

MAMMALIAN CORRECTIONS UNIT Ltd.



**Hikaroroa / Mt. Watkin
Trapping Report 2026**

*Produced on behalf of the Dunedin City Council
&
The Hikaroroa / Mt. Watkin Conservation Group
By
Jamie Hickling
at Mammalian Corrections Unit Ltd.*

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A Note on Reporting Scope and Management Structure

The Hikaroroa landscape comprises both the 660 ha Dunedin City Council (DCC) Hikaroroa / Mt. Watkin Scenic Reserve and a network of surrounding privately owned properties managed collaboratively through the Hikaroroa / Mt. Watkin Conservation Group (HMWCG). Although these are separate management entities with different funding arrangements and operational responsibilities, together they form an interconnected ecological landscape. Native species, introduced pests, and ecological processes move freely across property boundaries, making landscape-scale management practical and essential for both parties.

Mammalian Corrections Unit Ltd. (MCU) provides contracted pest management, monitoring, and reporting services for both organisations. Pest control and reporting undertaken within the DCC Scenic Reserve is funded through DCC's operational pest management programme, while pest control and reporting on HMWCG-managed private land is funded through the Department of Conservation Community Fund Project. Although these control programmes are funded separately, they have been presented together in this report in good faith to provide a more holistic understanding of ecological conditions across the wider Hikaroroa landscape that give useful insight to both management parties.

Results from DCC and HMWCG trapping are presented separately to acknowledge differences in management history and land tenure. However, synthesising these datasets provides valuable context for adaptive management and supports coordinated decision-making between project partners working towards the shared goal of protecting and restoring the ecological values of Hikaroroa / Mt. Watkin.

Overview and Summary

This report summarises predator control operations undertaken within the Dunedin City Council Hikaroroa / Mt. Watkin Scenic Reserve during the 2025–2026 financial year, alongside complementary management activities occurring across the wider Hikaroroa / Mt. Watkin Conservation Group (HMWCG) landscape.

During the reporting period, the project removed 547 possums, 72 mustelids, and 44 feral cats from the wider Hikaroroa landscape. These removal rates are consistent with meaningful landscape-scale suppression and support the long-term objective of reducing predator populations to levels that allow recovery of native biodiversity. Possum and mustelid programmes continue to operate as mature suppression networks, while feral cat management has progressed including operational trials and establishment of a fixed kill trapping network.

Mammalian Corrections Unit Ltd. (MCU) completed two contracted servicing rounds of the DCC AT220 possum network (alongside HMWCG Volunteer Possum Trapping Weekends) and two servicing rounds of the DCC DOC200 mustelid network, including a comprehensive maintenance and trap weight-testing audit. During these operations, missing DOC200 trap boxes were identified and reinstalled, ensuring the reserve network returned to full operational capacity. In addition, the current HMWCG intern is undertaking a comprehensive audit of the AT220 network across both DCC and HMWCG properties, carrying out trap maintenance and updating trap firmware.

A major focus of the reporting period was the continued development of feral cat management techniques. Camera-monitored trials of prototype SX220 kill traps demonstrated that the initial trap design posed unacceptable non-target risks to domestic dogs and kāhu while also proving operationally limited when relying solely on automated lure dispensers. These findings directly informed the redesign of the trapping system into an enclosed modified box style trap. Following successful redesign, a permanent network of 31 SX220 kill traps was installed throughout the DCC Scenic Reserve, with equivalent trap boxes now fabricated and expansion across surrounding HMWCG land planned for later this winter.

The project's first targeted feral cat knockdown operations were also undertaken during winter 2026. These trials combined strategic pre-feeding, camera monitoring, cage trapping and experimental thermal-assisted night shooting to investigate multi-method approaches for removing feral cats. Nine cats were captured using cage traps during the trial period, while behavioural monitoring provided valuable information regarding trap placement, bait selection, activity patterns, and operational constraints such as pig and livestock interference. Although thermal-assisted night shooting did not result in cat captures, the trial generated practical recommendations for future usage.

Recommendations for the 2026–2027 financial year include completion of the wider SX220 network, continued servicing and optimisation of existing trap networks, refinement of knockdown methodologies next winter, implementation of findings from the 2026 AT220 behavioural trials, and continued adaptive management to improve long-term predator suppression.

Methods

Mustelid Trapping

Mustelid control was undertaken using a network of DOC200 and DOC250 kill traps distributed across the Hikaroroa / Mt. Watkin Conservation Project area. In 2022, an intensive mustelid trapping network was established within the DCC Hikaroroa / Mt. Watkin Scenic Reserve following Department of Conservation guidelines for intensive predator control operations (Department of Conservation, n.d.). The network was subsequently expanded by the Hikaroroa / Mt. Watkin Conservation Group to include additional traplines on surrounding private land, creating a halo of predator control extending approximately 800 m beyond the reserve boundary (**Map 1**).

The trapping network consists of double-set DOC200 traps and single-set DOC250 traps installed within wooden tunnels with 80x100mm sliding front plates. This network design aims to reduce predator pressure within the reserve while intercepting dispersing mustelids before they reach core biodiversity areas. Long-term planning recommends further expansion of the HMWCG network as funding becomes available to include a second halo at approximately 1600m.

Trap deployment and operation follow the standard operating procedures developed by the Halo Project for DOC200 use within the Predator Free Dunedin programme (Halo Project, 2022). Traps are baited using a combination of rabbit meat, eggs, erayze/dehydrated rabbit jerky, mayo, and oil scent lures to maximise attractiveness to target species. The network operates continuously throughout the year (except for sept/oct for lambing on farms) and aims to be serviced at approximately monthly (30-40 day) intervals.

During the operational year 2025-26, 8 services were completed by HMWCG volunteers and two services were completed by MCU staff through the DCC's pest control budget (these rounds included maintenance and volunteer / trap network auditing).

All trap locations, servicing records, and captures are recorded through Trap.NZ.

AT220 Possum Trapping

Possum control within the Hikaroroa / Mt. Watkin Conservation Project area was established through a collaborative programme involving the Hikaroroa / Mt. Watkin Conservation Group, Predator Free Dunedin (PFD), Dunedin City Council (DCC), and Otago Regional Council (ORC). The programme was initiated following the successful approval of an ORC EcoFund application in 2023 and was developed as a long-term, community-led succession plan following the reduction of OSPRI tuberculosis control operations within the area.

The control programme is based on the methodology developed by Predator Free Dunedin for its urban-rural expansion buffer and consists of a network of AT220 self-resetting traps deployed across both reserve and private land.

Trap placement (**Map 2**) follows a topographically informed grid design (roughly 500m grid spacing) intended to provide broad coverage of possum habitat while maximising operational efficiency (Mammalian Corrections Unit Ltd., 2023). Self-resetting traps provide continuous control pressure

between servicing visits and are particularly suited to large-scale suppression programmes where maintaining constant trap availability is desirable.

The network is serviced at regular intervals by a combination of HMWCG landowners/volunteers and MCU staff, with traps rebaited and batteries replaced every six months. All servicing activities, trap locations, and captures are recorded through Trap.NZ. Operational procedures following the standard operating protocols developed by Predator Free Dunedin for the deployment and maintenance of AT220 traps (Halo Project, n.d.).

In addition to the permanent AT220 network, supplementary knockdown operations have been proposed when monitoring indicates possum populations are increasing beyond target levels. Infestation response procedures recommend Feratox® (encapsulated cyanide) knockdowns. Infestation response control operations are intended to rapidly reduce populations and maintain possum abundance below thresholds modelled for lean AT220 networks. Infestation responses have not happened to date.

