Measuring and assessing the difference we make
He aronui, he aromataiwai, he aromātai i te rerekētanga

Collaborative Pathway Action Plan 2020-2025

Strategic context

The overall strategic direction for biodiversity in Aotearoa New Zealand over the period 2020-2050 is provided by [Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy)](). The strategy's intention is to guide all those who work with or have an impact on biodiversity. The [Predator Free 2050 Strategy, Towards a Predator Free New Zealand](), endorsed by Cabinet in 2020, sits under the umbrella of Te Mana o te Taiao as one of the core foundations. It comprises three areas – mobilise, innovate and accelerate, that describe how Aotearoa New Zealand will achieve the Predator Free 2050 goal to eradicate mustelids, rats and possums by 2050. Beneath the Predator Free 2050 (PF2050) Strategy sits [He Māhere Rautaki Whakakore Konihi, PF2050 5 Year Action Plan 2020-2025](). This overarching action plan organises delivery of the PF2050 strategy into six pathways to help rationalise and focus the work required to achieve PF2050. These pathways are:

- *Mā ngā whānau, mā ngā hapū, mā ngā iwi e whakatau tō rātou kaitiakitanga* – **Whānau, hapū and iwi expressing kaitiakitanga**
- *Te whakatinana i ngā ture me ngā momo kaupapa here e tika ana mō te kaupapa* – **Supporting the kaupapa through legislation and policy**
- *He aronui, he aromataiwai, he aromātai i te rerekētanga* – **Measuring and assessing the difference we make**
- *Me whakaohooho, me whakamana ngā hapori kia mahi i te mahi* – **Communities taking action**
- *Te mātauranga, te mahi auaha, te whakapai* – **Advancing our knowledge, innovation and improvement**
- *Te nuku atu i te pupuru i te maha o te kaikonihi kia iti, ki te ara haepapa pūmau* – **Moving from sustained predator control to eradication**

These six pathways each have a series of milestones and measures for achievement, and together they can be thought of as providing stepping stones to the ambitious PF2050 goal. In 2020, national collaborative groups composed of multiple agencies, organisations and iwi were formed and named for each of the six pathways. The purpose of these groups is to understand and allocate across those involved the actions within these pathways to ensure that the collective PF2050 goals are being achieved. Each group has a draft Collaborative Pathway Action Plan (2020-2025) that:

- drives the national achievement of the PF2050 Strategy milestones and Interim Goals;
- describes the measures being used to monitor progress and achievement;
- represents a joined-up approach to securing resources and facilitating partnerships in a collaborative, non-competitive way.

These plans are intended to be living documents and as such are a work in progress. Accountabilities for lead agencies and funding requirements are currently being explored by the collaborative groups and will be added to the plans once confirmed. It is important to note the impact that Covid-19 and subsequent lockdowns have had on planning and implementation timeframes. As such, many of the actions within the plans have had to be deferred. This is likely to continue to remain the case whilst the impacts of Covid-19 continue to be felt.

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Measuring and Assessing the Difference We Make Collaborative Group (aka The Data Group)

Attached the draft "action plan" from our group. We note that this is not a complete, actionable plan in any sense. To badly paraphrase Winston Churchill, it's just the beginning of the beginning.

Nevertheless, we believe it does a good job of laying out the broad milestones that will need to be delivered to "measure and assess" the achievements of the PF2050 bold initiative. It also describes and logically orders the actions needed to get to those milestones.

The plan is broken down into the two themes each with its own milestones and associated actions:

- The PF2025 interim goals and needs of the PF2050 Collaborative groups
- Needs of Community groups / the wider PF community/network.[1]

The graphic below shows "the big picture" as we see it.

