed for a period of 505-person days, at a projected cost of \$250,000+ (not including lost revenue from volunteer searchers), over a period of 29 days.

Technology continues to develop at great speed, with enhanced cell phone location technology occurring through PCL data, and mobile Locate. Capability also exists, as it relates to the locating of a cell phone signal in environments where there is no cell tower reception.

## **7. RECOMMENDATION (NZSAR / POLICE / MOT)**

*PCL data is available for 111 calls. The data is either handset, Wi-Fi or network data. Handset data provides a high likelihood location for the Incident Management Team in any Search and Rescue situation.*

*The technology continues to develop, with MBIE working with Telecommunication providers to enhance or identify other ways a cell phone can be located.*

*Nationally, there is a lack of awareness around the current capability or how it should best be utilised.*

### **Proposed Action Plan.**

- i. While PCL data capability continues to advance, staff awareness, particularly supervisors and operational staff (including Comms centres, SAR coordinators and dog handlers), remains limited. Promotional material needs to be made available through internal communications on the strengths, weaknesses and opportunities PCL data can offer.
- ii. MBIE continue to advance business case proposals to government for enhanced capability across all telco networks. With the existing demand on resource, Police and NZSAR should actively support the business case proposals and scope of work that will enable:
  - a. Better identification through the measuring of round trip (frequency) distance between handset and cell tower, and by reducing the search radius from a 360-degree zone to a 120-degree arc.
  - b. Increased coverage of cell phones. Currently Android phones, that make up approximately 65% of the market place, can be located however the Apple network that makes up 30% cannot. Work needs to continue internationally, to enable to emergency location capability for the Apple network.
  - c. Repeat sending of location records. The ability to recover repeat location records at regular intervals which would help track the person whilst a 111 call is in progress. Location data will stop being sent when the 111 call is disconnected, however in cases such as Op Mangatawai, there would likely have been a more location records obtained from the three calls made, or reduced search radius as the location data improved.
  - d. Cell in the sky. The aerial cell tower link, to identify cell handset and GPS coordinates in otherwise non-reception areas, resulting in early location identification.
- ii. NZSAR be tasked with researching and providing opportunity for coordinated cross-agency capability development, commencing with cell phone beacon location in both active and non-reception areas. This would enable an initial aerial scan of a wider target area with reduced deployed resource, resulting in substantially reduced search and rescue response / recovery time to locate missing or lost subjects.

- iii. Explore opportunities for leverage off existing cross-agency work programmes, and identify areas where new investment needs to be prioritised

**Action underway:**

NZSAR hosted a technology workshop in March 2018.

MBIE are presenting a business case to Government early April 2018.

MBIE are currently also working on Mobile Blind Spot enhancement

Police are currently working on Next Generation Crisis Communication Systems

## ROLE OF IWI

The role of Iwi cannot be under-stated. Iwi feel a guardianship (Kaitiaki) to the land and the people who visit the land. They have the capability to accommodate and feed large numbers by opening their marae and utilising those facilities as a civil defence reception and reconciliation centre. Iwi are very familiar with the land and can provide support and input around linear features, search corridors and places of interest.

Op Mangatawai SAROP took place on Tuwharetoa land, involving active gang members suspicious of Police and their perceived preconceptions. Tuwharetoa became actively involved in the operation, assisting with Marae accommodation for the gang members, and utilising Tikanga Maori to bring the various groups together for the common goal, finding the missing men. After the SAROP, a karakia was held in the bush area, providing closure for the families.

## 8. RECOMMENDATION (NZSAR)

*The Manual of Best Practice recognise the partnership Iwi share with government agencies, especially as it relates to SAROP's.*

**Proposed Action Plan.**

- i. The Manual of Best Practice weave the partnership with Iwi into each chapter, ensuring:
  - a. Iwi Kaumatua are briefed early of active situations and invited to partner in the operational deployment.
  - b. That Iwi liaison officers are actively involved in all SAROP's and look to actively involve local Iwi in all aspects of the operation.
  - c. That agency ensures the engagement and partnership with Iwi is incorporated into current policy and procedure documentation.
- ii. Ensure cultural awareness and sensitivities are at the forefront of all planning by Incident Management teams
- iii. NZSAR look to work in partnership with Iwi, to enhance recruitment of Maori into the volunteer Search and Rescue organisation.