Cat Trapping

Cat trapping is in early stages, with the first kill trapping and knockdown trials occurring in the first half of 2026, and will be ongoing over the 2026 winter period. Feral cat control is being undertaken using a combination of permanent kill-traps and targeted knockdown operations. This integrated approach recognises that feral cats typically occur at low densities, possess large home ranges, and can be difficult to suppress using any single control method. Consequently, the programme aims to combine continuous background control with periodic intensive operations.

Prior to establishment of the current network, AT220 traps were trialled as a potential cat control tool within the reserve. While the trial demonstrated that cats could be effectively captured, carcass retention within the trap housing reduced the effectiveness of the self-resetting mechanism (when set at 45 degree angles cat height off the ground). Findings from this trial informed the development of a new trapping approach, which utilized single-set kill traps using the same set style. Fifteen (15) of these new boxes were installed at the DCC Hikaroroa / Mt. Watkin Scenic Reserve and monitored with cameras for a 2-3 week period to assess performance and functionality. Unfortunately, camera monitoring revealed that the increased aperture size of the SX220s paired with meat-based baits made them a risk to dogs and kahu. While salmon-mayo is palatable to cats, without attracting dogs or kahu, motolures alone were not able to dispense enough bait for traps to remain baited continuously (rodents were eating the bait as fast as it was being dispensed so bait was never present for cats). Subsequently, traps were redesigned to fit into a modified DOC250 box that could be safely baited with both meat and motolure.

For cost-effectiveness, the permanent trapping network has now been established alongside the existing mustelid trapping infrastructure. Cat traps are positioned at approximately 500 m intervals along established trap lines, providing broad landscape coverage while minimising additional servicing requirements (**Map 3**). The network utilises Belisle SX220 Traps in wooden boxes with a 110x110mm entrance. Traps are fitted with Zip Motolures that dispense salmon oil-infused mayonnaise lure, helping maintain lure freshness while reducing human scent contamination. Traps will generally be inspected and serviced (baited with fresh meat) at monthly intervals alongside the DOC200 network.

Further investigations are being made into whether the AT220s deployed as possum traps can still be part of the wider feral cat control operations. Investigations into salmon mayo on standard set AT220 are

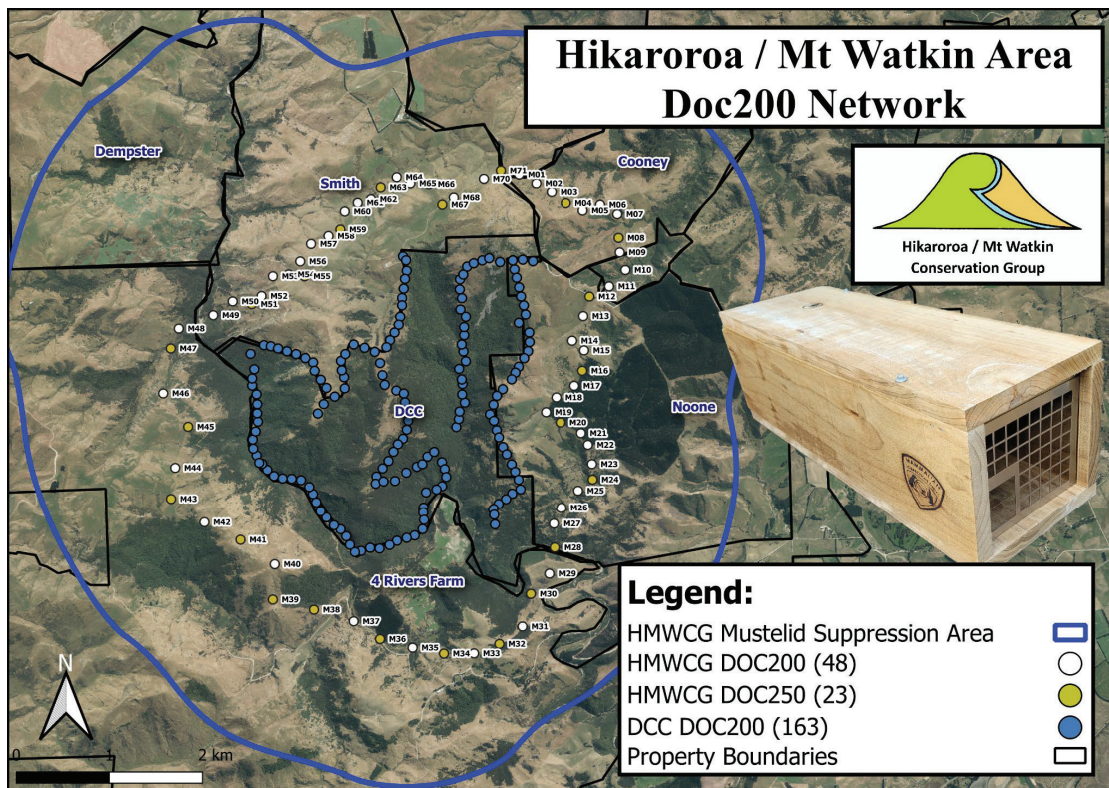
underway and are discussed in a separate report – Assessing Possum Trap Avoidance to Improve Pest Suppression at Hikaroroa / Mt. Watkin – Progress Report on 2026 AT220 Trial.

In addition to permanent trapping, targeted feral cat knockdown operations are being trialed for removing trap-shy individuals that may not be effectively intercepted by the permanent network. The first of these operations began in June 2026. As of this report the knockdown trial has been completed inside the DCC Reserve and in the northern project area of the HMWCG private land (**Map 4**).

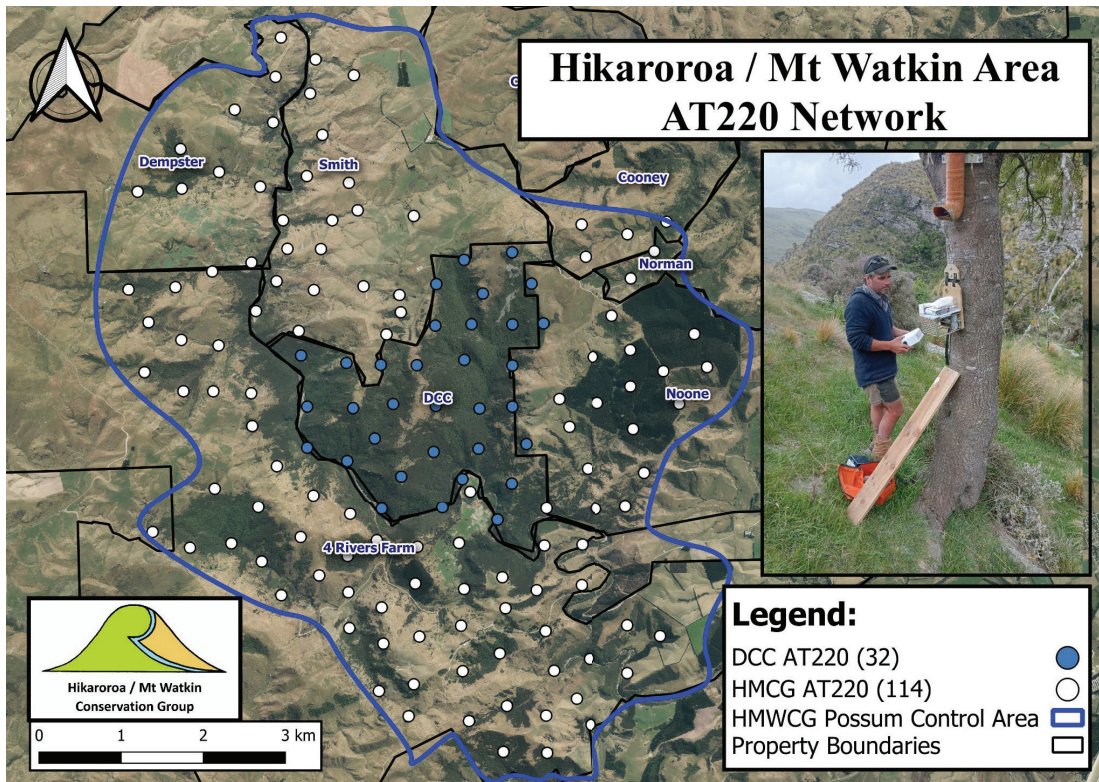
Targeted knockdown operations involve the establishment of bait dumps at strategic locations such as ridgelines and travel corridors. Fish frames are used as attractants and are pre-fed for approximately three weeks while activity is monitored using trail cameras. Unset cage traps are positioned around bait sites during the pre-feed period to habituate cats to their presence. Following pre-feeding, traps are activated and operated intensively for approximately one week.

