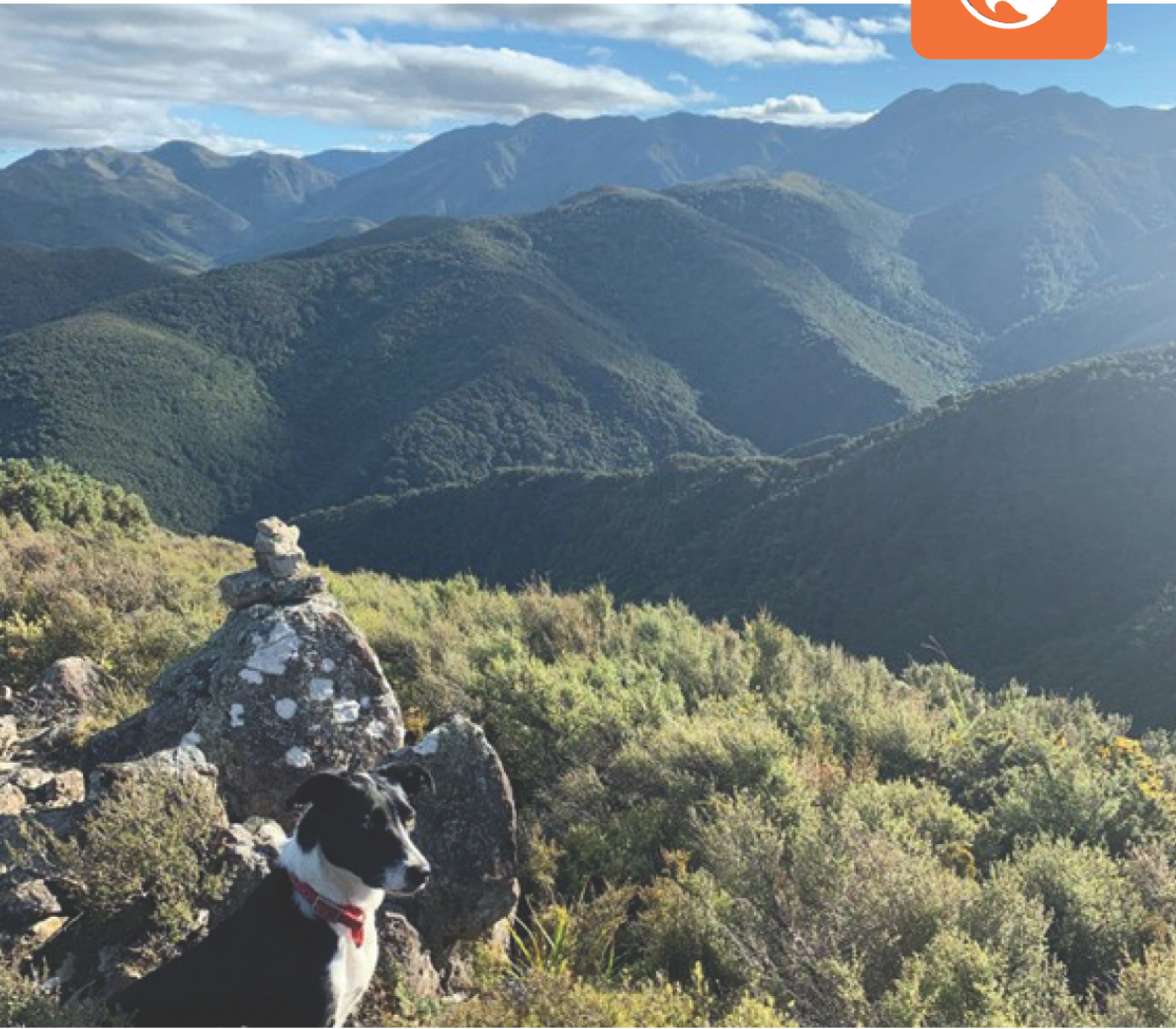




Department of
Conservation
Te Papa Atawhai



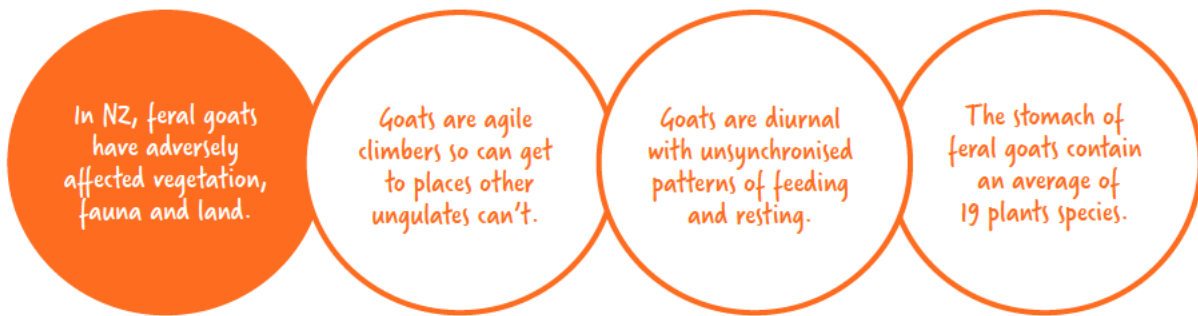
NORTHERN REMUTAKA FERAL GOAT CONTROL OPERATION

PREPARED BY | TRAP AND TRIGGER LTD

INTRODUCTION

The Department of Conservation engaged Trap and Trigger Limited to undertake both ground and aerial components of a feral goat control operation across 4300 hectares of the Northern Remutaka Forest. The operation was led by The Department of Conservation but had co-funding and logistical support from Kiwi Rail, Waka Kotahi NZ, Greater Wellington Regional Council and Native Forest Restoration Trust (Pidgeon Bush).