## TRAINING AND DEVELOPMENT

During this review, it has become apparent that there is a real passion from those involved in Search and Rescue roles, to learn and grow their capabilities, whether from searcher to team leader, or from search group to a role in the IMT under the CIMS structure. This also applies to the skills youth bring to Search and Rescue, and their knowledge and capabilities as it relates to new technology, especially computer based.

### 9. **RECOMMENDATION (NZSAR)**

*NZSAR lead a piece of work, looking to leverage off existing on-line training capabilities through external providers, and continued investment and development of existing software applications such as SARtrack.*

#### **Proposed Action Plan.**

- i. The need to develop on-line training capability for volunteers to further develop their capabilities both as searchers and users of field technologies.
  - a. NZSAR needs to explore the opportunities of working with institutes that can provide an on-line learning capability to upskill volunteers in the use of SAR technologies, methodologies and role responsibilities
- ii. As technologies develop, search managers need a register of experts that identify a 'go to' point of reference for subject matter experts and trainers.
  - a. NZSAR should identify an expert register that can be captured on their website, as the go to resource for subject matter expertise.
- iii. Investment needs to continue in the development of SARtrack with the expectation:
  - a. That SARtrack is adopted nationally as the preferred SAROP application
  - b. That on-line training is available in the use of SARtrack
  - c. That national SAR staff are consulted in the development and expectations of the SARtrack application

# OPERATION MANGATAWAI REVIEW

## ANNEX 1

### OPERATION TIME LINE

Day of Disappearance: 1

Day of Searches: 0

**SATURDAY**

**12 AUGUST 2017**

TIME	SUMMARY OF EVENT
1450	<p>Vehicle pursuit on Desert Road following vehicle observed with differing registration plates.</p> <p>Vehicle pursuit abandoned at 150 kph.</p> <p>Vehicle believed to be BCB693 – Mazda Lantis stolen from Palmerston North.</p> <p>Vehicle believed to be in possession of former flatmate of owner and possible associate who has history of weapons and violence.</p>
1631	<p>Vehicle located 4 kms down Tree Trunk Gorge Road, Turangi – found abandoned by hunters in bush</p> <p>Vehicle bearing Reg No: ZR4394.</p> <p>Vehicle has pulled ignition / broken window etc.</p> <p>Hunter and attending Police officer follow tracks from vehicle along Power Pylon track and into bush.</p> <p>No further search carried out due to perceived risk – all told to back off and allow offenders to come out when ready</p>
1707	<p>Unit TYJ78 off with vehicle</p> <p>DCC briefed re concerns for safety of occupants of the vehicle</p>
1718	<p>SAR to be contacted and briefed</p> <p>Following discussion with BOP District Command Centre (DCC) it was Comms that remained in Control of incident and was to advise SAR.</p> <p>This never occurred.</p>
1723	<p>“Based on the info thus far, might be best if we just do 2R and leave the area. If these subjects are lying low the cold will bring them out and probably try and hitch a ride which we may get called about”</p>
1732	<p>BoP DCC has discussed with Central DCC – there is no Wanganui dog handler logged on – so nil dog unit available</p> <p>BoP DCC consideration track would be at least 2hrs+ old by time dog arrived, and light would be running out in very thick bush.</p> <p>Dog unit not advanced.</p>