Measuring & Assessing Action Plan: Milestone Flow
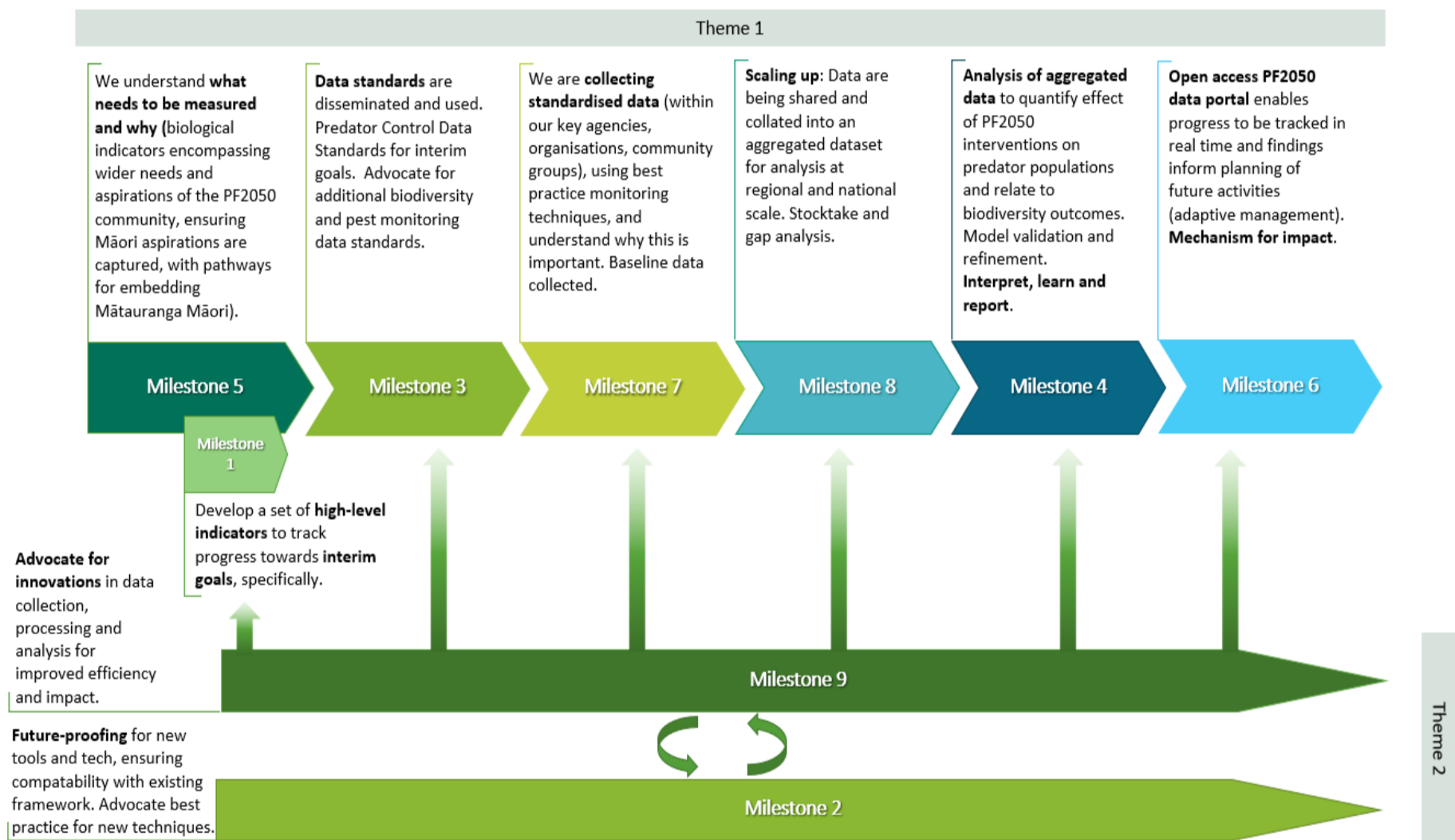
Our group is clear that this is not the final product. Certainly, some wording will need to be changed and whole concepts/actions may be added or delete after discussions with other PF2050 collaborative groups and the Steering Group. In many cases, we have left our comments, questions and uncertainties visible in the document.[2] This should help you understand our thinking so far.

In terms of structure, we have begun to apply the General Process Business Model[3] to the milestones and you will see references in each action. This also needs further work, but we think a GPBM approach is a useful way to outline how we need to tackle this very complex challenge. We modestly suggest that something similar will be needed to eventually bring all the actions plans together for implementation!

Crudely put, "measuring and assessing" the success of PF2050 might be boiled down to two key indicators:

- Predator numbers over time, tracking down to zero
- Biodiversity[4] over time, tracking upward toward goals outlined in Te Mana o te Taiao, the Aotearoa New Zealand Biodiversity Strategy[5].