01 | WHY ARE FERAL GOATS AN ISSUE?



In New Zealand, feral goats have adversely affected vegetation, fauna and land stability. Browsing by goats can significantly reduce vegetation biomass and can have short-term consequences on forests by changing the types of species in the understorey. Goats are agile and sure-footed climbers and jumpers so they can get to places many other ungulate browsers cannot. Long term establishment of feral goats prohibits forest regeneration, undermining the natural structure of a multi-canopy forest. When a forest is stripped of the understorey, it becomes erosion prone, with increased sediment and its naturally ability to regulating/filter water is limited. In addition, vulnerable tree species become at risk as the lack in understorey and leaf litter allows hot and windy conditions to dry root plates, causing mass die-off of canopy species. The flow on benefits of a healthy forest is the support of existing or reintroduction of vulnerable native fauna through habitat conservation and enhancement.

Goats have been introduced to New Zealand. Populations are formed from escapes from domestic herds, rather than deliberate releases. It is believed that as a consequence of farm escapes, 62 new herds were established just between 1993 and 1996. Feral goats are diurnal (active during the day, sleeping at night), with unsynchronised periods of feeding and resting. Diet studies have found the rumen (stomach) of forest dwelling feral goats to contain an average of 19 plant species at any one time and, sometimes, as many as 30 different plant species. Goats are able to digest woody material and will often survive on whatever is available, including gorse. Like other hooved animals they also eat pasture grass species.

Goat habitat can range from sea level to the alpine zone, however, forest or scrub covered areas with rocky substrates is their characteristic habitat. They are very adept at climbing steep faces and favour areas that are steeper with sun exposure. As opposed to pigs and deer, feral goats tend to be easier to stalk as their sense of smell and vision are not so sensitive. Goat control can become difficult when they are present in large groups as active shooting can allow for individuals to escape from an encounter. Feral goats are not highly valued by recreational hunters and are generally pass-by, influencing their establishment and population increases.



02 | OPERATION OBJECTIVES

Due to the vested interest of multiple agencies within this operation, there are also a variation of operational objectives being:

- 1 Minimise the public safety risk imposed by feral goats residing on or near the Remutaka Hill Road. This is achieved through the risk reduction of vehicle collisions through driver distraction, vehicles collisions with feral goats, reduced roadside erosion, reduced likelihood of goat caused rock fall, and reduced unlawful hunting.
- 2 Reduce the likelihood of feral goat collisions with locomotives between Featherston and Remutaka Rail Tunnel.
- 3 Enhance forest restoration and support the predator control and native plantations undertaken by NFRT in the Pigeon Bush.
- 4 Support the annual goat control operation undertaken by Greater Wellington in the Pakuratahi Forest.

The overarching goal is to achieve biodiversity, water quality and carbon sequestration gains through feral goat control to low densities across the 4300-hectare area.

03 | UNGULATE POPULATIONS AND DISTRIBUTION

1 FERAL GOATS Populations and Distribution

Goats were at high density through most the operation area. Preferred habitat such as steep craggy faces, low regenerating scrub and exposed rock generally held a large mob of goats. There were a few exceptions where areas held low goat densities such as north side of Abbots creek. Goat damage was observed across the entire project area, with the most significant damage found within 500 meters proximity of SH2.

2 FERAL DEER Populations and Distribution

Deer were at varying densities within the operational area. The forest north of SH2 held the highest deer numbers with 1-3 encounters a day whereas the south side of SH2 had very little deer presence with only 2 encounters over the 30 days. We would assume that an abundant goat presence south of Abbots Creek has driven the forest to max carrying capacity, likely having a negative effect on deer establishment.





FIGURE 1-4
Heavy Browsing Damage
and Bedding Site

1 **FERAL PIGS**
Populations and Distribution

Pigs were found in localised hotspot pockets. Significant pig rooting damage was noted on the southern (uphill side) of SH2. It's likely the proximity of the road, being downhill would deter recreational pig hunter activity, in turn creating a safe zone for feral pigs to establish. Pigs were also seen during aerial operations.

04 | AERIAL OPERATION - SH2 ROAD CLOSURE



DOC worked alongside Waka Kotahi and other key stakeholders to schedule road closures allowing aerial operations. The aerial operation was confined to a budget of 8 flying hours, 4 of those hours delegated to the immediate road corridor and remaining time was used buffering the road corridor where aerial operations were safe to undertake with an active road. The operations were delivered over four 1-hour road closures between 9:30 and 10:30am, over the best weather windows in a two-week period.



Amalgamated Helicopters and Trap and Trigger members met at the **s9(2)(a)** property (Western Lake Road) prior to take off. 15 minutes prior to road closure, the aerial team would operate in the buffer area, until the road clearance team approved access to the road corridor. This ensured the aerial team were onsite, airborne, and active at the time of official road closure, enabling them to utilise every minute of the valuable road closure time.

Thermal Animal Detection System (TADS) was expected to be applied as the primary detection tool, however it ended up being a supplementary tool due to the amount of solar interference. Because the operation was limited to the 9:30 – 10:30 time period, this meant that 2-3 hours of sunlight prior to 9:30am created a difficult environment for TADS to be fully effective. Instead, TADS was utilised in shaded areas or to assist active shooting.