1742	<p>North Comms Inspector (NCA) discussed with DCC BOP – He will appoint TPR incident controller. He will instruct TPR to withdraw and complete 2R.</p> <p>DCC plan is that offenders will have to immerge at some time. There is virtually no radio or cell phone reception which raises safety concerns</p>
1744	NCA has discussed with Central Comms Inspector (CCA). We will keep PAH 10/2 until DCC contacts TPR and pulls him out.
1746	DCC BoP phoned saying he has spoken to TPR who is backtracking to vehicle. Once he is safely out stand down PAH – NCA.
1749	DCC will arrange media to do release re hitch hikers of pedestrians sighted Desert Road
1840	PAH34 incident controller. With PAH6 awaiting tow truck.
1841	BoP units to take a wider cordon for a while. Central units recovering vehicle. Same plan – pull back. Media release has been done. DCC
1917	<p>Vehicle recovered and towed to Ohakune.</p> <p>Vehicle full of gear belonging to offenders.</p>

Day of Disappearance: 2

Day of Searches: 1

**SUNDAY**

**13 AUGUST 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
<b>0637</b>	<p>Vincent Taurima's father calls Comms from Turangi Police Station.</p> <p>Advises his son and another family member argued – both took off on foot. One of the males started walking through the bush and is now lost.</p> <p>Infmt said he has heard from one of the males over phone call and is in the bush, getting very tired of walking, unable to find his way out.</p> <p>Comms to call informant back.</p> <p>Turangi - On call only. Not called out</p> <p>Call entered as a 2I (Information) job.</p> <p>Job held over for early shifty to start work.</p>
<b>0642</b>	<p>Green Tree Gorge Road is the last place informants' son and nephew were walking along.</p> <p>Informant received phone call from son 0400.</p> <p>Haven't heard from him since.</p> <p>Son: Vincent Taurima – 21 yrs old. Cousin is Hope / ? 21 yrs approx..</p> <p>0224023245 is Hopes Cell phone</p> <p>Informant fearing as have not heard from males since 0400 hrs.</p> <p>Hopes cell phone going straight to v/mail since 0400.</p> <p>Are not familiar with bush.</p> <p>Informant lives in Palmerston North.</p> <p>Informant son and cousin were in Turangi overnight.</p> <p>Informant extremely upset – wants Police to locate son.</p> <p>Because informant is not from area - he cannot explain properly where son was last seen in bush.</p>
<b>0648</b>	<p>Vincent Taurima's mother contacts Police.</p> <p>Police chased her son last night and he went into the bush and he has been there all night.</p> <p>Infmt says he is stuck in the bush in Turangi somewhere. Reluctant to give her details.</p>



	<p>Won't say who told her that he was stuck in the bush and has hypothermia.</p> <p>Informant says she doesn't get on well with Police and doesn't want them at her address.</p> <p>Said she hasn't seen him for days since he cut off his bracelet.</p> <p>Doesn't know where Police chased him from.</p> <p>Couldn't give his cell number.</p> <p>Was distressed but argumentative.</p> <p>Has hung up.</p>
<b>0714</b>	<p>Informant back on line.</p> <p>States sons father at Turangi Station now.</p> <p>Notes event at the Police Station.</p> <p>Have advised informant that the father has been in contact with the Police.</p> <p>Informant said her son hasn't made contact with her as he hates her guts.</p> <p>Informant okay to leave the report with father and Police.</p>
<b>0824</b>	<p>Police rang the informant who hung up when advised it was the Police.</p>
<b>0828</b>	<p>Attempted to call Vincent Taurima's father – 2I event.</p> <p>Believed it was answered but was hung up on. Called Hopes number in 2I event, went to voicemail. Message left to call Police to confirm whereabouts and if out of the bush.</p> <p>Due to the vague information and the fact that not willing to speak with police in regard to confirming info / location for persons involved, unable to progress further unless further calls and information given by father who was in the Turangi area.</p> <p>Unknown where Green Tree Gorge is?</p> <p>Tree Trunk Road is down off Desert Road which is some distance from Turangi.</p>
<b>0838</b>	<p>Have contacted TPR22 who will be going to the Turangi area for traffic 3ms shortly. Advised of job and is going to 3m down into Turangi down to Tree Truck Gorge Road and to keep an eye out for Vincent Taurima if this is in fact the area / road that the informant (father) was referring to in earlier call.</p>
<b>0902</b>	<p>Informant is outside Police Station saying Police have not contacted him. His son called around an hour ago but line went dead.</p>