Camera monitoring is used throughout the operation to assess cat activity and guide adaptive management decisions. Where cats were regularly visiting knockdown sites but avoiding traps, supplementary removal was attempted using thermal-assisted night shooting; learnings from this trial are reported below.

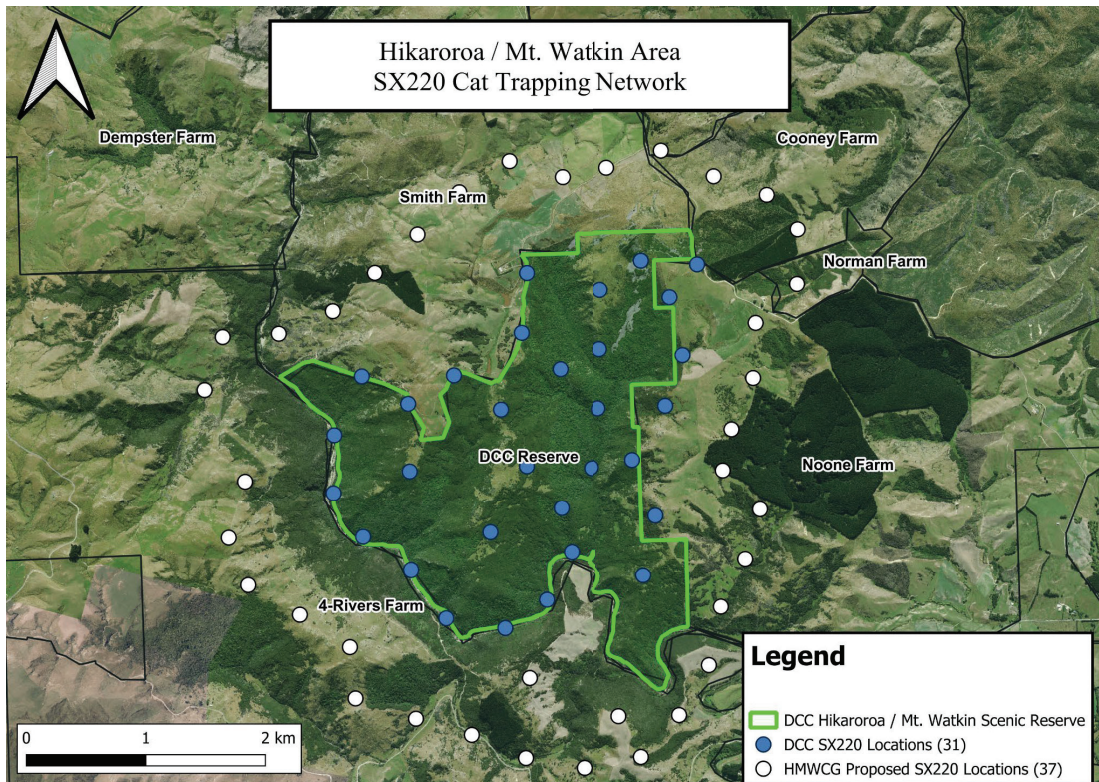
All trap locations, servicing records, camera detections, and captures are recorded through Trap.NZ. Operational methods continue to be refined, with trial results and lessons learned used to improve the effectiveness of future feral cat control operations. These learnings are discussed in further detail in the progress report and discussion sections.



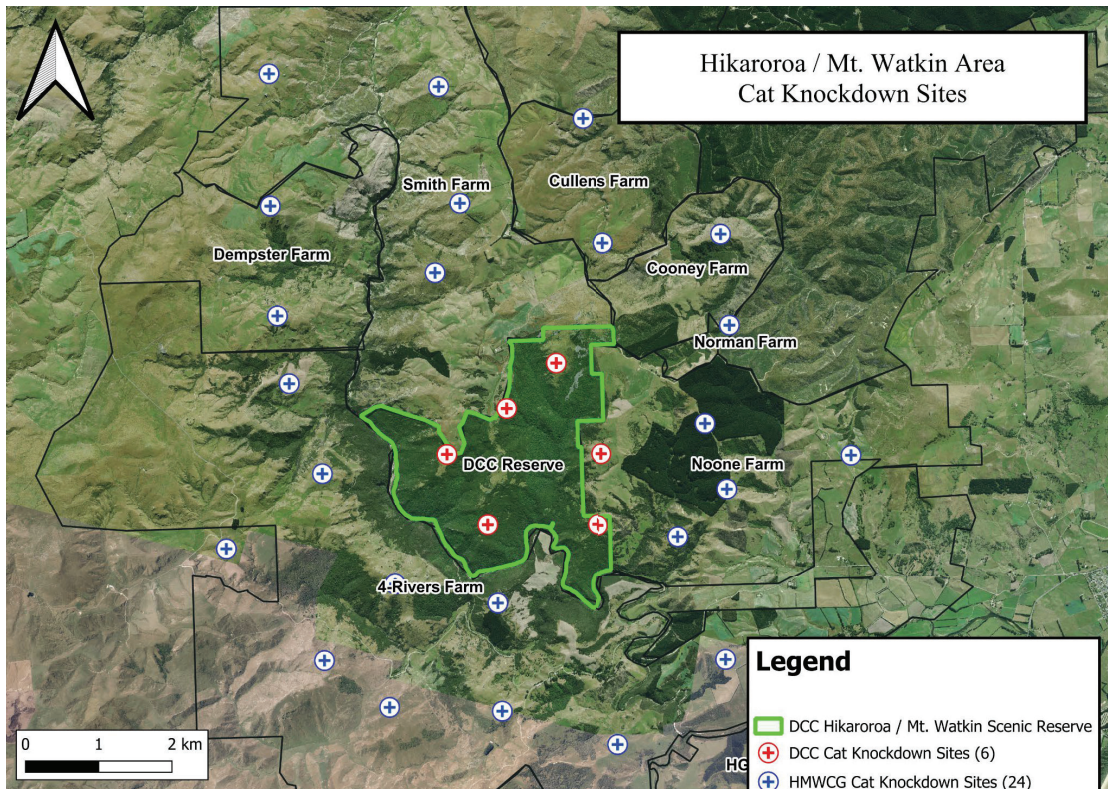
Map 1. DOC200 Network.



Map 2. AT220 Network.



Map 3. SX220 Network.



Map 4. Cat Knock-down sites.

Trapping Results

Mustelid Trapping

In total, 228 mustelids have been removed since trapping began in 2022. During the 2025-26 operational year, a total of 29 stoats, 16 ferrets, and 27 weasels have been removed (**Map 5**). Of the 72 mustelids removed from the Hikaroroa area, 50 were from the DCC Reserve and 22 from HMWCG Private land. Catch rates were consistent across the two areas, at .31 kills per trap box in the past year.