05 | SUMMARY OF EVENTS

AERIAL

- 4 May Helicopter safety briefing and first road closure
- 5 May Second road closure event
- 23 May Third road closure event
- 24 May Fourth and final road closure event

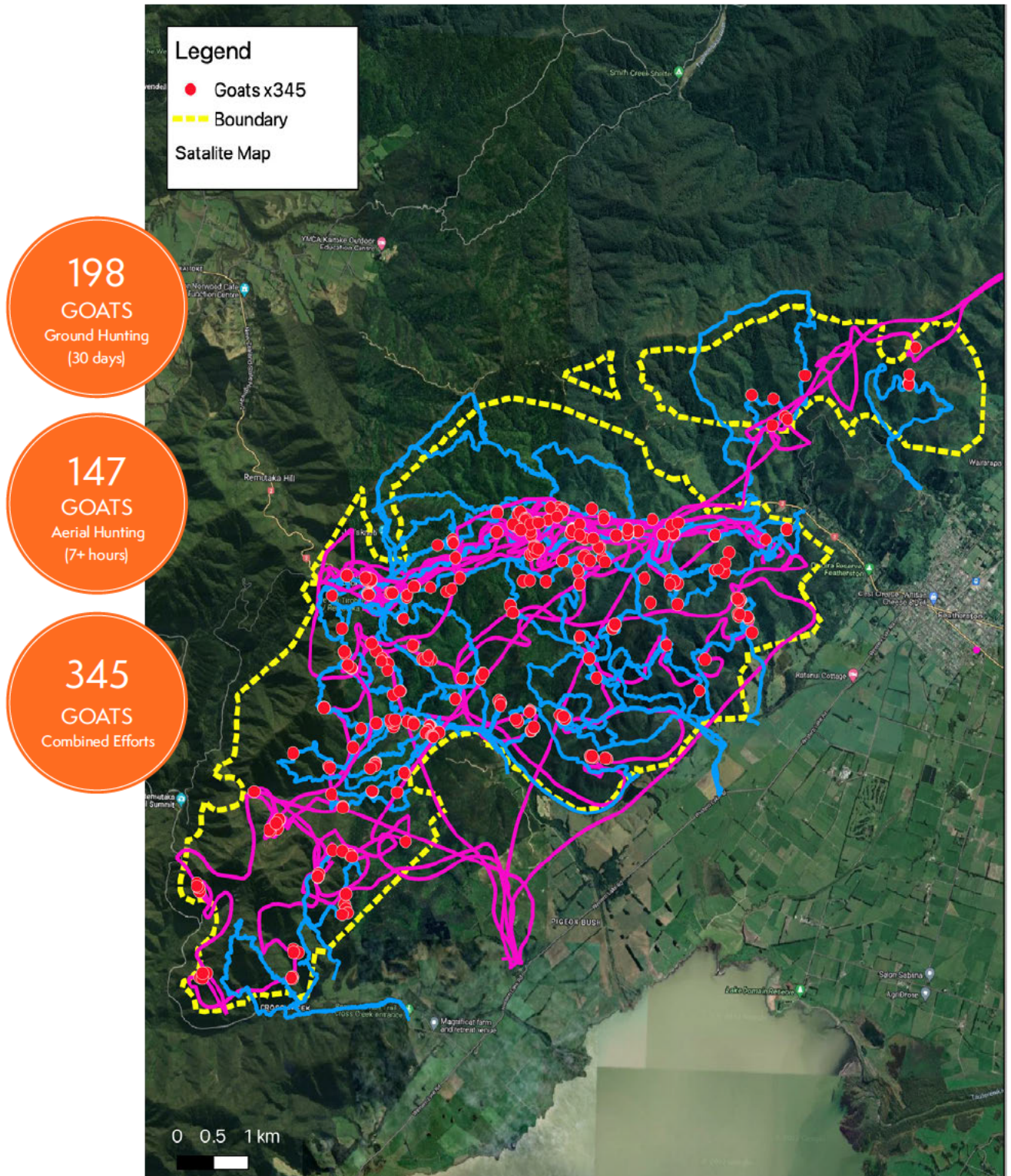
GROUND

- 25 April T&T internal briefing
- 26 April 2 hunters deployed in Pigeon bush
- 27 April 2 hunters deployed in Pigeon bush and Abbots creek.
- 28 April 3 hunters deployed in Pigeon bush and Abbots creek
- 29 April 5 hunters deployed in Pigeon bush, Abbots creek and Owhanga catchment
- 2 May 3 hunters deployed in Abbots creek and Boar bush.
- 3 May 5 hunters deployed in cross creek and Owhanga stream, access via Steves property
- 4 May 3 hunters deployed in Owhanga stream through steves
- 5 May 3 hunter deployed along hill road
- 6 May 4 hunters deployed along SH2 buffer and Pigeon bush