<b>0943</b>	<p>TYJ7B has spoken to informant – states that the males have been walking for several hours and are lost in bush.</p> <p>On call SAR have been made aware and transferred to TYJ7B</p>
<b>0956</b>	<p>South Comms receive 111 Phone call (1) from Matiu Ngaronoa.</p> <p>States he has been lost in bush for 2 days – hypothermic.</p> <p>Mobile Locate text sent – awaiting result</p> <ul style="list-style-type: none"> <li>• Call lasted 5 minutes and 50 seconds</li> </ul>
<b>1000</b>	<p>Comms contacts on-call SAR coordinator inquiring if he was aware of previous days incident – no knowledge</p>
<b>1005</b>	<p>SAR coordinator contacts Turangi Police Station to be briefed on what had occurred and what if anything was being done.</p>
<b>1010</b>	<p>SAR coordinator contacts BoP DCC Inquires who is leading job – he is. Who has been notified – nobody. What action being taken – none</p>
<b>1015</b>	<p>On-call SAR coordinator contacts District Operations Manager – briefs and arranges to meet at Taupo Police Station to discuss incident.</p>
<b>1026</b>	<p>North Coms receive Phone call (2) from Vincent Taurima</p> <ul style="list-style-type: none"> <li>• Call lasted 6 minutes</li> <li>• PCL Handset data position (Vodafone) LL 175:47:44.8440, 39:09:18.9360 – Radius 889 meters – Location time 10:20:17 13/8/17</li> <li>• Battery life now 2% - informant later states cell battery up to 20% but fluctuating</li> <li>• Informant states he has been in bush for 12 – 13 hrs. Friend has concussions and isn't speaking this morning. Informant is hypothermic – can't get warm, can't feel fingers or toes</li> </ul>
	<p>Two missing persons identified as gang associated, with history of violence toward police and others, carries offensive weapons, and in bush as a result of abandoned vehicle pursuit and offenders decamping into bush.</p> <p>Risk assessment considered too high to deploy civilian searchers into bush at that time.</p> <p>Four trained sworn SAR personnel flown in from Rotorua to search area</p> <p>Whakatane SAR dog and handler also brought into search area.</p>
<b>1036</b>	<p>SAR updated</p>

<b>1043</b>	<p>NCA3 spoke with DCC - they are fully aware and have been communicating with SAR and Ops Manager</p> <p>Unknown eta for SAR at this stage and they are 10/2 from Taupo.</p>
<b>10:50</b>	<p>Sitrep:</p> <p>AOS advised</p> <p>Ops Manager advised</p> <p>SAR Rotorua advised and will be ready to deploy sworn members as required.</p> <p>Area Commander Taupo - message left</p> <p>TENR response will require sworn armed SAR members to locate these two</p> <p>The two missing possibly linked to pursuit yesterday where firearms were mentioned as being in vehicle.</p> <p>Gang members, EM Bail Breach, aggravated Robbery active charge. The other has firearms and Assaults Police history.</p> <p>District Operations Manager (Incident Controller) will be at Taupo Station shortly with SAR</p>
<b>1107</b>	<p>Phone call (3) received from Vincent Taurima</p> <ul style="list-style-type: none"> <li>• Call lasted 8 minutes</li> <li>• PCL Handset (Network) data position (Vodafone) LL 175:46.08.6520, 39:09:22.5360 – Radius 1200 meters – Location time 11:05:53 13/8/17</li> <li>• In states very scared, friend having seizures, lots of little fits and shivering – thinks hypothermic.</li> <li>• Advised to stay close to each other for warmth</li> </ul>
<b>1230</b>	<p>Search area north of Tree Trunk Gorge Road, west of Tongariro River, South of Pillars of Hercules Mountain Bike track and East of Desert Road.</p> <p>Four Police SAR personnel from Rotorua - deployed by helicopter from Taupo to area. (Later joined by Police SAR dog and handler.)</p> <p>4 x Rotorua SAR sworn staff and Handler and dog deployed to sound of voices in bush.</p> <p>Members deployed wearing vests, Tasers and glock pistols as a result of risk assessment.</p> <p>Ambulance and support staff to Safe Assembly Point SH1 and Tree Trunk Gorge Road.</p>
<b>1245</b>	<p>Comms Inspector briefed what action is being undertaken</p>

