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Reconciling guardianship with ownership: Protecting taonga plants, Māori knowledge, and plant variety rights in Aotearoa New Zealand

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Abstract

The Plant Variety Rights Act of Aotearoa New Zealand (PVR Act), recently reformed in 2022, adopts new protections for Indigenous relations with native and culturally significant plants, and for traditional knowledge. The Act specifically aims to protect kaitiaki (guardian or caretaker) relationships that Māori have with taonga (treasured, culturally significant) plant species and mātauranga Māori (Indigenous knowledge) in the PVR system. By taking these reforms into account and examining how they may operate in practice, this article considers whether the PVR Act fulfils the constitutional obligations the government owes to Māori under the Treaty of Waitangi | Te Tiriti o Waitangi framework. In addition to conducting a doctrinal assessment of the revised statute, the article undertakes an intellectual property landscape analysis, revealing how PVR systems, both domestically and overseas, have been used by non-Māori entities to assert ownership claims to varieties of taonga plants in the past. The article further draws upon a third research methodology, presenting initial results from qualitative interviews conducted with Māori and non-Māori experts in intellectual property, taonga plants, and mātauranga Māori. Synthesising the results of

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these three forms of investigation, the article argues that while some of the changes made in the PVR Act support the exercise of partial Māori authority in relation to taonga, it remains to be seen whether the Treaty promise of tino rangatiratanga (chieftainship, sovereignty, or self-determination) can be fully achieved in the PVR system.

KEYWORDS

Aotearoa New Zealand, indigenous knowledge, mātauranga Māori, plant breeders' rights, plant variety rights, taonga plants

1 | INTRODUCTION

In January 2023, a major overhaul of the New Zealand system of intellectual property for plants took effect. The Plant Variety Rights Act 2022 (PVR Act) is largely a conventional law that reproduces the most common international form of proprietary protection for new plant varieties, but one of its three key purposes has a distinctly Aotearoa flavour. In recognition of the obligations to which the government is bound under Te Tiriti o Waitangi | the Treaty of Waitangi, the Act endeavours to protect kaitiaki (guardian or caretaker) relationships with taonga (treasured, culturally significant) plant species and mātauranga Māori (Māori knowledge) in the PVR system.[1] This new aim was designed to align with Article 2 of Te Tiriti, which promises to respect the tino rangatiratanga—variously translated into English as chieftainship, sovereignty, the right to exercise authority, or self-determination[2]—to which tangata whenua are entitled in relation to their taonga.[3]

The aim to protect the kaitiaki relationships that iwi, hapū, individuals of Māori descent, or Māori entities have—or that Māori in general have—as guardians, trustees, or caretakers of particular species of flora[4] is a significant change in comparison to the previous systems of intellectual property for plants in Aotearoa New Zealand. Prior statutes, namely the Plant Varieties Act 1973 and the PVR Act 1987, did not recognise kaitiakitanga and made no special provisions for the allocation of proprietary rights to varieties of native plants or other species of cultural significance to Māori. The result was that any person, regardless of their whakapapa or ancestry, could claim rights to new varieties of plants recognised by iwi, hapū, and whānau Māori as taonga, without any requirement to consult with kaitiaki or to share any benefits resulting from the commercial exploitation of these varieties.

In contrast to prior iterations of the New Zealand PVR regime, the 2022 revision of the PVR Act introduced a series of reforms that are designed to ensure that kaitiaki interests in taonga plants and mātauranga Māori are safeguarded against misappropriation. By taking these changes into account and examining how they may operate in practice, this article considers whether the PVR Act fulfils the promise of tino rangatiratanga under Te Tiriti. In addition to conducting a doctrinal assessment of the revised statute, the article undertakes an intellectual property landscape analysis, revealing how PVR systems, both domestically and overseas, have been used by entities without whakapapa Māori to assert ownership claims to varieties of taonga plants in the past. The article further draws upon a third research methodology, presenting initial results from qualitative interviews conducted with Māori and non-Māori experts in intellectual property, taonga plants, and mātauranga Māori. Synthesising the results of these three forms of investigation, the article argues that while some of the changes made in the PVR Act support the exercise of partial Māori authority in relation to taonga, it remains to be seen whether tino rangatiratanga can be fully achieved in the PVR system.