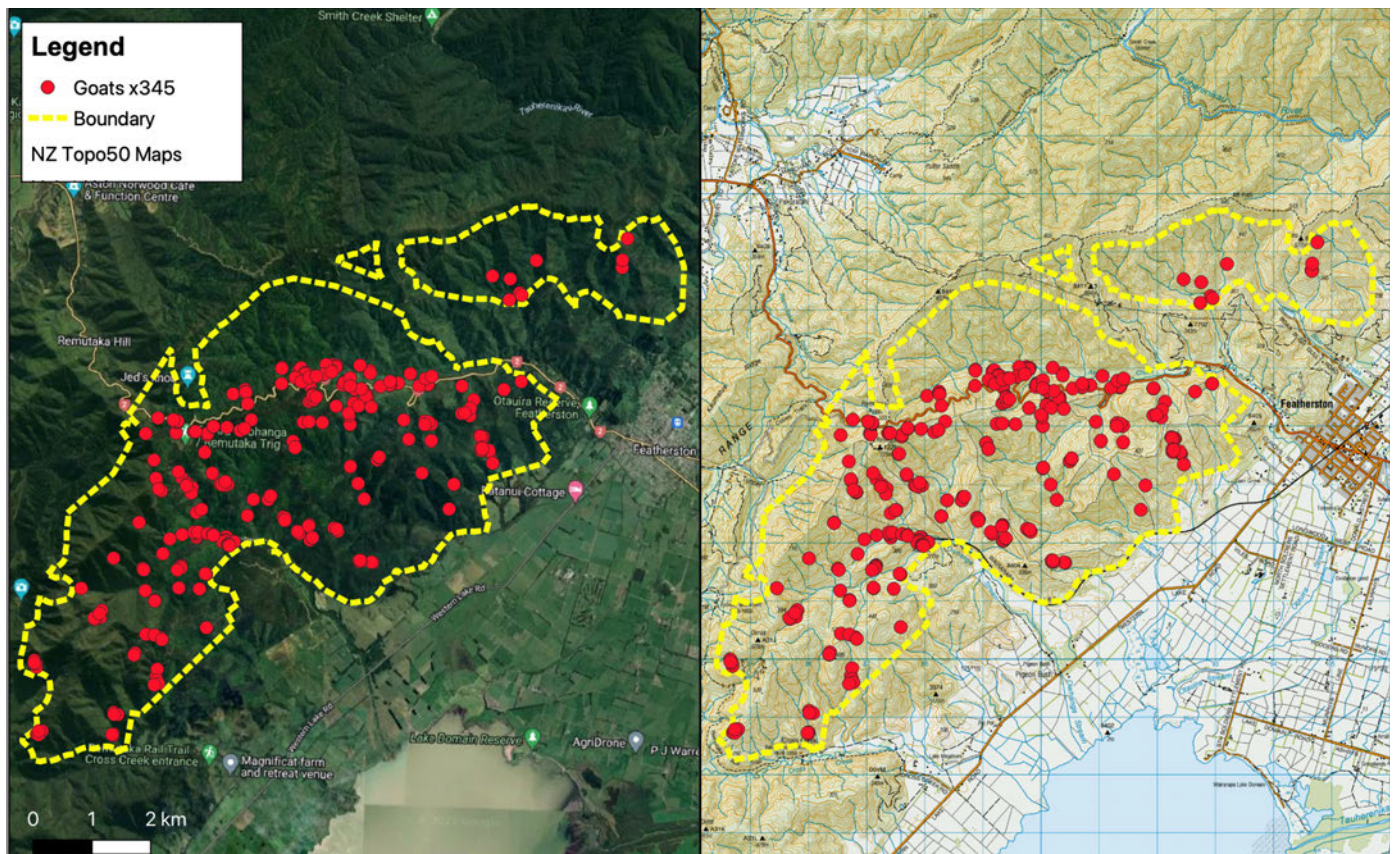


06 | RESULTS

>> GOAT CONTROL COMBINED EFFORTS



>> GOAT CONTROL DISPATCH LOCATIONS



The Trap and Trigger team estimate that a reduction of 80 – 90% was achieved on SH2.

In ungulate management operations, there is an immediate correlation between the intensity of coverage and the population density outcome. The key phase being “efforts = outcome”.

Due to the significance of the SH2 road closure and the valuable opportunity this provided, we concentrated efforts on the road corridor and the area immediate surrounding areas as a buffer. The benefit of this being local goat populations surrounding SH2 have been reduced to low densities as desired. This took four aerial operations and ten ground hunter days to achieve. The downside of concentrating efforts around SH2 meant that a compromise in efforts in the back blocks was needed to free up resources. Back country areas were applied a lower intensity as displayed by the map below. The outcomes associated with a lower intensity of efforts are unlikely to have achieved a lesser desired level of population reduction.

The Trap and Trigger team estimate that a reduction of 80 – 90% was achieved on SH2 with a 300m corridor/buffer. The extended control area beyond the road corridor has is estimated to have been reduced by approximately 50 - 60%.



07 | MOVING FORWARD

With the concentrated efforts focusing on the SH2 corridor, goat populations have been reduced to low densities. It should be expected that without ongoing maintenance the benefits of this will only be short term due to the surrounding goat populations likelihood to increase and expand. Because goats have a short gestation rate which allows them to deliver 2-4 offspring per year, they have the ability to repopulate to pre-control densities within two breeding seasons in areas where a reduction of 50% were achieved.

The Department should consider the long-term strategy to maintain the benefits and build on the successes of this operation. The key stakeholders (Waka Kotahi, NFRT, Kiwi rail and Greater Wellington) will play a key role in the feasibility of a delivering a long-term feral goat control strategy that delivers the key objectives into the future.

08 | HEALTH AND SAFETY

The operation was completed without any incidents or accidents. All activities were carried out safely and by correct personnel with appropriate training and certification. Signage was erected at key access points to the operational area. Members of the public were encountered on a few occasions. All people encountered were polite and understood the operation being undertaken. Major risks and how they were handled in the field are outlined below:

- 1 SHOOTING DIRECTIONS AND RICOCHET** The hunters had to maintain a high level of firearm safety and always remain disciplined to observe their firing zone, type of backdrop and identify the target before every shot. The seven basic rules of firearms safety and the foundation we follow when it comes to firearms use. The team selected for this operation were experienced in many back country and urban ungulate operations, and through experience carry a heightened awareness of their surroundings.
- 2 BLUFFS AND STEEP TERRAIN** To minimise the risk of any slips, trips and falls the hunters ensured that they didn't push their personal limits and turned around and headed back when the terrain was too steep or difficult for the hunter's ability. Suitable footwear is compulsory.
- 3 HELICOPTERS** All team members were familiar with Trap and Triggers standard helicopter operating procedures while also trained by Amalgamated Staff for Helicopter safety Unit Standards. While aerial shooting, Trap and Triggers Aerial Shooting training and assessment document was applied. Landing sites were controlled and closed off prior to the machine landing. The pilot also delivered a safety briefing before each flight.
- 4 ACTIVE PUBLIC ROADS** All ground hunting members were aware of road location and kept 100m buffer along the stretch of road. Shooting directions were managed on a case-by-case basis, always avoiding shooting in a direction towards the road. Vehicles were left in spacious laybys to avoid any disturbance to road users. Dogs were always kept on leads when near public roads or tracks.