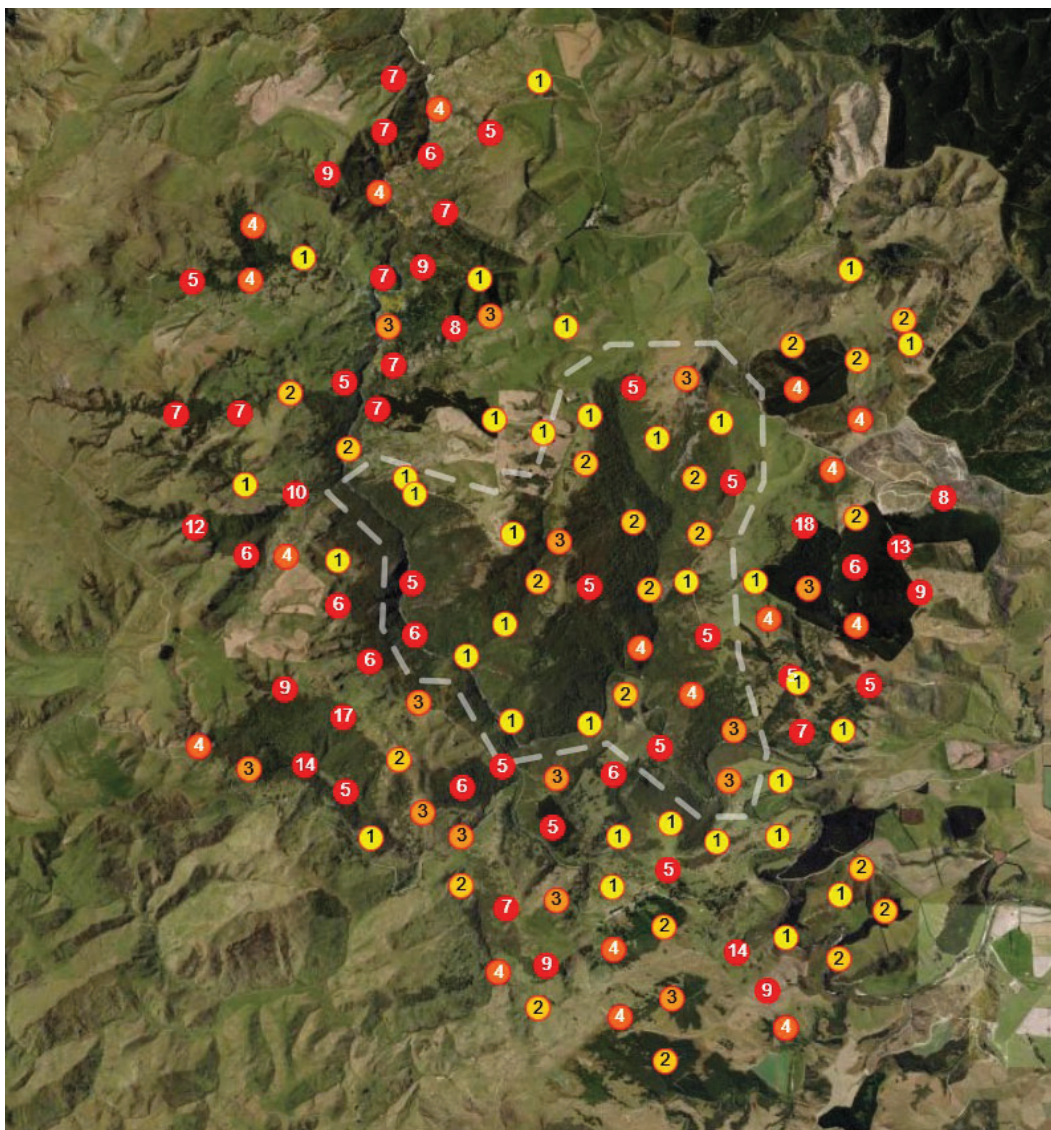


Map 5. Mustelid kill locations July 2025 – June 2026.

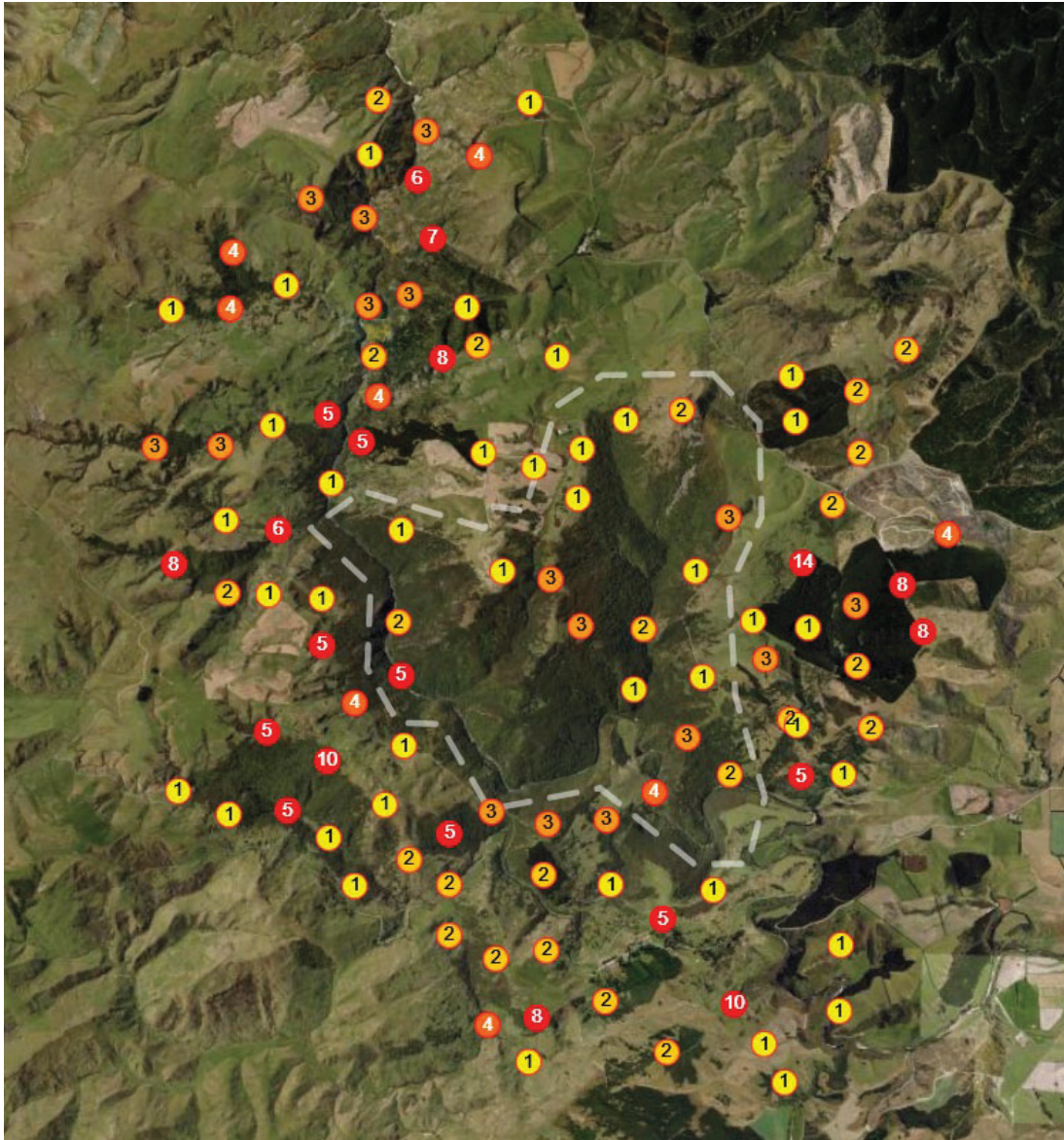
Possum Trapping

A total of 547 possums have been removed from the Hikaroroa Mt. Watkin Project area in the 2025-26 operational year (**Map 6**). Of those, 72 were removed from the DCC Reserve, and 475 were removed from HMWCG Private Land. A total of 1,549 possums have been removed since trapping began in 2023. **Map 7** shows the trapping results from the most recent service round, conducted in May 2026. Of the 308 possums removed, 37 came from the DCC Reserve and 271 were removed from HMWCG Private Land.