The remainder of the article is structured as follows: Section 2 introduces the principle of taonga in relation to plants and how legal definitions of this concept relate to tino rangatiratanga. Section 3 builds upon this foundation

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by providing an overview of the major reforms that the 2022 reform to the PVR Act instituted, focussing specifically on the new protections that the law introduces for kaitiakitanga and mātauranga Māori. Section 4 presents the results of an intellectual property landscape analysis of existing PVR, portraying the extent to which non-Māori individuals and entities have been granted ownership rights to varieties of plants that iwi, hapū, and whānau Māori recognise as taonga. Section 5 concludes the article with a discussion of the importance of the changes that the PVR Act 2022 introduced and the issues that the law likely will need to address during implementation.

2 | 'O RĀTOU TAONGA KATOA': TINO RANGATIRATANGA AND TAONGA PLANTS

The inclusion of the concept of taonga in Te Tiriti o Waitangi, a brief document containing only three articles, indicates that tangata whenua must have held taonga to be extremely important when the agreement was signed in 1840. While taonga represents a broad category of both tangible objects—including plants, as well as land, waters, wildlife, and cultural works—and intangible things—for instance, language, identity, culture, and mātauranga Māori[5]—the English version of the Treaty of Waitangi employed a vague and narrow translation of this concept. Taonga in the Treaty are described simply as 'forests, fisheries and other properties',[6] a definition that is problematic both because of its association with European notions of ownership and because it fails to acknowledge the fundamental links between taonga and culture within te ao Māori.

As anthropologist and geographer Paul Tapsell (Ngāti Whakaue, Ngāti Raukawa) has noted, 'For M[ā]ori, if an item, object or thing is described as he taonga it immediately elicits a strong emotional response based upon ancestral experiences, settings, and circumstances'.[7] Iwi, hapū, and whānau Māori are connected to taonga through whakapapa, which derives from the association that a particular item has with ancestral lands, how it represents a tribe's cultural identity, or how it embodies a customary resource.[8] Taonga possess elements of mana (prestige or status), tapu (sacredness), and kōrero (narratives or stories). Mana is protected through the recitation of karakia (ritual incantations), which, by evoking tapu, ensure that the taonga is treated with due reverence.[9] Meanwhile, kōrero maintain a particular kin group's whakapapa connection with taonga.[10]

Although after Te Tiriti was signed taonga were often characterised in English as something akin to 'treasured ancestral possessions',[11] they may be better described as embodiments of relationality. In other words, taonga may be understood as 'inherently productive, and reproductive, as they both arise from and are generative of relations'.[12] The contradictory conceptualisations of taonga that Te Tiriti/the Treaty contains—conceived divergently as essentially relational or proprietary—help to explain the rise of the Wai 262 or 'flora and fauna' claim that six claimants[13] brought before the Waitangi Tribunal in 1991. The development of this case occurred in the wake of a series of unanticipated commodifications of things that historically were not conceived as able to be abstracted from a broader relational context, because they were imbued with whakapapa.[14] The commodification of cultural objects with relational significance included the expansion of legal frameworks that allowed for taonga plants and associated mātauranga Māori to be claimed as intellectual property, including by non-Māori people and entities.

Beginning especially in the 1980s and early 1990s, legal systems around the world extended new forms of proprietary rights to people and entities who developed new plant-based inventions or bred novel plant varieties. In Aotearoa, the PVR Act 1987 replaced the Plant Varieties Act 1973 and aligned the domestic regime with the International Convention for the Protection of New Varieties of Plants (UPOV Convention). The UPOV Convention itself was revised in 1991 to recognise expanded intellectual property rights for plant breeders,[15] and subsequently the World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement; 1995) required all WTO member countries to provide some form of proprietary protection for plant varieties.[16] Although the expansion of international intellectual property regimes and the social backlash that these laws faced provided important context for the development of Wai 262, the claimants were specifically concerned

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with Crown laws, policies, and practices related to 'te tino rangatiratanga o te Iwi Māori' in relation to indigenous flora and fauna.[17] In its long-awaited response to the claim, the Waitangi Tribunal addressed these issues in addition to questions related to Māori rights to other kinds of taonga, such as cultural works.