09 | CONCLUSION

Trap and Trigger are grateful to be part of such a significant and important project safeguarding our local native forest, while also creating a safer driving environment for road users. It has been a pleasure to work on this collaborative operation where partnerships unlock the key to success. Thanks to all of those who were involved from logistics, signage, and road clearance personal. A special thanks to stakeholders/funders who step up to lead by example. We look forward to any future working opportunities to create a more sustainable environment for Aotearoa.

Kind Regards,

s9(2)(a)

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REMUTAKA GOAT CULLING

TRAP AND TRIGGER GROUND HUNTERS, INDICATOR AND BAILING DOG



1. INTRODUCTION

Trap and Trigger have undertaken goat culling in the Northern Remutaka catchments for The Department of Conservation twice in previous years. Our operational area runs from Mt Firth to Cross Creek, Rail trail. It is a highly sensitive area with multiple public walking tracks and SH2 within the operation area. The population of ungulates is moderate to high. We were provided 53 days over 3 months (October, March, June) to cover the operational area.

2. TEAM

- ❖ s9(2)(a) (Bailing dog Handler) - Moa
- ❖ s9(2)(a) (Indicator Handler) - Pip
- ❖ s9(2)(a) (Indicator Handler) - Gypsy
- ❖ s9(2)(a) (Indicator Handler) - Shady
- ❖ s9(2)(a) (Indicator Handler) – Mia
- ❖ s9(2)(a) (Indicator Handler) – Sherley
- ❖ s9(2)(a) (Indicator Handler) - Moose

