Background

Predator Free NZ (PFNZ) is a major national exercise that supports and champions 'mission-led' research to achieve the aspirational goal of making NZ predator-free by 2050 (https://www.doc.govt.nz/nature/pests-and-threats/predator-free-2050/). The scale, needs and benefits of this undertaking cannot be overstated for securing our taonga species and biodiversity, but also for generating employment, supporting community well-being, and stimulating new approaches to working collectively across the RS&T system. In recent years, the PF2050 movement has developed major new collaborative approaches to achieving the national goal of eradicating pest mammals (possums, rats and mustelids) nationally. In short, rapid progress in how we tackle PF2050 collectively provide important discoveries and lessons across all of questions raised in Te Ara Paerangi.

Strategy

In 2016 the Government asked the Department of Conservation to facilitate the overall Predator Free 2050 programme and to develop a strategic direction and an action plan. Knowledge from iwi, whānau, hapū, conservation experts and people involved in the Predator Free movement formed the basis of the strategy. The Predator Free 2050 Strategy and the programme's first action plan (2020-2025) were launched in March 2020. The strategy aims to mobilise, innovate and accelerate the delivery of a predator free New Zealand by 2050.

- **Mobilise:** Taking the steps needed to build predator free communities and establish regional and national collaborations.
- **Innovate:** Developing the new and transformational tools and techniques (and the public acceptance of them) that will be required to eradicate predators.
- **Accelerate:** Applying Predator Free 2050 tools and techniques across the landscape as fast as possible, as they are developed.

Major principles that underpin this strategy include inclusiveness, collaboration, local and regional action, guardianship and responsibility

including kaitiakitanga of whānau, hapū and iwi, and flexibility to adapt work to include new discoveries and innovations throughout. This body of work is directly relevant to many of the questions posed in Te Ara Paerangi and is well documented (see links below).

Who is involved?

PF2050 involves unprecedented mobilisation across the RS&T system and with communities. Currently, The Predator Free 2050 movement includes > 5000 groups and iwi and 13 landscape partnerships spanning local and central government, Whānau, hapū and iwi, communities and landowners, industry and NGOs, CRIs (Manaaki Whenua), the Biological Heritage National Science Challenge (https://tuiatetaiao.nz/about-us/who-is-involved/). In addition, independent organisations such as the Predator Free 2050 Limited Crown-owned, charitable company (https://pf2050.co.nz) and Predator free trust (https://predatorfreenz.org/) have important roles to play in directing investment and mobilising communities respectively. Similarly, major operational innovations and deployment include additional organisations such as Zero Invasive Predators Ltd (ZIP) and OSPRI seek to scale up and safeguard pest eradication.

To coordinate efforts across these diverse groups, collaborative groups have been established for each of the six pathways in the PF2050 strategy:

- Whānau, hapū and iwi expressing kaitiakitanga
- Empowering and inspiring communities to take action
- Supporting the kaupapa through legislation and policy
- Advancing our knowledge, innovation and improvement
- Measuring and assessing the difference we make
- Moving from sustained predator control to eradication

Details at https://tuiatetaiao.nz/collaborative-groups/.

Although major progress has been made with developing a national collective and collaborative approach to achieving PF2050, the insights and discoveries generated to date are best shared through direct

engagement with the PF2050 team and collaborative groups leads. We invite MBIE to pursue this during the next phase of Te Ara Paerangi.

The Advancing our knowledge, innovation and improvement collaborative group draws on expertise across the RS&T system, and contribute to four key research outcomes for Predator Free 2050:

1. We know what drives attitudes and actions to achieve PF2050.
2. PF2050 is built from multiple knowledge systems and world views.
3. A suite of tools and approaches are available (or in development) to eradicate predators and maintain gains in all ecological and social contexts.
4. Predator ecology and interactions are understood to inform eradication strategies.

Further detail on this pathway's outcomes, its milestones and measures of success are set out in the 2020-2025 Pathway Action Plan.