According to the Waitangi Tribunal, in the Wai 262 claim the most important Te Tiriti issue that needed to be evaluated was 'the promise to protect the tino rangatiratanga of iwi and hapū over their "taonga katoa"—that is, the highest chieftainship over all their treasured things'.[18] For these purposes, the Tribunal interpreted tino rangatiratanga to mean a right to autonomy or self-government, while acknowledging that after 170 years of colonial and postcolonial Crown sovereignty, it may no longer be possible to deliver rangatiratanga in the form of full autonomy in all cases involving taonga.[19] However, the Tribunal still sought to ensure that Māori could exercise complete authority over their taonga in at least some areas, whether because of the absolute importance of the taonga interest or because competing priorities were not sufficiently important to outweigh the constitutionally protected taonga interest.[20] Where full Māori authority over taonga would not be possible, the Tribunal recommended the pursuit of shared decision-making and partnership between the Crown and Māori, consistent with the constitutional framework provided by Te Tiriti.[21]

One of the main thematic areas that the Waitangi Tribunal discussed in its response to the Wai 262 claim centred on what were conceptualised as the 'genetic and biological resources' of taonga species. The use of the term 'resources' in framing the question of tino rangatiratanga for flora and fauna reveals the influence of international sociolegal conversations and technological developments that were occurring before and contemporary with the publication of the Tribunal's Ko Aotearoa Tēnei report in 2011. The 1980s saw the popularisation of new genetic engineering techniques such as recombinant DNA for intra- and transgenetic modification, which made the components of biodiversity increasingly valuable as scientific and economic resources.[22] Meanwhile, in the 1990s global social movements led by Indigenous peoples and peasants took collective action against the expropriation of their local biodiversity and traditional knowledge, deriding what global elites termed 'bioprospecting' as 'biopiracy'.[23]

Responding in part to grassroots activism and allegations of biopiracy, a series of treaty regimes emerged in parallel to the UPOV Convention and the TRIPS Agreement, which sought to prevent the misappropriation of biological and genetic resources, and associated traditional knowledge. These treaties included the Convention on Biological Diversity (CBD; 1993) and its supplementary Nagoya Protocol on Access and Benefit-Sharing (Nagoya Protocol; 2014), in addition to the International Treaty on Plant Genetic Resources for Food and Agriculture (Plant Treaty; 2004). Although at the time when the Wai 262 claim was being litigated New Zealand was only a party to the CBD,[24] the influence of these global trends is clear in Ko Aotearoa Tēnei. In the report, the Waitangi Tribunal adopted the concepts of genetic resources and bioprospecting, and explicitly referenced the obligations that the New Zealand government undertook in joining the CBD.[25]

Similar to the Indigenous activists overseas who were influential in the making of the CBD, Nagoya Protocol, and Plant Treaty, the Wai 262 claimants argued that their kaitiaki relationships—entailing guardian responsibilities to nurture and care for taonga[26]—and their associated mātauranga Māori should be recognised in New Zealand law.[27] Claimants also believed that kaitiakitanga should be prioritised over science and commerce, and that kaitiaki should have a veto over scientific and commercial exploitation of taonga species.[28] Some claimants further contended that the law should grant ownership rights to kaitiaki for the genetic and biological resources of taonga species and associated mātauranga Māori.[29] Although ultimately, the Waitangi Tribunal rejected the idea that kaitiaki have proprietary interests in taonga species, Ko Aotearoa Tēnei emphasised that in accordance with Te Tiriti and the principle of tino rangatiratanga, iwi, hapū, and whānau Māori should have enough control over these species to enable them to protect their kaitiaki relationships with taonga.[30]

The Ko Aotearoa Tēnei report made multiple general and specific recommendations about how New Zealand laws and policies should be reformed to uphold the promises the Crown made in Te Tiriti, with several suggestions focussed particularly on the PVR Act 1987. Taking seriously the importance of upholding tino rangatiratanga, the Tribunal concluded that the PVR Act should grant kaitiaki reasonable control over the uses of taonga plants,

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including sufficient authority to ensure that the kaitiaki relationship is protected.[31] Reasonable control should be evaluated situationally, because the ways that taonga species are used may vary from one context to another, and these species may be perceived differently by diverse iwi and hapū.[32] The Tribunal also found that prospective reforms to the PVR Act should recognise that kaitiaki have rights to their mātauranga Māori, including the right to be acknowledged as the source of knowledge and the right to have a reasonable degree of control over uses of mātauranga.[33]