Over the 2025-26 year, approximately 78% of the possum kills have been made on HMWCG Private Land. Although there are 3.5 times more traps on Private Land, the catch rate in the HMWCG area is 4.2 kills per trap, whereas the catch rate in the DCC reserve is 2.25 kills per trap. The more extensive network on Private Land therefore demonstrates the value of the trapping halo around the DCC Scenic Reserve. Removing possums before they reach the Reserve provides improved protection of the fragile ecosystem being protected.



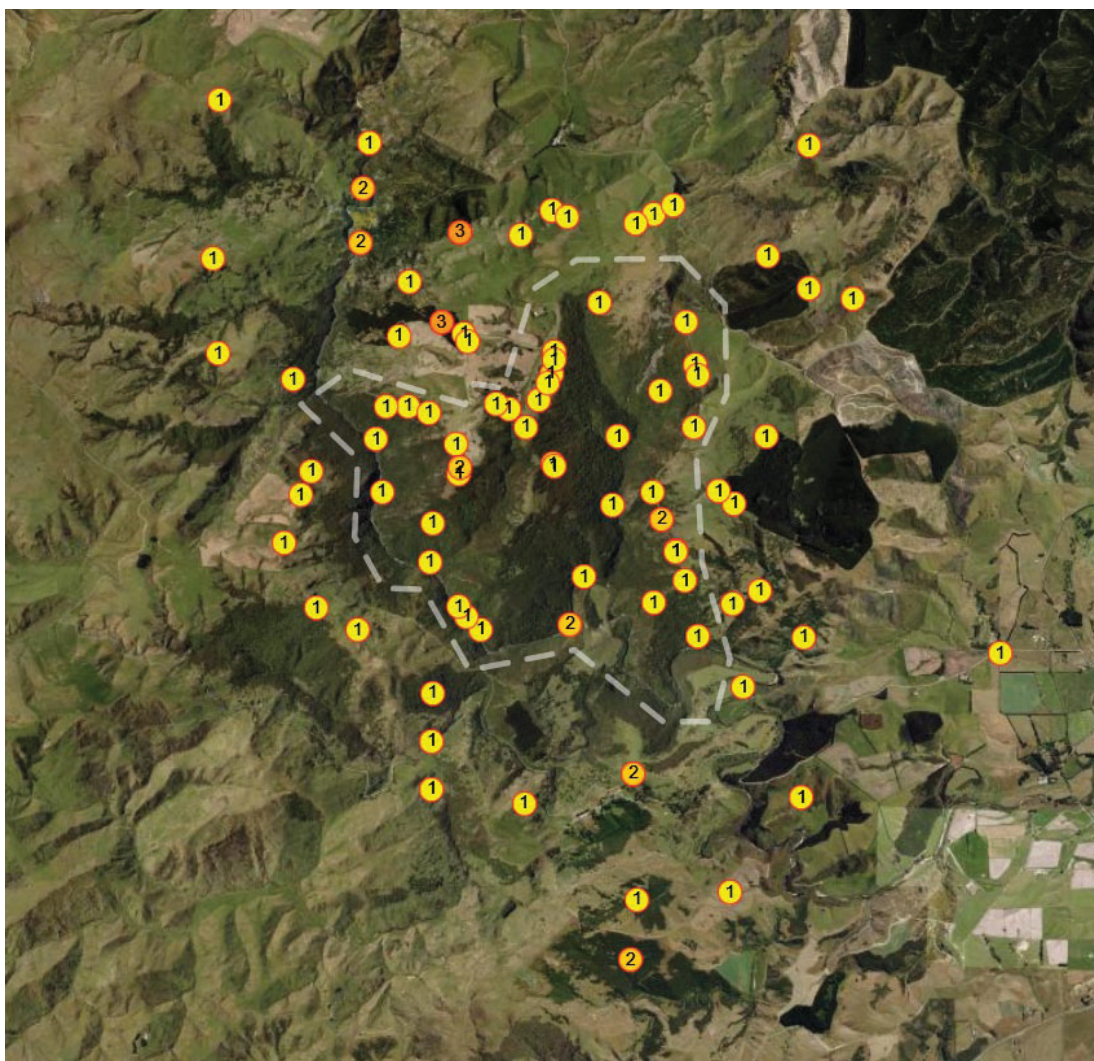
Map 6. Possum kill locations July 2025 – June 2026.



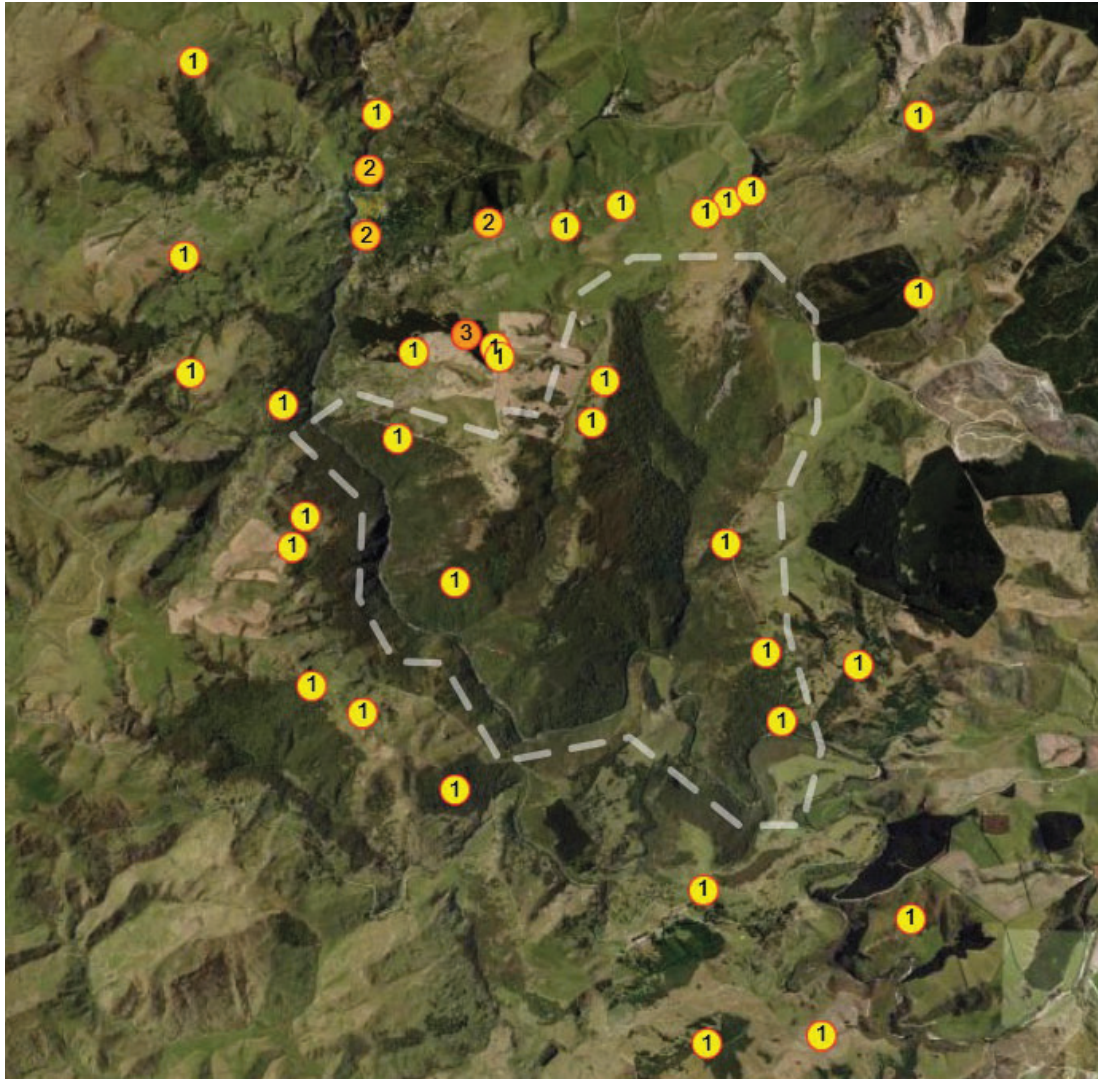
Map 7. Possum kill locations in the May 2026 service round.