<b>1305</b>	Outer cordon takes up static position at Safe Forward point – Tree Trunk Gorge Road. Armed.
<b>1355</b>	Whakatane SAR Dog handler and dog deployed drove from Whakatane to Taupo, then dropped by helicopter in PCL handset grid reference
<b>1400</b>	SAR team 1 walks bike track SAR team 2 walk from Tree Trunk Gorge Road along pylons
<b>1405</b>	Request made to Comms to attempt another ‘Mobile Locate’ on Vincent Taurima cell phone Unsuccessful – sent but not received
	Helicopter completes search of Mangatawai Stream area. SAR coordinator with helicopter
<b>1420</b>	At request from district another Mobile Locate sent to cell phone. Sent but not showing sign of being received. Cell going direct to voicemail.
<b>1501</b>	Search team 2 locate a boot print in bush Grid ref: E1841607 N5662140
<b>1502</b>	Search team 1 heard a response to appeal but long way away
<b>1518</b>	Search but no more sounds heard
<b>1534</b>	Cordon replaced – armed and situated a safe forward point Tree Trunk Gorge Road
<b>1624</b>	Whakatane SAR dog handler and dog helicoptered into bush to Search team 1
<b>1750</b>	Helicopter in air with Infra-red camera sensor.
<b>1850</b>	Incident Controller contacts Vincent Taurima’s ex-girlfriend. She has been out looking, he has no experience. He has been walking 3 hours, 2 together. Video called 0800. Just trees – unknown, skinny tall trees not to close together in a valley. Couldn’t hear river anymore.  Wearing black hoody, cotton scarf, unknown pants. Said he was wet, in undies, sitting in same spot all day. Can’t feel his legs. His mate – unknown. Vincent wanted her to find them. Lost his shoes.
<b>1852</b>	3 WAV (Call) files forwarded to SAR
<b>1901</b>	Heli heading out of area back to Taupo

<b>1918</b>	Vincent Taurima's Mother seeking update. No change – not located to date
<b>2010</b>	Incident Controller runs briefing. Search to be conducted with dog Grid E18413345 N5661965 500m from TTG Road; Team: Dog unit, team 1, team 2, team 3 (2 from Taupo and Turangi).
<b>2105</b>	Teams heading in from TTG Road
<b>2210</b>	At identified waypoint – dog casting about
<b>2225</b>	Team 1 1841360 5661923 no sighting Team 2 1841304 5661880 100m upstream
<b>2240</b>	Team have had no luck and will be pulling out
<b>2322</b>	Teams out to TTG Road – returning to Taupo
<b>0100</b>	Rotorua units standing down- travelling back to Rotorua Station
<b>0109</b>	All clear for night – will resume in morning

\*

Day of Disappearance: 3

Day of Searches: 2

**MONDAY**

**14 AUGUST 2017**

TIME	SUMMARY OF EVENT
	ICP established in Taupo Police Station with a forward base established at Turangi Police Station.
<b>1215</b>	3 sworn personnel briefed at Taupo station and formed into teams 2 and 3 and leaving for Turangi.
<b>1253</b>	Team 1 commenced task. Have gone to car location, following main track along powerlines Located item of interest – Blue shirt Grid E1842253 N5661755
<b>1256</b>	Whanganui dog team getting to TTG Rd approx. 1500hrs. Will be provided with tasking and radio. Second Whanganui dog and handler arriving tomorrow.
<b>1300</b>	Update team 1 – heavy rain – very cold. Tyre tracks of vehicle deteriorating in weather.
<b>1311</b>	New teams setup
<b>1504</b>	Located clothing and fire remains Grid 1841719 5662423 Clothing consists 1 x shoe, 2 persons clothing and black sock. Dog indicating.
<b>1519</b>	Have located a presumed campsite, 1 x white lighter, bottle diesel branded fuel for life, 3 x long sleeved sweat shirts, 2 x track pants, 2 x t-shirts, 1 x grey singlet, 1 x brown shorts, 1 x adidas shoe, 2 x black socks, ripped cloth black, 1 x gardening glove, 1 x pen, 1 x meth pipe, \$2 coin in fire pit, small fire pit.
<b>1534</b>	Red glove located at bottom of gully Grid 1841675 5662410
<b>1538</b>	Advised hailing in area