3. SUMMARY

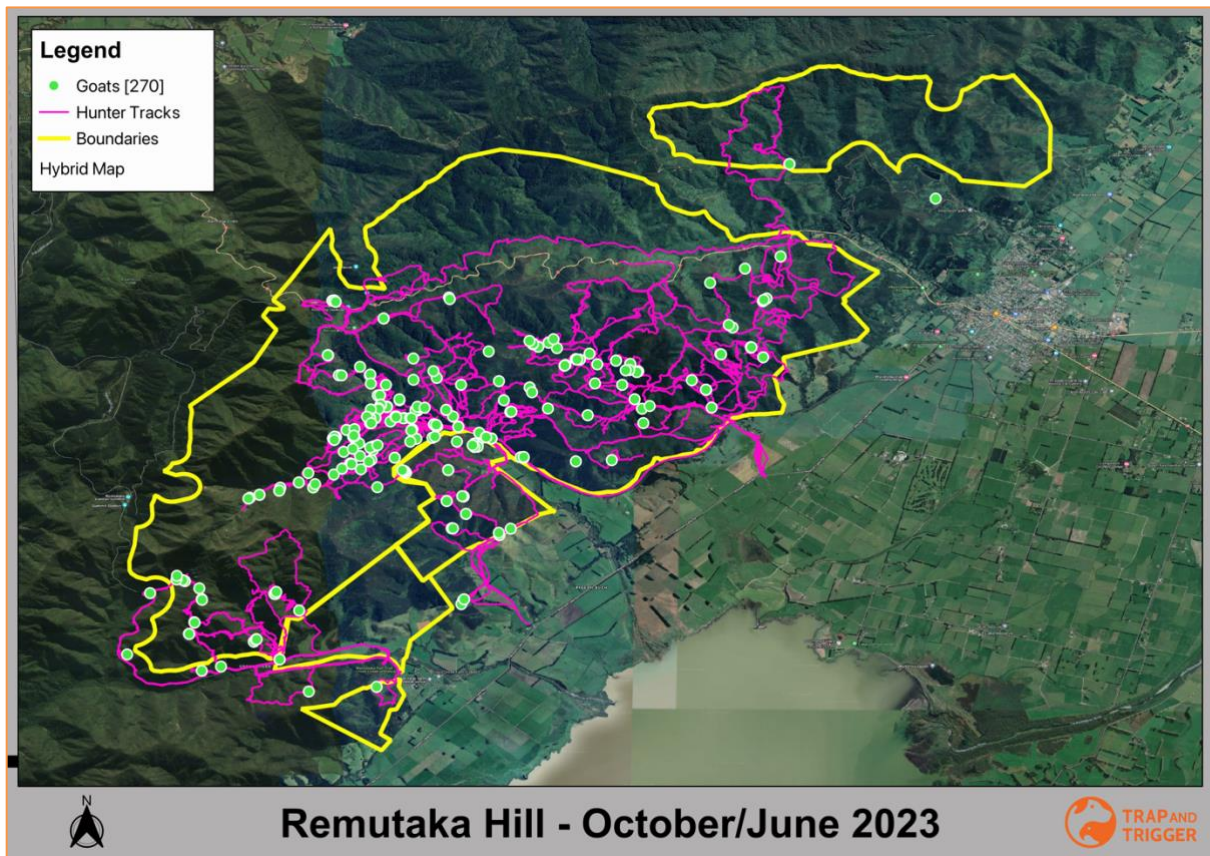
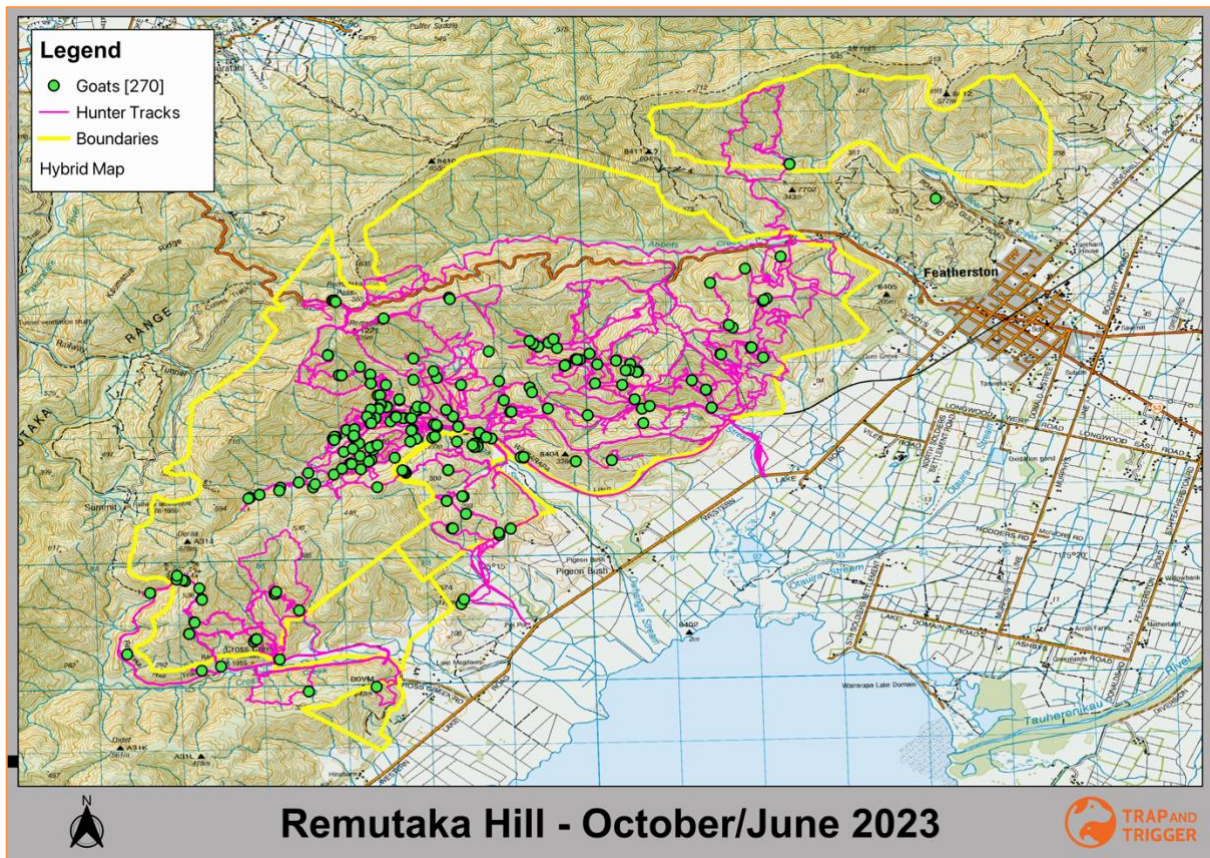
- 270 goats shot.
- 53 days of active hunting. (12 October, 13.5 March, 27.5 June)
- No significant incidents or accidents occurred during the operation.
- Missing 2 days' worth of June data, as a GPS was lost.



Figures 1 and 2, Canopy collapse from ungulate browsing



4. Map/Results



5. OBSERVATIONS

Goat – Numbers were moderate to high like in previous stints. Mobs of 2-3 were frequently encountered in hotspots. A few goats were removed close to the road by ground operations this should hopefully reduce sightings. It appears we only have enough time each stint to keep the numbers at a moderate level, if we were to aim for a low density, we would need to conduct more hunter days per year.

Pigs – Numbers are moderate with pig encounters most days. Multiple pigs were seen on the s9(2)(a) property, these could possibly be shot in future as Grant was very keen on them being removed.