However, each of those indicators will have multiple associated measures, each with its own data collection and management requirements. We look forward to working with the other collaborative groups to develop a workable approach.

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[1] In practice, Themes 2 and 3 tend to overlap.

[2] For example, we have momentarily parked the measurement of potential non-ecological indicators e.g., climate change, impacts financial, social outcomes, etc. We know they may be important but we have focused on ecological indicators and data for now.

[3] A business process model is a collection of related, structured activities or tasks by people or equipment in which a specific sequence produces a service or product (serves a particular business goal). (https://statswiki.unece.org/display/GSBPM)

[4] We acknowledge that "biodiversity" has many aspects. An overarching "ecological integrity" framework may be appropriate, but further discussion is needed.

[5] Which will have its own implementation plan that must be coordinated with PF2050 actions.

Context:

This plan outlines the work required to ensure we have a clear understanding of what data needs to be collected (and how), to ensure we can adequately measure, assess and evaluate the difference PF2050 is making. It outlines current knowledge (and gaps), and measures for success, as well as:

- What should happen
- When should it happen, and priority.
- Whether it needs funding or is reliant on any other work happening in order for it to be able to occur.
- Alignment with the Generic Statistical Business Process Model (GSPBM)

Requirement:
Outlines the groups assumptions on why this work is required, and what is required.

Actions:
Actions describe the work required in order to fulfil a milestone. No actions are optional. Actions are predominantly scheduled until 2025, except those that are necessary to continue the engagement in data management. This reflects the increasing uncertainty in assigning timeframes beyond 5 years and the need to review progress for all actions by 2023.

Timeframe:
By when is this action necessary? Whilst the milestones aren't timebound, their measures of success are. Actions should be displayed in chronological order. Please note: Some of these plans were developed prior to the Covid-19 pandemic, thus timeframes for these plans do not take into account the impacts Covid-19 have had (and continue to have) on ability to achieve some of the actions outlined. Timeframes should therefore be held with this in mind. Additionally, as one plans actions are often dependent on actions/activities of other collaborative action plans, a need to defer in one plan can have a ripple effect on actions across plans.

Commentary:
As this is a work in progress, comments and reminders for inclusion have been left to ensure conversations aren't missed.

Dependencies:
Does something need to happen in another workstream first for this action to be worked on? An appendix will show actions which need to be happening in parallel.

Prioritisation:
Work has been prioritised using the following system

Maintaining: Minimum effort required to ensure we maintain and defend current gains / build necessary foundations
Progressing: Work required to ensure we meet cabinet approved Interim Goals and make progress towards key intermediate outcomes in PF2050 National Strategy
Accelerating: Ensuring all outcomes and commitments within PF2050 Strategy are met in a way that satisfies the needs and requirements all stakeholders and our commitment to operating within the principles of the PF2050 strategy are uncompromised, setting up PF2050 up for the best chance of success and scaling.

Alignment with Generic Statistical Business Process Model (GSBPM):
The Generic Statistical Business Process Model (GSBPM) is a means to describe statistics production in a general and process-oriented way. It is used both within and between statistical offices as a common basis for work with statistics production in different ways, such as quality, efficiency, standardisation, and process-orientation (Reference: European Commission)

Interim goals to be measured by biological indicators:

- By 2025 we will have eradicated possums or mustelids from at least one New Zealand city.
- By 2025, we will have eradicated all mammalian predators from New Zealand's uninhabited offshore islands.
- By 2025, we will increase by 1 million hectares (from 2016 figures) the area of NZ mainland where predators are suppressed, through PF2050 projects.
- By 2025, we will have demonstrated that predator eradication can be achieved in areas of mainland New Zealand of at least 20,000 ha and that these areas can be defended from reinvasion without the use of fences.

Requirement:

- Assuming the report back to Cabinet will be based on progress towards interim goals.
- Current definition of 'suppression' will need to be standardised in order to accurately measure interim goal "By 2025, we will increase by 1 million hectares (from 2016 figures) the area of mainland New Zealand where predators are suppressed through PF2050 projects", as well as definition of 'offshore islands' for interim goal "By 2020, we will have eradicated all mammalian predators from New Zealand's uninhabited offshore islands".
- Is the milestone current when it comes to social and cultural indicators – are they what we need for the interim goals.
- Assuming that a baseline of 2016 applies to all interim indicators.