Our recent work to connect across the RS&T and to support PF2050 has led us to focus on the of supporting mission-led application of science. This issue spans many of the questions and themes raised in Te Ara Paerangi. We provide concrete advice from our collective experience and involvement in the long-term aspirational goal of making Aotearoa New Zealand Predator Free by 2050.

Supporting mission-led application of science

• The **'innovation system' approach to support mission-led and impacts-focussed science** process developed and implemented by the BioHeritage Challenge helps to identify both current and future RS&I needs to achieving goals. The concept of an innovation system takes a collective-impact approach to research investment, and allows for a diversity of contributions from a wide range of individuals and institutions: a national partnership. This method is based on implementation pathways or intervention logic, and has been applied to some PF2050 activities. For

example, this method is currently being used to identify the potential benefits of current and potential future pest management tools to achieve eradication, including the social dimensions of current and potential future predator control methods (https://bioheritage.nz/goals/stategic-objective/novel-tools/; see also https://bioheritage.nz/research/public-perceptions-of-new-pest-control-methods/). Such approaches can be generalisable, help to identify and prioritise new knowledge or evidence, and explicitly link this with implementation and scaling up to achieve a mission or clear objective.

• **There is a recognised gap in the RS&T systems for fully implementing new knowledge, innovations and tools.** Overcoming this gap is critical to adopting and scaling up improvements, and accelerating progress toward a mission or goal. Some helpful mechanisms are already in place such as:

  • the "Tools to market" programme which invests $1.4 million/yr to support work spanning from proof of concept, through research and development, to prototype testing at the landscape scale of predator control tools (https://www.doc.govt.nz/nature/pests-and-threats/predator-free-2050/goal-tactics-and-new-technology/tools-to-market

). This is done through a discrete procurement rounds for projects;

  • the "products to projects" programme of PF2020 Ltd. (https://pf2050.co.nz/products-to-projects/) designed to accelerate research, development and production of new predator control and eradication tools and technologies. This investment is about $2.1M/yr

These programmes focus on the development of refined tools for predator eradication, and are one mechanisms to help bridge the gap between new knowledge or tools and their use more generally. Similar or expanded schemes could also be used to translate knowledge or innovations that are not necessarily about tools *per se*. For example, Envirolink (www.envirolink.govt.nz) was developed in 2005 because MRST at the time was concerned that $100M/year of investment in environmental research was not being utilised by regional councils. Govt

(Vote Science) invest $1.6M/year in Envirolink to transfer scientific knowledge from University and CRI scientists for a variety of purposes such as analysing council data sets; provide advice on small mammal or weed management; designing community-based monitoring system. **This is an important example or mechanism for transferring knowledge (but not necessarily research results per se) that could easily be scaled up, or out to other areas** such as the previously proposed (Gazette notices) HazardLink and IwiLink schemes.

• Both lags and legacies necessitate a longer-term view of science, its use, and impacts. Five year plans are a minimum for mission-led research, but the longer-term objectives or shared goals of those involved guide shorter-term work and ensure its lasting value or legacy (e.g., a 100 yr vision co-developed with communities; see https://bioheritage.nz/goals/stategic-objective/bioheritage-ecoindex/). Taking the long view must include enabling long-term, standardised and accessible data collection and management to effectively measure impact from RS&I programmes.

• **The collaborative groups themselves developed for PF2050 are an important mechanism for achieving shared goals through greater inclusion and decision making across the RS&T system.** This has results in greater inclusion of Māori throughout all aspects; agreed prioritisation among all major research providers; is one approach to stimulating collective action approaches to complex problems; and identifies and supports specific mechanisms to accelerate progress.

We strongly support many of the points raised in Te Ara Paerangi, and encourage ongoing engagement beyond the immediate deadline for written submissions. To that end, **we suggest directly following up with the Collaborative group leads to ensure our discoveries and advances in**

doing mission-led science are implemented in the next stages of Te Ara Paerangi.

Sincerely,
Duane Peltzer
co-lead of Advancing our knowledge, innovation and improvement PFNZ collaborative group
on behalf of PFNZ collaborative leads group