Investigating and Evaluating Predator Free 2050 Remote Communications Pathways Project, March – June 2025

Contributors

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Executive summary

Vision Statement

To equip predator control and elimination projects in Aotearoa New Zealand with simple, cost-effective, end-to-end and interoperable technology solutions — making it easy for landscape projects, communities, DOC, and developers to decide on, procure, deploy and maintain devices and systems, and share data seamlessly, accelerating our collective journey toward a Predator Free 2050.

Statement of Purpose

We are committed to supporting predator control initiatives by delivering integrated, cost-effective technology that is intuitive, accessible, and designed for collaboration. By connecting people, data, and tools in a seamless digital ecosystem, we empower landscape projects, communities, iwi, DOC, and regional partners to work smarter, respond faster, and achieve greater impact — all while ensuring the sustainability and affordability of conservation efforts across New Zealand.

Strategic Pillars & Roadmap – our Mahi Tahi

1. Interoperability First

Goal: Ensure systems, tools, and platforms used in predator control can work together seamlessly.
Key Actions:

- Continue the work of the Predator Free 2050 Ltd Remote Communications initiative to keep interoperability and end-to-end solutions front of mind for all developers.
- Continue with work in process initiatives, like those involving direct to cell (DTC).
- Define and adopt open communication standards and architecture: between devices, within local networks and between local networks and cloud.
- Define and adopt open data standards and APIs for data exchange.
- Facilitate integration with existing tools used by landscape projects, communities, iwi, DOC, local and regional councils.
- Promote use of shared infrastructure to reduce duplication
- Encourage open-source development.

2. Data for Actionable Insight

Goal: Turn data into actionable insights to enable faster, smarter decisions.
Key Actions:

- Automate data capture and transfer via APIs to reduce admin burden and remove human error risk.
- Consolidate on a finite set of data analytics tools, providing dashboards and alerts for meaningful insight, decision-making and event response.
- Determine key metrics for the industry and ensure these are shared within and across the industry.
- Support continuous improvement and community engagement by surfacing trends and outcomes.

3. AI model standardisation

Goal: We have robust and reliable predator and species identification AI models
Key Actions:

- Reduce the amount of duplicated effort in building AI models by working with the industry to normalise the models, focusing on New Zealand predators and species.
- Information should be in the public domain and open for all to contribute.

4. Scalable & Sustainable Technology

Goal: Ensure technology solutions can grow with the movement while remaining affordable.
Key Actions:

- Keep end-to-end solutions part of key design principles. New players “cherry-picking” scope should be discouraged, however new technologies with a broader view should not.
- Offer low-cost, subsidised access to tech for small groups. Look at a marketplace for second-hand equipment.
- Consider centralised purchasing to maximise scale.

5. Strengthened Knowledge, Collaboration & Partnerships

Goal: Unite efforts across regions, organisations and projects for greater impact and better decision-making.
Key Actions:

- Set up and maintain a knowledgebase of technologies and their use cases for any organisation or developer to access or contribute to. Wildlabs is a good example of a knowledge sharing platform.

- Enable shared projects and data across organisations, iwi, government and media.
- Support alignment with DOC, regional councils, and the Predator Free movement.
- Foster networks of good practice and regular knowledge exchange.

🗺 Strategic Roadmap

Empowering Aotearoa's predator control through technology and mahi tahi, working together.

STRATEGIC PILLAR	ESTABLISH	BUILD & SCALE	OPTIMISE & SUSTAIN
1. INTEROPERABILITY FIRST	- Continue work assessing feasibility of Direct to Cell - Define shared data standards - Establish dev working groups for network communication interface and device plug and play standards	- Implement shared data standards - Publish communication and standards	- Promote interoperability between partner platforms and discourage island solutions
2**. DATA FOR ACTION**	- Define essential datasets - Prototype dashboards and maps	- Automate data capture and alerts - Release regional insight dashboards - Support continuous improvement via data insight	- Enable open access to aggregated data
3. AI MODEL STANDARDISATION	- Establish AI model working group	- Define required AI models and use cases - Consolidate current models	- Implement common AI models across multiple platforms
4. SCALABLE & SUSTAINABLE TECHNOLOGY	- Build landing page for developers where interoperability and end-to-end solutions are championed as key design principles	- Build a platform for projects and developers to share access to used or reduced-price tech	- Consider a centralised purchasing model for landscape projects
5. KNOWLEDGE, COLLABORATION & PARTNERSHIPS	- Establish a knowledgebase, a central repository for projects to gain the information they need - Ensure report is widely shared	- Create digital project workspaces - Maintain open dialogue via hui and dev meetups - Establish regional tech-focussed training hui - Work with PF2050 Trust to increase awareness and	- Share success stories and co-authored learnings

		knowledge throughout the industry

Broadening our thinking, other insights…

Custom end-to-end solutions, the second-best thing?

Several key players in the industry are already developing their own end-to-end solutions to provide alternatives to multiple technologies and / or the need for interoperability.

Encounter Solutions (Celium)

Already have first iteration of DTC for their hubs, currently in testing.

Working with NZ Auto traps and Cacophony / 2040 to integrate those devices into Celium.

Open to working with others to define standards.

Zero Invasive Predators (ZIP)

Have full end-to-end devices integrated into their LoRaWan network.

Currently not interested in working outside their own projects but considerable investment has already been put into this so we should not discount them.

FTP / Yarn mesh

Are considering adding LoRa and Celium radios and DTC modules to their relays for a full end-to-end remote comms solution using their own, or Celium or LoRa nodes and devices.

Hardware interoperability standards – device plug and play

There is potential for a device “plug and play” standard. In our current development model device manufacturers invest a lot of effort into comms, and a standard could open efficiencies and interoperability across the sector.

We recommend a working group is established to investigate the feasibility of this.

Remaining open to emerging technologies

Although we want to limit the number of new types of networks and discourage island solutions, we need to keep open-minded about emerging technologies.

Key for development needs to be interoperability, end-to-end solution offerings and a standards approach in all design aspects. Open source should be encouraged.