Milestone 1

Develop and disseminate a set of biological indicators for interim goals

Action	Timeframe	Commentary	Dependency	Prioritisation	GSBPM Section
1.1 Develop agreed set of definitions	By end of May 2021			Progressing	Design
1.2 Definitions are disseminated across all collaborative workstreams involved in PF2050 activities	Ongoing/ By June 2021		Communities Taking Action Group - dependency on website development and comms?	Progressing	Design
1.3 Identify the data sources for Interim Goals	June 2021		Availability of people within agencies to respond to questions National Eradication Team – islands work	Progressing	Need
1.4 Gather/assemble data (quality and accessibility dependent)	TBC		Agreement to share the data that we need (written or otherwise) Analytical resource and the use of the data standard for that portion of the data (depending on complexity of data)	Progressing	Collect
1.5 Data that supports interim goal achievement is shared through open access/ made publicly available. Note: There will be different data requirements for other streams but for interim goals it is high level information which doesnt need a lot of data in it.	August 2022	But what about the eradication interim goals? Depending on criteria for declaring eradication, decisions would need to be made as to which areas have achieved eradication and these decisions might need to be informed by analysis of surveillance data and use of a proof-of-absence decision-support tools.	Needs a channel for interim dissemination. Could be website at this stage Decision for longer term solution required here	Progressing	Disseminate
1.6 First report to Cabinet	By June 2021			Progressing	Disseminate and review
1.7 Second report of progress to Cabinet	June 2024			Progressing	Disseminate and review
1.8 Produce report on achievement of Interim goals	June 2025			Progressing	Disseminate

Measures:

- Ensure we have an agreed glossary of definitions and used by all parties involved in PF2050 activities
- By 2022, we have an indicator framework has been determined and key set of indicators are disseminated widely.

Requirement:
- We understand what needs to be measured and why (Milestone 1,2).
- Data standards have been disseminated and are being used (Milestone 3).
- Standardised data have been collected and shared by individual agencies/groups (Milestone 4).
- Identify and ensure data collection tools are fit for purpose and follow standards

Milestone 5

Monitoring is underway on an appropriately widespread scale (geographically & organisationally)

Action	Timeframe	Commentary	Dependency	Prioritisation	GSBPM Section
5.1 Access and collate data from key agencies, organisations and community groups to regional and national scale.	From July 2021		Milestones 1,2,3 and 4	High - accelerating	Process
5.2 Share aggregated dataset for analysis and reporting under Milestone 7.	From July 2021		Feeds directly into Milestone 6	Progressing	Process
5.3 Carry out stocktake for data, meeting public data needs.	Jan 2022		Milestone 2	Progressing	Specify Needs and Collect
5.4 Use stocktake to provide gap analysis	July 2022			Progressing	Analyse and Evaluate
5.5 Provide recommendations for changes to collections	Dec 2022			Progressing	Disseminate

Measures:
- Data sharing among collaborative workstreams and PF2050 community enables us to **scale up** our monitoring.
- Data collection is being carried out in a coordinated and complementary manner across key agencies, organisations and community groups, through access to common/shared tools.
- There are pathways for embedding Mātauranga Māori-centred monitoring to support regional PF2050 planning.
- Data are being collated and aggregated to regional and national scales, enabling shared learning across and between regions.

Requirement:

- Defined data standards are produced and ratified by the responsible agencies
    - o Predator Control Data Standards (completed)
    - o Predator monitoring standards
        - Camera trap (there is a current standard that can be adopted)
        - Chew card, wax tag, tunnel (can be applied to the use predator control standards)
- Some auditing capacity to evaluate how reliably agencies are using the new standard. As well as some metric to measure change over time. What is an acceptable rate of uptake per year?
- The current tools that are being used to collect, store and analyse predator data have adopted the data standard.