In addition to these general recommendations, the Waitangi Tribunal also made specific suggestions for how the PVR Act could be made consistent with tino rangatiratanga. For instance, the law should empower the New Zealand Intellectual Property Office to refuse PVR claims where kaitiaki relationships with taonga species would be affected.[34] The Tribunal further recommended that a Māori 'advisory committee' should be created to support the Commissioner of PVR in balancing the interests of kaitiaki against those of intellectual property applicants and the wider public.[35] While the Tribunal reiterated that kaitiaki do not have proprietary interests in taonga species or mātauranga Māori, their relationships with indigenous flora and other plants should still be protected based on the cultural significance of these interactions.[36] Kaitiaki interests in taonga plants could be facilitated, the Tribunal suggested, by the creation of a formal register to alert the Intellectual Property Office of their relationships with particular species.[37]

Following the publication of Ko Aotearoa Tēnei, the Waitangi Tribunal's recommendations were both welcomed and criticised. As legal scholar Carwyn Jones (Ngāti Kahungunu, Te Aitanga-a-Māhaki) noted, the report was a significant document because it 'articulates a vision of law and policy-making that is genuinely based on two founding cultures—what the Tribunal refers to as "perfecting the Treaty partnership"'.[38] However, others took issue with the Tribunal's suggestions for how the PVR system should be reformed, arguing that it could have taken a stronger position in favour of Māori rights and interests. Criticisms centred on the proposal that the role of the prospective Māori PVR committee should be merely advisory, the pragmatic issues associated with establishing a voluntary register of kaitiaki interests in taonga species and mātauranga Māori,[39] the limitation of the Tribunal's recommendations to existing legal regimes, and the fragmented rather than holistic approach that the Tribunal envisaged for the protection of taonga species and mātauranga Māori.[40] More generally, the Waitangi Tribunal was criticised for opting to work within the existing intellectual property system rather than advocating for the creation of a standalone legal framework that would be based on tikanga Māori (correct procedures, customs or rules) rather than Western theories of individual rights.[41]

Notwithstanding the critiques of the Waitangi Tribunal's approach to protecting kaitiaki relationships with taonga plants and mātauranga Māori, it is notable that its recommendations had a tangible impact on the 2021–2022 reform of the PVR Act. In addition to the need to fulfil the promises of Te Tiriti and address the Wai 262 claim, the government was also required to uphold certain obligations under international law in remaking the PVR system. Most prominently, the Comprehensive and Progressive Agreement on Trans-Pacific Partnership (2018), a multilateral free trade agreement with 11 signatories spanning the Pacific Rim, required New Zealand to either adopt or give effect to the 1991 Act of the UPOV Convention.[42] Domestic interests in scientific and commercial plant breeding also supported the alignment of the PVR system with the 1991 Act of UPOV, believing that doing so would promote innovation and economic development.[43] Given these diverse and potentially divergent pressures on the government, it is significant that many of the Waitangi Tribunal's proposals were adopted in the PVR Act. The following section reviews the major changes that this law made towards the end of protecting kaitiaki relationships with taonga plants and mātauranga Māori.

3 | NEW PROTECTIONS FOR KAITIAKITANGA IN THE PVR SYSTEM

As mentioned earlier, one of the three purposes of the PVR Act 2022 is 'to protect kaitiaki relationships with taonga species and mātauranga Māori in the PVR system'.[44] The Act also explicitly 'recognises and respects' the obligations that the Crown undertook in Te Tiriti as applied to PVR.[45] While these provisions are significant, holding promise for

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the advancement of tino rangatiratanga in the intellectual property system, the Act is vague in important areas. Although the law refers to taonga in its purpose statement, this concept is not defined in the Act. Instead, the framework conceptualises taonga indirectly, by defining the term 'kaitiaki relationship' as 'the relationship that any particular iwi, hapū, individual of Māori descent, or Māori entity has, or Māori in general have, as guardian, trustee, or caretaker of' either indigenous plant species or nonindigenous plant species of significance.[46] The meaning of indigenous species is elaborated as a native plant species that occurs naturally in New Zealand or has arrived to the country without human assistance, while a nonindigenous species of significance is one that is believed to have been brought to New Zealand before 1769 on waka migrating from other parts of the Pacific region.[47] Notably, the Act does not contain an explicit definition of mātauranga Māori either, apart from a passing reference to this concept as 'Māori traditional knowledge'.[48]