<p><b>1558</b></p>	<p>DCC sitrep</p> <p>Area Searched:</p> <ul style="list-style-type: none"> <li>- Site around where vehicle was dumped</li> <li>- Fire sight located with discarded clothing, meth pipe and lighter</li> <li>- Red glove located several metres from fire site</li> <li>- Shoe, singlet and t shirt found</li> </ul>
<p><b>1801</b></p>	<p>Located 1x adidas shoe (left), 1 x black Warriors singlet, dry and wrapped up. Would appear quite recent</p> <p>Shoe confirmed same colour size as one located campsite</p>
<p><b>1817</b></p>	<p>Black XL Nike shirt, bright green camo Nike written on front 39-09.08765 175-47.9132</p>
<p><b>1824</b></p>	<p>Advised it is taking an hour to hour and half to travel 200m through bush</p>
<p><b>2247</b></p>	<p>Teams clear Mangatawai bike track to Mangatawai Stream</p>
	<p>Search effort nearly concluded for day.</p> <p>Six teams deployed today. One team including dog still in field.</p> <p>IMT at Taupo Station.</p> <p>Items of clothing and a fire site found today in search area. Planning for continuation of SAROP Tuesday.</p>

Day of Disappearance: 4

Day of Searches: 3

**TUESDAY**

**15 AUGUST 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
<b>0743</b>	Team 10 commences searching from Mangatawai Bike track
<b>0800</b>	Briefing of staff at Taupo Police Station
<b>1000</b>	Briefing at Turangi Police Station
<b>1100</b>	Whanau briefing of what is being undertaken by searchers
<b>1112</b>	400ml Pump drink bottle located Grid 1841514 5662792
<b>1143</b>	Ex-girlfriend - was with Police this morning. Said they have walked the track and its clear in they are family of the informant. She says is it possible to get a helicopter in as weather has now lifted. Ad*vised Police are doing everything possible.
<b>1222</b>	Tony Taurima advises that Hakopa Ngaronoa has a green backpack with some food in it – a tin of tuna and noodles. He will also have a blanket, a gas burner, a yellow drink bottle and will be wearing red jacket (Kathmandu type) and red shoes.,
	NZDF included in Search teams 11 x LandSAR teams deployed
	Cell phone pouch located northwest of fire site Second fire site located 80m east of first <ul style="list-style-type: none"><li>- Socks, gas cannister and aluminium can located</li><li>- Coca cola bottle located northeast of fire site</li></ul> Clothing identified by Whanau



Day of Disappearance: 5

Day of Searches: 4

**WEDNESDAY**

**16 AUGUST 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
<b>0800</b>	Briefing of staff at Taupo Police Station
<b>1000</b>	Briefing at Turangi Police Station
<b>1100</b>	Whanau briefing of what is being undertaken by searchers
	12 LandSAR staff with dog 11 NZDF staff Lots of rubbish located, identified as being left in bush by whanau searches previous day Cell phone located – near cell phone pouch found previous day. Identified as belonging to Hakopa NGARANOA

Day of Disappearance: 6

Day of Searches: 5

**THURSDAY**

**17 AUGUST 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
<b>0800</b>	Briefing of staff at Taupo Police Station
<b>1000</b>	Briefing at Turangi Police Station
<b>1100</b>	Whanau briefing of what is being undertaken by searchers
	6 LandSAR teams deployed 13 NZDF staff Boot print and muesli wrapper located