Milestone 3

Data standards are disseminated and used by key agencies/ organisations involved in data collection

Action	Timeframe	Commentary	Dependency	Prioritisation	GSBPM Section
3.1 Develop, test and ratify key data standards 1) Predator Control 2) Predator monitoring	February 2022			High- Progressing	This process includes all GSBPM steps
3.2 Develop an MOU (or similar) under which all key agencies agree to adhere to current data standards.	August 2021 (for Predator Control Standards)			Medium – Maintaining	Build- enhance process components
3.3 Develop communications plan to roll out across relevant parties	December 2021	Overlap with 2 (?)	Dependency with Communities Taking Action group.	High- Progressing	Disseminate
3.4 Evaluate the data standards, the impact, uptake and on-going maintenance	On-going			Maintaining	Evaluate
3.5 Identify other standards that are needed e.g biodiversity monitoring, community effort		Consider a principles-based approach for standard selection/adoption. Write minimal viable standard where necessary. Make sure we're writing standards at the right level, e.g. should we be proposing a standard for a higher level measure, rather than a data storage standard?	Identifying data standards as opposed to data collection standards		

Measures:

- Data collection and quality assurance standards for PF2050 work are developed/confirmed and implemented by key agencies /organisations
- PF2050 data infrastructure has been developed and is available for use by key agencies/organisations.

Requirement:
- Need to establish the 'why' for open data portal, or investigate alternative solution – mechanism to allow community groups on the ground to access data.
- How to ensure data sovereignty/ data custodian

Action		Timeframe	Commentary	Dependency	Prioritisation	GSBPM Section
Local	7.1 Open access to PF2050 data and findings enable actions and programmes to be managed adaptively and real time progress to be seen	TBC	Milestones 3, 4 and 7 seem to be the enablers of sharing data and working collaboratively across the sector.		Progressing	Evaluate
National	7.2 Canvas current work in open data space (both within PF2050 and wider)	TBC			Progressing	Evaluate
	7.3 Identify barriers to data sharing and create report to share understanding of; - what the barriers are - why they exist - how to break them down	TBC		Link/crossover with Milestone 4	Progressing	Evaluate, Specify needs
	7.4 Define interchange standard and data custodian	TBC		Linked to milestone 3.5	Progressing	Design
	7.5 Training needs analysis identifies who needs to use the tool and what training is required	TBC		Several other milestones need to be completed prior to this	Accelerating	Collect
	7.6 Support model defined through training needs analysis	TBC	Resourced tech support likely required e.g 0800 PF HELPLINE		Accelerating	Collect

Measures:
- A set of assurances, principles and standards regarding intellectual property rights (data sovereignty) and data security will have been developed for PF2050 activities
- Collaborative partners agree to share data so that data are available for all to use.
- An open data portal is connecting, analysing and displaying data sets and supporting PF2050 decision making
- People are consistently monitoring and sharing PF2050 data
- Sophisticated data analysis and interpretation e.g to prove causality

Milestone 7

Open access to PF2050 data and findings enable actions and programmes to be managed adaptively and real time progress to be seen

Requirement:

- Excellent and active ongoing engagement between and among agencies through the collaborative group – understanding other collaborative group needs through approaching other collaborative workstreams to understand their data needs for reporting, including requirements, i.e Frequency, level of detail, level of accuracy
- Clarity on the roles of the collaborative groups - in particular which group(s) develop the monitoring methods and technologies needed to support PF2050 indicators and measures. Process(es) to access data, compile/collate

Milestone 8

Agencies/ organisations explore opportunities for innovative data collection, processing, analysis and dissemination approaches

Action	Timeframe	Commentary	Dependency	Prioritisation	GSBPM Section
8.1 Connect with those working on Aotearoa New Zealand Biodiversity Strategy (ANZBS) and other applicable data management work to ensure communication and alignment of programmes	Finish by June 2021			TBC	Specify needs
8.2 Undertake stocktake to canvas other projects occurring in data space	TBC			TBC	Evaluate, Specify needs
8.3 Assess data aspects of current contracts through Projects to Products and Tools to Market	Ongoing for each round			TBC	Evaluate, Specify needs
8.4 Develop set of key requirements of focus for future contracts through Products to Projects and Tools to Market Expression of Interest processes.	TBC		Implementation plan must be developed with any new data collection/reporting tech.	TBC	Design
8.5 Develop channels for collaboration and support for data managers at national and local levels	TBC			TBC	Design, Build