Viewed pragmatically, the lack of substantive definitions of the concepts of taonga and mātauranga Māori in the PVR Act may be reasonable. Like tikanga Māori, taonga and mātauranga Māori differ from one tribal region of Aotearoa to another.[49] In a national legal regime it may have been difficult to assign specific meanings to notions that vary across takiwā (territories). However, it is also important to recognise that the PVR Act is fundamentally based upon liberal values including individual ownership of property and Western scientific classification systems, rather than being derived from tikanga Māori. Concepts such as indigenous species fit more comfortably than taonga within modernist legal and scientific paradigms, because classifying something variously as native, exotic, threatened, or invasive depends upon a blend of empirical data and European environmental conservation values, rather than ancestral links between people, the land, and biodiversity.[50] Unlike the notion of taonga, which may evolve over time as whakapapa relationships expand, the classification of particular plant species as indigenous or 'of significance' because they arrived in New Zealand before 1769 on migrating waka is immutable. The Act does not allow for plants that were not historically of significance to be or become taonga to contemporary or future generations of tangata whenua.

The static conceptualisation of taonga elides the reality that Māori culture is living and evolving, and that new whakapapa relationships may be formed with plant species that have newly appeared in Aotearoa or for which new uses have been found. Today, Māori use many other plant species that were originally introduced to New Zealand for a variety of purposes, while many taonga species that were used historically have been classified as threatened and are now legally protected, or have become extinct. For instance, one member of the senior leadership team at a Crown Research Institute with Ngāi Tahu whakapapa described how in the past, tangata whenua in Te Pātaka-o-Rākaihautū | the Banks Peninsula harvested a number of different seaweeds for diverse purposes, but many of these species no longer exist in local ecosystems.[51] In their place, undaria (Asian seaweed; *Undaria pinnatifida*) has become invasive in Akaroa and Lyttelton Harbours, so Māori are adapting and finding ways to work with this new taonga.[52] In another example, following the completion of Treaty settlements it is estimated that approximately 40% of plantation forests in Aotearoa will be Māori owned.[53] Commercial plantation forests are comprised entirely of exotic species such as Monterey pine (*Pinus radiata*).[54] Given the significance of pine trees to Māori employment and economic opportunity, it is conceivable that species like *Pinus radiata* may be recognised as taonga by some iwi, hapū, or whānau. However, regardless of the interests kaitiaki may assert, neither undaria nor Monterey pine would be considered taonga under the PVR Act.

Despite its conceptual limitations, the 2022 revision of the PVR Act made one particularly significant change that aligns the law with the Waitangi Tribunal's recommendations in Ko Aotearoa Tēnei and has the potential to advance tino rangatiratanga. The reform established a Māori Plant Varieties Committee, which is charged with administering procedures for recognising and protecting kaitiaki relationships with indigenous plant species and nonindigenous species of significance.[55] Once constituted,[56] the most important function of the Committee will be to review PVR applications for varieties that are derived entirely or partially from indigenous plant species and nonindigenous species of significance.[57]

If a variety claimed in a PVR application is derived from an indigenous species or nonindigenous species of significance, the PVR Commissioner must refer the application to the Māori Plant Varieties Committee.[58] In

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evaluating applications, the Committee will need to consider the effect of granting PVR on the kaitiaki relationships that iwi, hapū, individuals of Māori descent, or Māori entities have with the species.[59] If the Committee determines that private ownership rights would have adverse effects on the kaitiaki relationship, it will have full authority to either impose conditions on the grant, or decline the application altogether.[60] Additionally, the PVR Act now empowers any person to apply to the Commissioner at any time to nullify or cancel existing PVR for indigenous plant species or nonindigenous species of significance.[61] The Commissioner must refer such cases to the Māori Plant Varieties Committee,[62] which will have the power to nullify or cancel previously granted ownership rights.[63]

The binding authority of the Māori Plant Varieties Committee contrasts with other Māori committees that currently exist in the New Zealand intellectual property system, which are charged with evaluating patent and trade mark applications. As their names imply, the Māori Patents Advisory Committee and the Māori Trade Marks Advisory Committee are only able to give advice to the Commissioners of Patents and Trade Marks. The Patents Committee is specifically charged with determining whether the commercial exploitation of inventions claimed in patent applications would be contrary to Māori values, where those inventions are derived from Māori traditional knowledge or from indigenous plants or animals.[64] The Commissioner of Patents must consider, but is not bound by this committee's advice.[65] For its part, the Trade Marks Committee is responsible for advising the Commissioner of Trade Marks on whether the proposed use or registration of a mark is, or appears to be, derivative of a Māori sign, including text and imagery that is or is likely to be offensive to Māori.[66] As mentioned earlier, in the Ko Aotearoa Tēnei report the Waitangi Tribunal only recommended that a committee with a similarly advisory role be established for the PVR system. Viewed in this context, the Māori Plant Varieties Committee is an important step towards the fulfilment of the promises of Te Tiriti, potentially advancing tino rangatiratanga for taonga plants.