Cat Trapping

To date, 96 feral cats have been removed from the Hikaroroa / Mt. Watkin Project area (**Map 8**). Forty four (44) cats have been removed in the past year alone (2025-26) (**Map 9**). Of those, 17 were caught in AT220 traps, 13 in DOC200/250 traps, and 14 removed through knockdown/shooting efforts. The majority of the removals occurred on HMWCG Private land (37, 84%), with 7 (16%) cats removed from the DCC Reserve.



Map.8 Cat kill locations since Doc200 installations in 2022.



Map 9. Cat kill locations between July 2025 – June 2026.

Other Pest Control

One-off shooting records have been recorded for several species. Shooting records for possums, mustelids, and cats are reported in the above maps. Ungulate kills are reported in the *Hikaroroa / Mt. Watkin Scenic Forest Regeneration and Ungulate Impact Report 2026*. Between July 2025 – June 2026, 138 lagomorphs (rabbits and hares) have been shot in the project area on HMWCG Private Land.

SX220 Feral Cat Kill Trap Development Trial and Network Installation

In 2022, Mammalian Corrections Unit Ltd. (MCU) investigated the use of modified AT220 self-resetting traps baited with salmon oil mayonnaise for feral cat control at Hikaroroa / Mt. Watkin Scenic Reserve. Camera monitoring demonstrated that AT220s were capable of attracting and capturing feral cats, with the highest interaction rates achieved when traps were mounted approximately 45° at cat head height.

Despite these encouraging results, several limitations prevented the system from being adopted operationally. The trap angle reduced the likelihood of carcasses clearing the trap after activation, limiting reset reliability. In addition, all Dunedin City Council AT220s were subsequently reallocated to the reserve's possum control programme. Since the original trial, the AT220 has also failed to meet the current New Zealand Animal Welfare Advisory Committee (NAWAC) performance standards for feral cat trapping.

These factors prompted development of a dedicated cat kill trap that retained the most successful design features from the 2022 trial while incorporating a simpler, lower-cost single-set mechanism that has successfully passed NAWAC testing.

The Belisle Super-X 220 body-grip trap was selected as the strike mechanism. Unlike conventional enclosed cat traps such as Timms or SA2 traps, the open-frame design allows activation simply by a cat investigating the bait and pushing through the trap, rather than requiring the animal to insert its head into an enclosed space and manipulating a bite block. This approach was intended to reduce behavioural barriers to trap entry while maintaining a humane kill mechanism (**Image 1**).



Image 1. Prototype 45° SX220 trap with Motolure bait dispenser during the field deployment trial.

Prototype Trial

Fifteen prototype trap boxes were constructed using SX220 traps mounted at approximately 45° with Motolure automatic bait dispensers to replicate the bait presentation used in the earlier AT220 trial. Trial cameras operating in video mode were installed at each location to document both target and non-target interactions. An additional prototype was installed at David Smith's property to assess interactions with working farm dogs.

The prototypes were installed around accessible sections of the reserve perimeter and along the main 4WD access track on 20–21 April 2026.

During the first week, traps were pre-baited with salmon oil mayonnaise and fresh meat while remaining inactive with the trap safeties engaged. Camera footage identified significant non-target risks (**Image 2**). Kāhu (Australasian Harriers) frequently inserted their heads into the trap opening while attempting to remove meat, and the farmyard trial demonstrated that domestic dogs immediately investigated the traps by placing their heads fully within the strike zone.



Image 2. Representative camera images showing Kāhu investigating the prototype trap (left frame) and domestic dog interaction at the Smith farm trial (right frame).

In response, fresh meat was removed from all traps, leaving only Motolure-delivered salmon oil mayonnaise as the attractant. Traps located along the reserve–farmland interface were also converted from ground-mounted installations to elevated tree or waratah mounted sets incorporating a 45° access ramp (**Image 3**). The modified traps remained inactive for a further week while additional camera footage was collected.

Following these modifications, interactions from both kāhu and domestic dogs ceased. Cat visitation also declined; however, some cats continued to investigate the traps, climbing the access ramps and inserting their heads into the strike mechanism despite the absence of meat bait.

The traps were activated during the third week of the trial. Cat interaction rates were substantially lower than during the pre-feeding period, with only a single feral cat successfully captured during the trial, occurring at one of the remaining ground-mounted installations (**Image 4**).



Image 3. Modified elevated prototype trap installed on a post using a 45° access ramp.



Image 4. The single successful feral cat capture during the prototype trial.

Trial Evaluation

Review of the camera footage and operational performance identified several important limitations that ultimately led to abandonment of the prototype design.

The most significant limitation was the inability to safely utilise fresh meat as a lure type. Although removal of meat effectively eliminated interactions from kāhu and domestic dogs, it also substantially reduced cat interest. Reliance solely on Motolure-delivered salmon oil mayonnaise resulted in very limited bait availability, with camera footage showing rodents rapidly consuming the small quantities dispensed each night (approximately 0.5 mL). While rodent activity occasionally appeared to attract cats to the site, little or no bait remained available for cats to investigate, reducing the frequency with which animals placed their heads within the strike zone.

The physical characteristics of the SX220 also presented challenges. The larger trap aperture, compared with an AT220, increased opportunities for non-target animals to investigate the mechanism in the absence of additional entrance baffles. Furthermore, although raising traps using access ramps reduced the risk to non-target species, maintaining a climbable ramp angle inevitably limited the final trap height. This was considered insufficient to reliably exclude larger domestic dogs while remaining accessible to cats.

Collectively, these limitations indicated that an exposed, ramp-mounted SX220 design, though very similar to a published DOC best practice trapping system (**Image 5**), would not provide an acceptable balance between cat attractiveness, operational practicality, and non-target safety for routine deployment within the reserve.