Measures:

- Monitoring, evaluation, reporting and communication needs are discussed as opportunities present
- Assessment of data capabilities of new technologies to support PF2050 indicators and measures

Requirement:

- Appropriate data (control methods, pest monitoring and biodiversity monitoring, identified in Milestone 1 and 2), including baseline data (e.g. data prior to interventions or at unmanaged comparison sites), has been collected using the accepted data standards (Milestone 3,4), collated, and shared (Milestone 5) for analyses and reporting (this Milestone).
- Definitions of predator suppression and eradication have been agreed upon. Criteria for declaring eradication in a predator-managed area have been set.

Milestone 6

Predator Free 2050 interventions and outcomes are being evaluated and reported to inform future actions.

Action	Timeframe	Commentary	Dependency	Prioritisation	GSBPM Section
6.1 Model the effects of PF2050 interventions on predator populations, including change in residual predator abundance (effect size; timeframes and lags from intervention to outcome). Relate to biodiversity outcomes and/or metrics from action 6.1-6.3. Models validated and refined as new data become available.	From Dec 2021?		Data has been collected (milestones 1,2,3,4,5) and shared for analyses.	High - Progressing	Design, Build, Process, Analyse, Evaluate
6.2 Interventions assessed including; efficiency, effectiveness, barriers, protocol and implementation.	From July 2021	This action is massive, the dependencies would be endless…. Somehow this needs to be broken down more.	Social Science (Advancing our Knowledge, Innovation and Improvement group)? Or Communities Taking Action group?	Progressing	Evaluate
6.3 Surveillance data from sites targeted for eradication are collected and assessed to declare eradication when criteria satisfied. Decision-support tools may assist process (e.g. proof-of-absence models).	From Dec 2021 to 2025 (for assessing success of interim goals), then ongoing			Progressing	Collect, Process, Analyse and Evaluate
6.4 Data reporting at national scale on outcomes and progress towards success.	From July 2021		As above in 6.1; Data has been collected and shared for analyses. Actions 5.1-5.3.	Accelerating	Disseminate

Measures:
- Models of pest and biodiversity outcomes from PF2050 interventions have been developed, fitted to data, validated and refined as new data become available.
- Effectiveness of interventions and relationships between residual pest abundance and biodiversity outcomes are being quantified and reported.
- Models and new knowledge are being used routinely by key agencies/organisations and communities to track progress against the PF2050 strategy and to inform planning of future PF2050 interventions (via Milestone 6).

Requirement:

- The auditing function, again, how will we measure this?
- Need term standard (for both data and collection and interchange) defined for the programme?

Action	Timeframe	Commentary	Dependency	Prioritisation	GSBPM Section
4.1 Develop or identify a suite of best practice tools/materials for predator control data collection, e.g. trapping, baiting, and predator monitoring (camera traps, tunnels, chew cards etc.)	By December 2021 (draft data collection standards)		Agreement on the data standard (V1.0 complete) but must be socialised and tested	Progressing (Data collection standards should be a high priority)	Design
4.2 Identify support models for ensuring standardised data collection systems are in place and platforms are being used effectively e.g. e-learning platform or nationwide training course.	March 2022		Link with community groups	Progressing	Specify Needs and Build (build an e-learning platform)
4.3 Implement the support models determined in 4.2.	December 2022		Link with Communities Taking Action group	TBC	Build and Collect and Disseminate
4.4 Annually review the systems that are in place, updating e-learning tools, and training programmes	Ongoing			Maintaining	Evaluate

Milestone 4

People are collecting standardised data and understand why this is important

Measures:

- PF2050 monitoring and data management training needs have been identified and are being addressed.
- People have the tools and access to expertise they need to collect and record PF2050 data (e.g online courses, a toolbox of monitoring methods).
- People contributing to Predator Free 2050 are consistently monitoring their work and sharing their data
- Ongoing technical support is available to assist people in gathering standardised data and understanding why this is necessary.
- Baseline data to inform scenario modelling have been collected

Milestone 9

Designing and deploying a scalable data infrastructure to support using new technology and highly sensitive, accurate, real-time, and reliable remotely operated automatic presence/ surveillance methods.