While the most significant function of the Māori Plant Varieties Committee is to review PVR applications that concern indigenous plant species and nonindigenous species of significance, the Committee will also have other, lesser powers once the PVR Act is fully implemented. These include the responsibility to advise the PVR Commissioner on whether the use or approval of a proposed variety denomination (commercial name) is likely to be offensive to Māori.[67] The PVR Act does not stipulate that members of the Committee will need to have whakapapa Māori, but they will be required to have knowledge of mātauranga Māori, tikanga Māori, te ao Māori, and taonga species.[68] When appointing candidates to the Committee, the Commissioner must consider whether the proposed member has the requisite mana and standing in the community to participate effectively in the Committee,[69] and all proposed appointments must be vetted by the chief executive of Te Puni Kōkiri.[70]

Another innovation that the 2022 overhaul of the PVR Act introduced links the New Zealand intellectual property system with the branch of the judiciary that is specialised in adjudicating claims concerning Māori rights. While most of the determinations that the Māori Plant Varieties Committee will make under the PVR Act will have binding effect, these decisions will be subject to a limited right of appeal, including where the Committee declines, nullifies, or cancels a plant variety rights application, or where it allows an application to proceed.[71] Unlike other statutes that create avenues for redress where Māori customary interests are at stake—for example, the Marine and Coastal Area (Takutai Moana) Act 2011[72]—appeals of Māori Plant Varieties Committee actions will not be heard by a judicial body of general jurisdiction, such as the High Court. Instead, the Māori Appellate Court, a specialised institution created under the Te Ture Whenua Māori Act 1993 to hear appeals of disputes related to Māori land, will adjudicate these claims. The inclusion of a right of appeal to the Māori Appellate Court in the PVR Act was based on the recognition that decisions made by the Māori Plant Varieties Committee should only be reviewed by a judicial body with the necessary cultural expertise.[73]

The establishment of the Māori Plant Varieties Committee is a significant improvement in the context of Treaty partnership, but it is important to recognise that its authority will be limited in certain key ways. Most importantly, the Committee will only be able to evaluate PVR applications where the material from which the claimed variety was derived was obtained from New Zealand.[74] The requirement that the physical germplasm (breeding material) must have been sourced from Aotearoa unfortunately creates a gap that plant breeders could exploit. For example, if a breeder obtains material from a plant species that is native to New Zealand, such as harakeke (New Zealand flax;

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Phormium tenax), from a germplasm collection or nursery located overseas, the PVR Act will not allow the Committee to review the breeder's PVR application. This is the case even where an iwi, hapū, or Māori individual or entity asserts a kaitiaki relationship with the plant species to which the variety pertains.

On balance, the changes made in the 2022 reform of the PVR Act align with those recommended by the Waitangi Tribunal in the Ko Aotearoa Tēnei report. Some of the revisions, such as the creation of a Māori Plant Varieties Committee with binding authority, are more ambitious than those envisaged by the Tribunal. However, other recommendations that the Tribunal made remain unfulfilled. For instance, the PVR Act does not establish a registry system that would allow kaitiaki to record their interests in taonga plant varieties. Furthermore, it is open to interpretation whether the approach adopted in the PVR Act is adequate to grant kaitiaki sufficient control over the uses of taonga plants and mātauranga Māori to ensure that the kaitiaki relationship is protected.

Beyond the proposals made in the Ko Aotearoa Tēnei report, Māori have raised concerns that despite its aim to protect kaitiaki relationships with taonga plants and mātauranga Māori, the PVR Act does not advance tino rangatiratanga. These concerns centred on both procedural and substantive aspects of the law,[75] observing, for instance, that some of the recommendations that the Māori Plant Varieties Committee may make are advisory rather than compulsory in nature.[76] More broadly, some Māori-led organisations took issue with the fundamental nature of the PVR regime, arguing that it is inconsistent with te ao Māori, according to which ownership of plants is not possible because '[w]e belong to the world, the world does not belong to us'.[77] Adjacent criticisms include the argument that the Māori Plant Varieties Committee should have been empowered to review applications for PVR pertaining to all species, given the effects that non-taonga species may have on ecosystems in Aotearoa if they become invasive.[78] Finally, it is surprising that despite the recognition and respect that the PVR Act expresses for the Crown's obligations under Te Tiriti, the term 'tino rangatiratanga' does not appear anywhere in the text of the law.