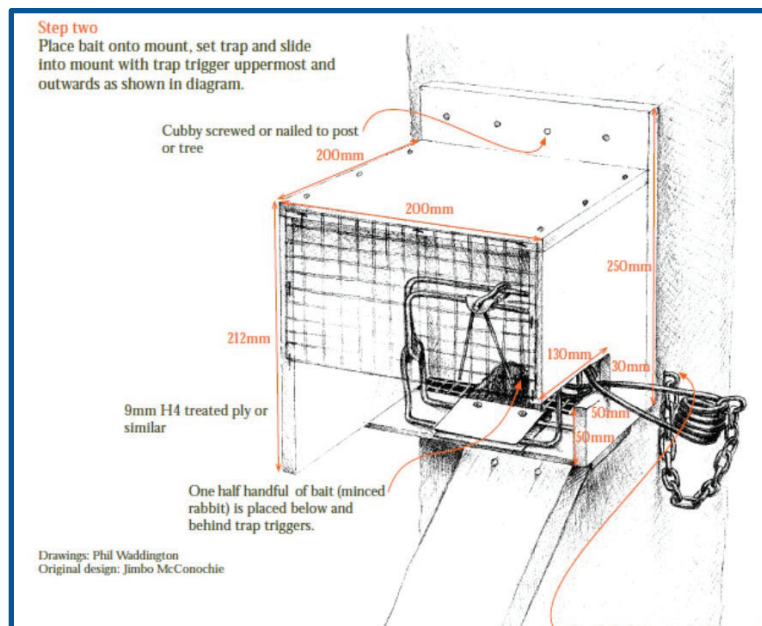


Image 5. An old DOC best practice trapping diagram showing a Steve Allan Conibear style trap atop a ramp (hood set).

Permanent Network Design

Based on the trial findings, the trap network was redesigned to use a more conventional enclosed box-trap configuration. SX220 traps were incorporated into modified DOC250 trap boxes fitted with removable entrance baffles and sliding end plates to improve cleaning and maintenance. Entrance openings were standardised at approximately 110 mm diameter, a size expected to exclude most domestic dogs and kāhu while remaining accessible to the majority of feral cats, although some exceptionally large individuals may also be excluded (**Image 6**).

Thirty-one (31) enclosed SX220 trap boxes were fabricated and installed as the permanent Dunedin City Council cat control network. Assembly and installation were completed over six operational days during June 2026, comprising one day of assembly and five days of field installation between 22–24 June (**Image 7**).

Traps installed within the Waikouaiti River floodzone have been permanently secured using reinforcing steel to reduce flood damage, while traps outside flood-prone areas have been positioned freestanding on platforms to simplify future maintenance or relocation. Equivalent trap boxes for the Hikaroroa / Mt. Watkin Conservation Group network have also been completed and are awaiting installation later during winter (**Map 3**; white dots).

The principal remaining operational consideration is interference from hedgehogs. Unlike DOC250 traps, SX220 traps are unlikely to humanely dispatch hedgehogs. Hedgehog abundance combined with a lean network of single-set cat traps has the high potential for traps to become blocked and unavailable for feral cat captures. This is not expected to significantly affect winter operations, as hedgehogs are largely inactive during hibernation (winter also coincides with increased adult cat movements associated with breeding roaming). Hedgehog captures are historically uncommon within the river corridor, but during warmer months traps bordering farmland or located in drier habitats may require installation on raised blocks underneath to create an approximately 100 mm entrance overhang. Such overhangs are expected to not significantly limit larger animals like cats but should substantially reduce hedgehog access.



Image 6. Final enclosed SX220 trap design showing modified DOC250 trap box with removable entrance baffle and sliding end plate.



Image 7. MCU field staff completing SX220 trap network installation alongside DOC200 network reinstallation of missing traps.

Targeted Cat Knockdown Operations

Rationale

Behavioural observations collected during previous feral cat control trials indicated that not all individuals readily interacted with standard kill traps, highlighting the need for a complementary control method capable of targeting trap-shy animals.

Camera monitoring from both the reserve-wide monitoring programme and the 2026 AT220 behavioural monitoring also demonstrated that many cats exhibit temporally predictable scavenging behaviour, regularly revisiting known food sources and moving between food sites along established foraging routes. These observations suggested that repeated pre-feeding at strategically positioned locations could establish predictable visitation patterns that could be exploited using cage traps and, where necessary, targeted night shooting.

Although cage traps are recognised as one of the most effective methods for capturing wary adult cats, their operational use is generally limited by the legal requirement for traps to be checked every 24 hours. To improve operational efficiency, a modified knockdown approach was developed. The trial sought to determine whether a relatively sparse network of cage traps, strategically positioned at landscape features likely to maximise scent dispersal (such as ridgelines, saddles and prominent knobs), could be pre-fed for three weeks before being activated for a single week. This approach was intended to maximise capture probability while substantially reducing labour requirements compared with continuous cage trapping.

A secondary objective was to investigate whether camera monitoring could identify individual cats that repeatedly visited bait sites but consistently avoided entering cage traps. Where these individuals were identified, thermal-assisted night shooting from concealed vantage points was proposed as a complementary method to remove any remaining trap-shy animals.

Trial Implementation

Thirty knockdown sites were identified across the wider Hikaroroa landscape, comprising six sites within Hikaroroa / Mt. Watkin Scenic Reserve and twenty-four sites on surrounding HMWCG-managed private land.

At the time of writing, fifteen sites have been established and 12 have completed the full operational sequence of pre-feeding and cage trapping, including all reserve sites and the northern HMWCG block. During implementation, the number of HMWCG knockdown sites was reduced from nine to six within the reporting period due to changes in available staffing resources.

Preliminary Results

Nine feral cats were captured through cage trapping during the reporting period. An additional four cats were opportunistically shot by landowners or Mammalian Corrections Unit staff while undertaking other field operations within the Hikaroroa area.

Camera monitoring demonstrated considerable variation in cat activity between sites. Several locations showed little or no cat activity despite extended pre-feeding periods and were either relocated or removed from the trial. Conversely, a small number of sites consistently attracted multiple individual cats and produced the highest capture success.

One reserve site accounted for both the highest visitation rates and the only successful reserve cage trap capture, with at least two individual cats repeatedly feeding and entering the cage prior to capture. On private land, several sites produced immediate captures following trap activation, with evidence suggesting that removal of dominant individuals substantially reduced subsequent visitation by other cats.

Pig activity proved to be a significant operational constraint, with pigs consuming bait, disturbing trap sites and, in several instances, physically rolling cage traps. Livestock interference (specifically triggering cameras and reducing monitoring viability) impacted several farmland sites and resulted in relocation or removal of some stations.

Images 8 and 9 depict various trapping events during the trial.



Image 8. Examples of camera monitoring showing (top) repeated cat visitation, (middle) DCC Reserve successful cage capture, and (bottom) pig interference.



Image 9. Three feral cats captured on HMWCG private land knockdown sites. Top and middle: Murray Dempster's farm. Bottom: 4 Rivers Farm.

Operational Observations

Several operational trends emerged during the trial:

- Cat engagement was generally highest during the initial stages of pre-feeding, with visitation declining through time at many sites. Whether this reflects seasonal changes, weather conditions, neophilic responses to novel food sources, or removal of resident individuals cannot yet be determined.
- Landscape position also appeared important. Sites located on ridgeline saddles generally produced higher levels of cat activity than exposed hilltops.
- Bait selection appeared to influence cat attraction. Fresh cod consistently produced the strongest response, followed by snapper, while elephant fish generated comparatively little interest. Additional monitoring would be needed to formally evaluate bait preferences as interaction rates generally reduced over time.
- Double-ended cage traps also appeared to outperform several of the smaller folding cage designs. Double ended green cages were used across HMWCG land where the most successful cage trapping occurred, while single sided silver cages were used inside the DCC reserve where cage trapping had more limited success.