Requirement:

- Positive engagement with Taranaki operational groups, including whānau, hapū, iwi
- Alignment with the innovation collaborative group
  Understanding of mātauranga Māori monitoring approaches

Action	Timeframe	Commentary	Dependency	Prioritisation	GSBPM Section
9.1 Establish shared repository of POC/pilot tools with Innovation Group so that data outputs can be assessed/agreed.	TBC		Relationship with Advancing our Knowledge, Innovation and Improvement group.	TBC	Design, Build
9.2 Develop data management framework to reflect Mātauranga Māori monitoring approaches.	TBC	Changes are needed if aspirations to ground the national PF2050 strategy and processes within Te Aō Māori are to be realised.		TBC	Design
9.3 Establish a baseline understanding of the data being captured on site in Taranaki. Assess implications if this approach was scale nationally.	TBC	How to handle the question: "what happens when we start winning"? Shift to a different set of methods, tools, etc. once eradication has been achieved.		TBC	Collect, Process, Analyse, Disseminate, Evaluate
9.4 Develop indicative data requirements for future control and monitoring tools.	TBC			TBC	Design
9.5 Assess compatibility of existing monitoring methods with future data needs.	TBC	Some measure of "future proofness" is needed		TBC	Evaluate
9.6 Develop transition plan(s) to shift from existing to future approaches.	TBC	With regards to operational teams as support group - how to shift work practices on the ground?		TBC	Evaluate, Specify Needs

Measures:

By 2025, a data aggregation and processing infrastructure is in place that will allow devices and methods to be used across New Zealand to alert land managers when breaches occur into areas where predators have been eradicated.

Requirement:

- We require the ability to measure trends in predator populations, both local/regional projects and aggregated to a national scale.
- We require the ability to measure trends in biodiversity health, both local/regional projects and aggregated to a national scale.
- Note – this speaks to biological goals. Need to decide if social and cultural goals are included. This is not the same as whether Mātauranga Māori would inform understanding of biological goals – it definitely will.
- We will need to adapt to new tools as they become available.

    * For the moment we have parked the measurement of other ecological and social indicators e.g climate change, financial.

Milestone 2

Understand what monitoring and evaluation data we will need to collect now and in the future to measure progress toward PF2050 goals.

Action		Timeframe	Commentary	Dependency	Prioritisation	GSBPM Section
National	2.1 Engage with national level specialists and stakeholders to: 1) adopt existing metrics or frameworks and 2) commission research where existing approaches are inadequate.	Start July 2021	This refers to biology and ecology.		TBC	TBC
	2.2 As part of 2.1, engage with Mātauranga Māori experts to identify metrics that help measure progress toward ecological goals.	Start July 2021	We recognise there are unresolved cultural goals implicit here. In addition, governance structure will matter – look at the difference between partnership and relationship. Whakapapa is a key issue: No whakapapa with pests to input from mana whenua is crucial at place. Need appropriate standards relevant to Mātauranga Māori. This is more about practice of Mātauranga Māori not collection			TBC
	2.3 Recommend indicators based on 2.1 and 2.2 and begin research to fill gaps that recommendations have noted.	March 2022	This includes having appropriate standards This means we are creating something new by combining elements of existing frameworks. Let's really try to use the best of what exists now, rather than create yet another framework. No doubt it will be less than perfect, but if it is good enough let's use it.		TBC	TBC
	2.4 Advocacy for standardised data monitoring and sharing	ASAP	Needs to be led and organised. More resourcing will be required. Needs to adapt and evolve as research creates requirements for new standards		Linked to work of Comms group and the use of data standards?	TBC
Local	2.5 Initiate a case study to assess data collection status and needs at a model project (stock taking)	April 2021		Need to be talking to all relevant Taranaki parties -- *Communities Taking Action* group and *Whānau, hapū and iwi expressing kaitiakitanga and rangatiratanga* group.	Essential	TBC
	2.6 Review and report	2025	Assesses if we have done what we said we would do.. NOTE: This is different from "Have the necessary measures and indicators been implemented?"	TBC	TBC	TBC

Measures:

- Key monitoring specialists and representatives of stakeholder groups have determined what data needs to be collected and have developed conceptual models and sampling frames based on assessment.