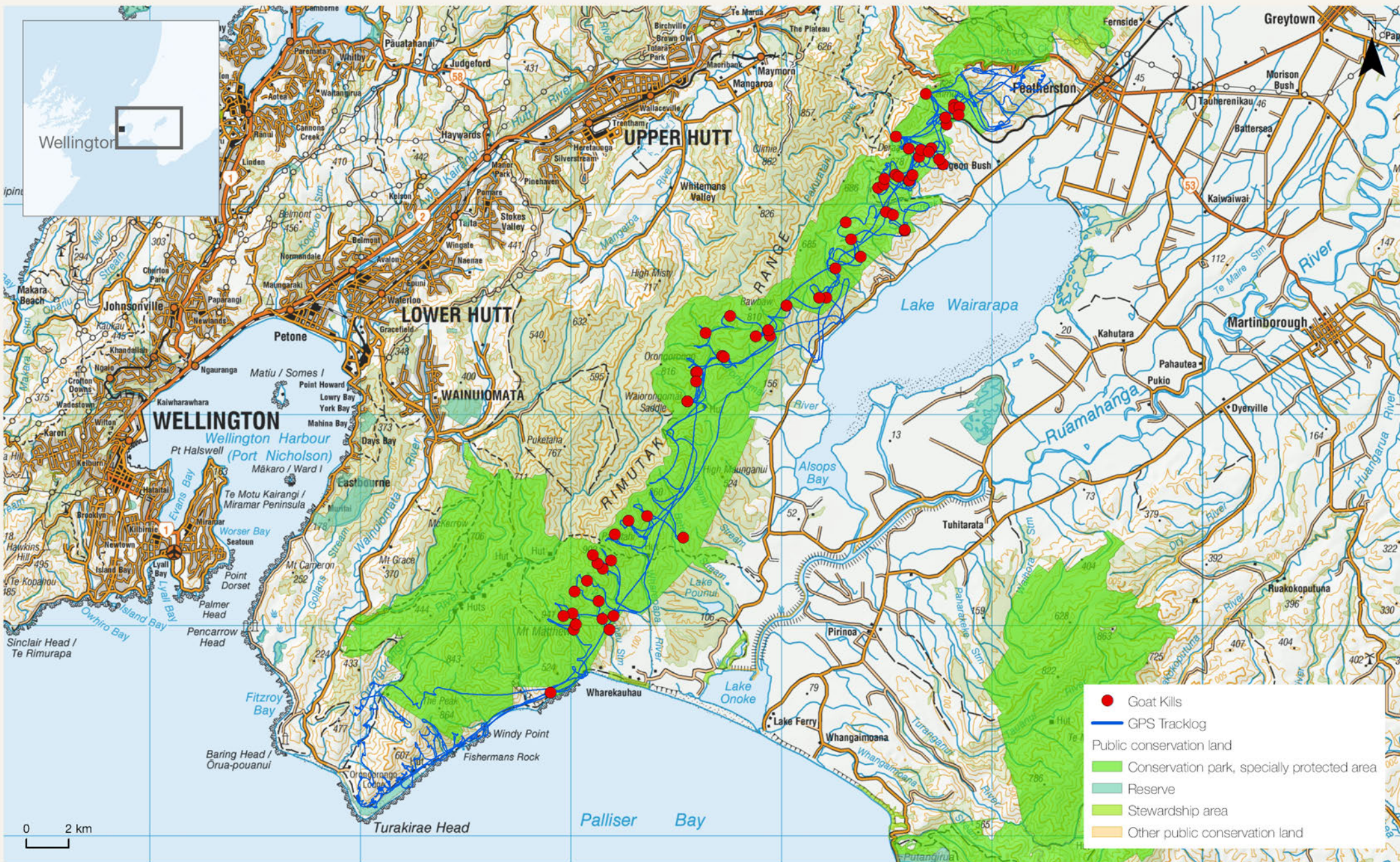
Deer – Low numbers of deer were encountered within the PCL land; numbers were higher closer to pastoral/private land.

6. CONCLUSION

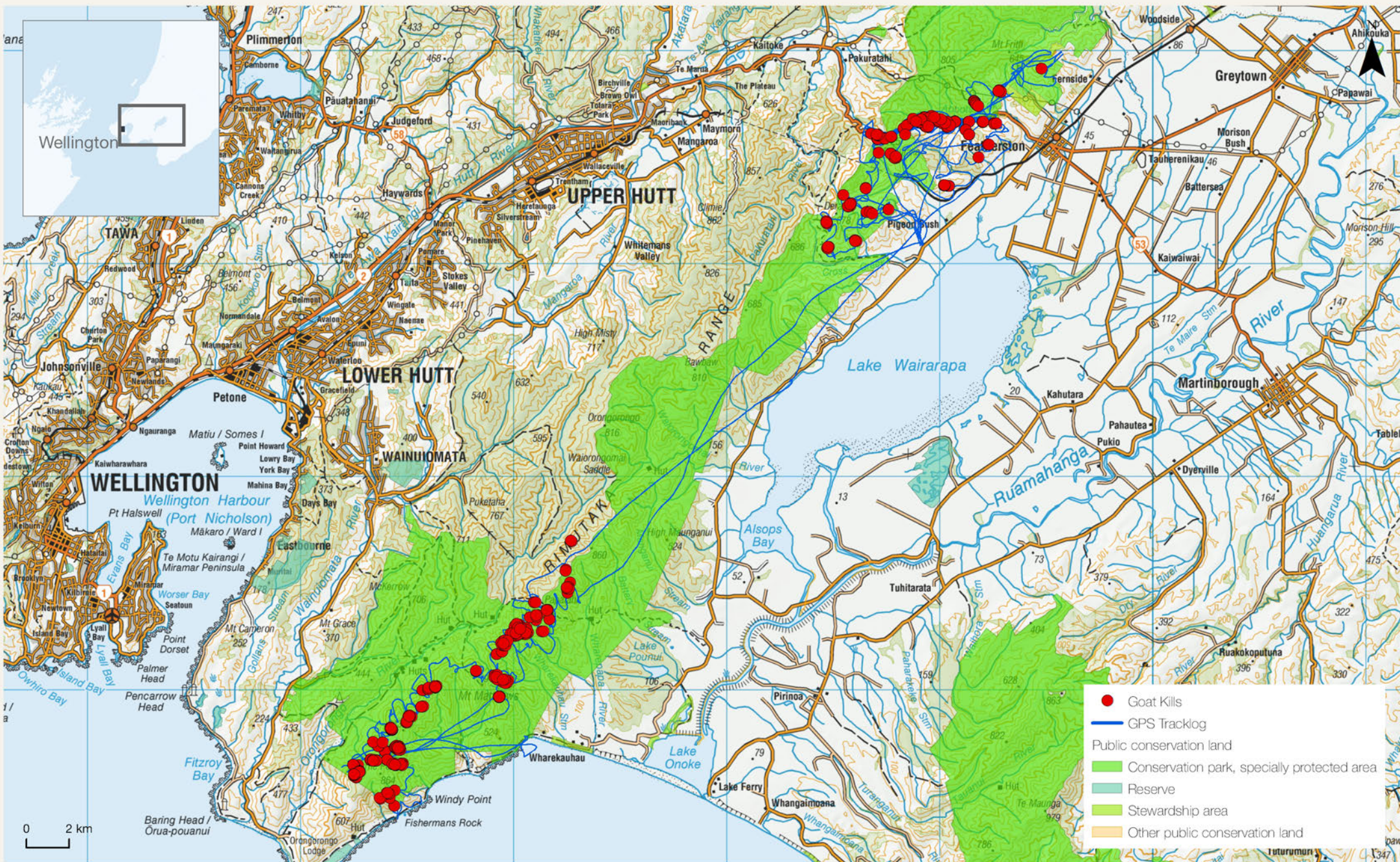
In conclusion, our team were pleased with the results they achieved. It was great having some more scope for access this year. It allowed us to cover more area and remove some transient goats on neighbouring private land. We on average, removed 5.1 goats per hunter day. All in all, the operation went smoothly with no issues or accidents, and we look forward to future ventures.