Assessment of Thermal Night Shooting

A single thermal-assisted night shooting operation was undertaken to evaluate the feasibility of removing cats that continued to visit bait stations but avoided capture.

The operation targeted one of the most active cage trap locations during the period of highest recorded nocturnal activity (approximately 2300–0130 hrs). A thermal riflescope was monitored remotely via Wi-Fi, allowing operators to observe the bait site from a concealed position.

No feral cats were encountered during the operation, although ten hares, three rabbits and one possum were observed and removed earlier that evening. Increasing mist later in the evening substantially reduced both thermal and night vision performance, resulting in the operation being concluded early.

Although no cats were removed, the trial demonstrated several practical considerations for future operations. Knockdown sites should be established where suitable concealed shooting positions are available, with vantage points identified during initial site establishment to minimise disturbance during night operation set up. Camera systems capable of transmitting real-time motion alerts may also substantially improve operational efficiency compared with continuous visual monitoring.

Thermal shooting is likely to provide greatest value as a targeted tool for confirmed trap-shy individuals rather than as a primary control method. At present, the majority of cats appear willing to enter appropriately positioned cage traps, and there is insufficient evidence to conclude that the remaining monitored individuals would not eventually be captured in the SX220 network over the next year.

Future Refinements

The preliminary trial has identified several opportunities to improve future knockdown operations.

Shorter pre-feeding periods combined with a greater number of cage traps may increase operational efficiency while maintaining capture success. Longer-term conditioning at established bait sites, particularly where integrated with existing predator control infrastructure such as DOC200 trap servicing routes, may also strengthen habitual cat visitation and improve the effectiveness of both cage trapping and targeted shooting.

Continued camera monitoring over subsequent winters will allow these hypotheses to be tested while progressively refining the knockdown methodology as part of Hikaroroa's integrated feral cat management programme.

Discussion: Interpretation and Recommendations

Trapping Performance and Landscape-Scale Suppression

During the 2025–2026 operational year, project operations removed 547 possums, 72 mustelids (stoats, ferrets, and weasels), and 44 feral cats across the Hikaroroa / Mt. Watkin Conservation Project area.

To provide context for these figures, published density estimates were used to generate indicative population estimates for the 4,500 ha project area. While actual densities vary between habitats, seasons, prey availability, and management history, these estimates allow trapping performance to be considered relative to the approximate size of pest populations potentially present within the landscape (Alterio, 1998; Cowan, 2005; Norbury et al., 2014).

Based on published density estimates of approximately 10–20 possums km² (Cowan, 2005), 1–3 mustelids km² (Alterio, 1998; Murphy & Dowding, 1995), and approximately 3.7 feral cats km² (Norbury et al., 2014), the project area may have historically supported approximately 450–900 possums, 45–135 mustelids, and 165–170 feral cats in the absence of management. Population modelling and large-scale control programmes suggest that annual suppression rates of approximately 50–60% are often required to achieve sustained population decline in open systems where reinvasion can occur (Ramsey et al., 2009; Robinson et al., 2015).

The removal of 547 possums (60.7% of a 900 population estimate) during the reporting period is consistent with a substantial reduction in possum abundance across the project area and aligns with monitoring results. WaxTag monitoring has shown an approximate 50% reduction in possum detectability relative to baseline surveys, indicating that the trapping network is achieving meaningful suppression. These results are broadly consistent with studies showing that sustained annual removals exceeding 50% can substantially reduce possum populations and associated browsing impacts (Cowan, 2005; Ramsey et al., 2009).

Similarly, the removal of 71 mustelids represents a level of suppression broadly consistent with the estimated removal rates required to reduce mustelid populations at landscape scale (53% of a 135 population estimate). Given estimated populations of approximately 45–135 individuals, annual removals of this magnitude are likely removing a substantial proportion of the standing population while simultaneously intercepting dispersing animals entering the managed area (Alterio, 1998; Murphy & Dowding, 1995).

Feral cat control remains at an earlier stage of development than the possum and mustelid programmes. Nevertheless, the removal of 44 cats is notable when compared with an estimated unmanaged population of approximately 165–170 individuals across the wider project area. This represents approximately 25% cull of the estimated landscape population and has been achieved prior to the full implementation of the project's planned cat control network and targeted knockdown operations. As cat control infrastructure continues to expand, it is expected that annual removal rates will increase and move closer to the desired 50–60% suppression threshold (approximately 84–100 cats annually) considered necessary to achieve sustained population decline (Robinson et al., 2015).

Collectively, these results indicate that the project is operating at a scale capable of influencing pest populations across the wider landscape rather than simply removing individual animals opportunistically. While population estimates remain coarse and reinvasion continues to occur from surrounding areas, the combination of high annual removal rates and independent monitoring data provides strong evidence that predator and browser populations are being substantially suppressed within the project area. Continued biodiversity indicator monitoring will be required to determine how these reductions translate into long-term ecological outcomes and biodiversity recovery.

Recommendations for 2026–2027

Based on the findings of this reporting period, and MCU operational knowledge not directly discussed above, the following priorities and operational activities are recommended for the coming financial year. As these trap networks are managed through a combination of DCC contractor time and HMWCG volunteer time, recommendations have been presented holistically, recognising that some may be more applicable for certain management groups:

- Continue monthly servicing of the Doc200/25 and new SX220 network.
- Continue 6-monthly AT220 servicing
- Complete installation of the remaining HMWCG SX220 kill trap network to provide continuous cat control across the wider project landscape.
- Complete installation of the 800m halo trapline on 4 Rivers farm.
- If required, trial raised entrance blocks on SX220s to reduce hedgehog interference during spring and summer.
- Calibrate DCC traps, weight test and calibrate HMWCG traps.
- Trial longer-term conditioning at selected knockdown sites by integrating periodic baiting with routine predator trap servicing to determine whether stronger habitual visitation can be established prior to knockdown operations.
- Repeat targeted winter knockdown operations, consider investigating additional sites to keep improving understanding of good trapping locations in the landscape. Shorter pre-feeding & monitoring period (1 week), as prefeeding will be more continuous throughout the year. Use blue cod or a novel bait type to leverage neophilea.
- For any future knockdown sites, prioritize ridgeline saddles or major travel corridors (ie roads, rivers, etc), while avoiding areas susceptible to livestock or pig interference.
- Further investigate the role of thermal-assisted night shooting as a specialised method for removing confirmed trap-shy individuals after a year of kill trapping has been completed. Establish pre-selected concealed shooting positions for future trials. Inclusion of real-time camera alert systems would increase effectiveness.
- Implement any recommendations from the 2026 AT220 trial.
- Prioritise track / trapline maintenance and marking to assist with ease of volunteer trap checking operations.

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The progress described in this report reflects the collective efforts of many individuals, organisations, and landowners who continue to support the restoration of Hikaroroa / Mt. Watkin.

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We sincerely thank the surrounding landowners of the Hikaroroa / Mt. Watkin Conservation Group for their ongoing commitment to predator control, monitoring, and habitat restoration on their properties. Their willingness to provide access, maintain trap networks, contribute local knowledge, and support new management trials has been fundamental to the success of this landscape-scale conservation programme.

The Department of Conservation Community Fund has similarly enabled the expansion of predator control and community conservation initiatives onto surrounding private land, allowing restoration efforts to be undertaken at an ecologically meaningful landscape scale.

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Finally, we acknowledge that predator control and ecological restoration are inherently long-term endeavours. The achievements presented in this report build upon the work of many people over many years, and the continued commitment of partners, landowners, funders, volunteers, and the wider community provides confidence that Hikaroroa / Mt. Watkin will continue progressing towards a more resilient and biodiverse future.

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