Day of Disappearance: 7

Day of Searches: 6

**FRIDAY**

**18 AUGUST 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
	<p>Four (4) divers from Police National Dive Squad deployed by helicopter to search Mangatawai Stream and Northern tributary</p> <p>Each pair of divers supported by one Police SAR personnel</p> <p>Divers locate pair of White gumboots, pants and debit card</p> <p>Care package prepared and placed at previously located fire site – voices heard from whanau in search area</p> <p>NZDF hypothermia expert consulted for behaviour and survivability of victims</p>
<b>1549</b>	<p>Receive call from local hunter.</p> <p>Regularly tramps in area. Has established tent site near Tree Trunk Gorge with several gas cylinders, sleeping bags and food for a couple of weeks.</p> <p>Is able to assist with search.</p>
<b>1924</b>	<p>Anon Crimestoppers Info</p> <p>Near dam at Te Kanu – they are near there near bridge they have been washed down there.</p>

Day of Disappearance: 8

Day of Searches: 7

**SATURDAY**

**19 AUGUST 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
<b>0800</b>	Briefing of staff at Taupo Police Station
<b>1000</b>	Briefing at Turangi Police Station
<b>1100</b>	Whanau briefing of what is being undertaken by searchers
	Sixteen LandSAR teams deployed Total 101 people on SAROP – 83 deployed searching in bush Volunteers and Police from: <ul style="list-style-type: none"><li>- Auckland, Wellington, Gisborne, Hawkes Bay, Waikato, Horowhenua, Manawatu, Ruapehu, Bay of Plenty and Whanganui.</li></ul> Radio Scanner found near where cell found located Divers search Mangatawai Stream downstream from waterfall.

Day of Disappearance: 9

Day of Searches: 8

**SUNDAY**

**20 AUGUST 2017**

TIME	SUMMARY OF EVENT
<b>0700</b>	Breakfast and briefing at Taupo Police Station
	Nine (9) LandSAR teams and police deployed.
	Review of all merged event chronologies revealed second PCL data from third 111 call First PCL data was from handset of cell phone – 2 <sup>nd</sup> call? 2 <sup>nd</sup> PCL data was from network data – 3 <sup>rd</sup> call?

Day of Disappearance: 10

Day of Searches: 9

**MONDAY**

**21 AUGUST 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
	Two (2) LandSAR teams deployed in proximity of Mangatawai Stream – downstream from Desert Road and around Pylon tracks One (1) Police SAR team and dog deployed into similar area.

Day of Disappearance: 15

Day of Searches: 10

**SATURDAY**

**26 AUGUST 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
<b>0730</b>	Briefing of staff at Taupo Police Station
<b>0830</b>	Briefing of staff at Turangi Police Station
<b>0900</b>	Karakia at Turangi Rahui explained by Ngati Tuwharetoa
	Ten (10) LandSAR teams (some with Police) deployed Search area between Pylons and first PCL data point

Day of Disappearance: 24

Day of Searches: 11

**MONDAY**

**4 SEPTEMBER 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
	Search by (3) three Victim Recovery dogs and handlers into area Accompanied by LandSAR Volunteers and Police Searched area north of mountain bike track



Day of Disappearance: 25

Day of Searches: 12

**TUESDAY**

**5 SEPTEMBER 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
	Continued search by three Victim Recovery dogs and handlers into area Accompanied by LandSAR Volunteers and Police Searched area north of mountain bike track

Day of Disappearance: 28

Day of Searches: 13

**FRIDAY**

**8 SEPTEMBER 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
	One LandSAR team deployed to search area north of Mountain bike track – tidy up Pillars area

Day of Disappearance: 29

Day of Searches: 14

**SATURDAY**

**9 SEPTEMBER 2017**

<b>TIME</b>	<b>SUMMARY OF EVENT</b>
	Two LandSAR teams with police search two streams south of Mangatawai Stream One LandSAR team search stream north of Mountain Bike track
<b>1317</b>	Hakopa NGARANOA located
<b>1322</b>	Vincent TAURIMA located 20 metres apart
	Bodies removed by helicopter
<b>1800</b>	All personnel and deceased bodies removed from bush.