Regards,

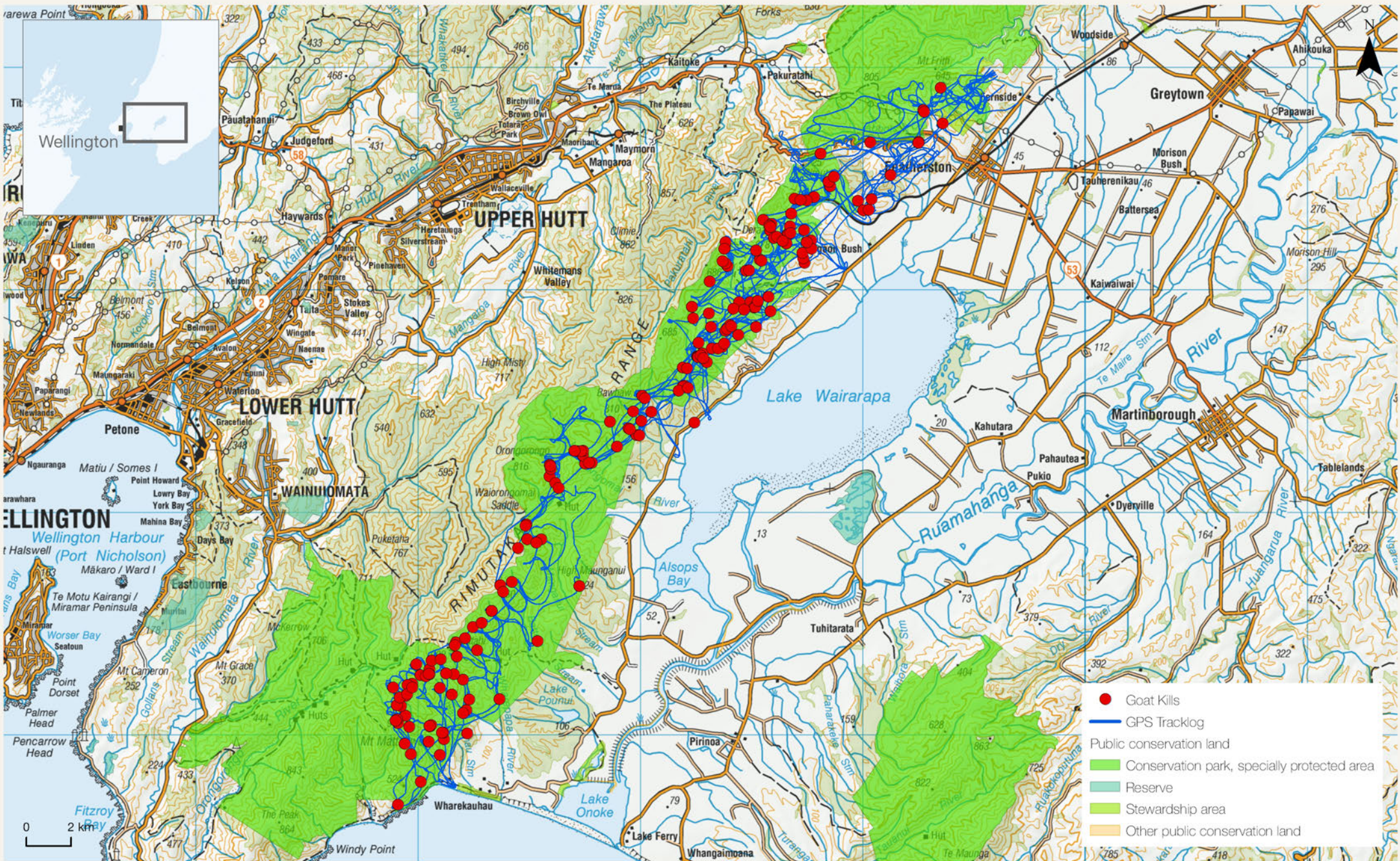
s9(2)(a) – Hunting Team Leader



Remutaka Forest Park Aerial Ungulate Control 2020 - 2021



Remutaka Forest Park Aerial Ungulate Control 2021 - 2022



Remutaka Forest Park Aerial Ungulate Control 2022 - 2023