While critiques of the PVR Act should be taken seriously, the changes that the law introduced are noteworthy. Provided that the breeding material used to develop new varieties of indigenous plants and nonindigenous species of significance was sourced from Aotearoa, the authority that the Act extends to the Māori Plant Varieties Committee could prevent future misappropriation of taonga and mātauranga Māori. Although the New Zealand plant variety system is predominantly concerned with exotic species,[79] private rights have already been granted for varieties of plants recognised as taonga on numerous occasions. In the following section, the results of an intellectual property landscape analysis reveal the extent to which exclusive ownership rights have been recognised for varieties of taonga plants.

4 | A LANDSCAPE OF INTELLECTUAL PROPERTY RIGHTS FOR TAONGA PLANTS

Intellectual property landscapes are established methods for demonstrating the extent to which ownership rights have been asserted for plant varieties and other vegetal materials such as genetic sequences. This kind of analysis is also useful for identifying cases in which traditional knowledge held by Indigenous peoples has been used to develop commercially viable products or services without appropriate consultation or consent from the legitimate holders of that knowledge. For example, geographers Daniel Robinson, Miri Raven, and their collaborators have conducted patent landscape analyses in a number of jurisdictions to uncover intellectual property claims that present potential biopiracy concerns. Their work has revealed how products and processes derived from native plant species and associated traditional knowledge in Australia,[80] Vanuatu,[81] Polynesia, Fiji, and Papua New Guinea[82] have been protected with proprietary rights by people and entities that do not have ancestral connections to the ecosystems and communities from which the claimed plant materials and knowledge were sourced.

In the context of Aotearoa New Zealand, legal scholar Jessica Lai, along with Daniel Robinson and other collaborators, undertook a patent landscape that focussed on the protection of plants with which mātauranga Māori

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is known to be associated.[83] Their analysis centred on plant species that have been customarily used by iwi, hapū, and whānau Māori, as identified in publications on rongoā (Māori medicine).[84] Research revealed nearly 2000 patent families covering 41 plant species, with the majority of claims related to a handful of endemic or near-endemic species such as red mānuka (*Leptospermum scoparium*), harakeke (New Zealand flax; *Phormium tenax*), kokihi (New Zealand spinach; *Tetragonia tetragonioides*), kānuka (*Kunzea ericoides*), and others.[85] Patent applications that represented potential biopiracy concerns were lodged in multiple jurisdictions worldwide—including China, Europe, Japan, South Korea, the United States, and New Zealand—by multinational corporations including the American cosmetics company Mary Kay Inc.[86] Ultimately, the landscape analysis identified 43 patent families that were most concerning. The uses of plants native to Aotearoa that these patent families claimed may have been derived from pre-existing mātauranga Māori.[87]

In a separate study focussed specifically on mānuka, Jessica Lai undertook a landscape of domestic patent applications lodged in New Zealand.[88] The analysis identified 25 applications of potential concern due to the possibility that their claims could cover uses of mānuka that are equivalent or substantially similar to those known in mātauranga Māori.[89] Some of the applications that this patent landscape identified were lodged after the formation of the Māori Advisory Committee by the 2013 reform to the Patents Act, but these applications were not referred to the Committee for evaluation.[90] In addition to highlighting instances when non-Māori individuals and entities claimed proprietary rights in relation to taonga plant species, Lai's research demonstrates the limitations of the Māori Patents Advisory Committee and underscores that the creation of a voluntary registry of mātauranga Māori and kaitiaki interests in taonga plants could help to ensure that misappropriation does not occur.[91]

Rather than focus on patents, the present intellectual property landscape analysis examines proprietary claims in the form of PVR. The analysis was conducted using the list of 53 plant species identified as taonga in the Ngāi Tahu Claims Settlement Act 1998.[92] While this list should not be considered a complete representation of species recognised as taonga by other iwi, hapū, or whānau in Aotearoa, it provides a useful starting point, both because the present research occurred within the takiwā of Ngāi Tahu iwi, and because the list contains the only express enumeration of taonga plants available in New Zealand statutory law. The first stage of the intellectual property landscape involved conducting searches in the PVR Register that the New Zealand Intellectual Property Office maintains.[93] These searches were completed in May 2023, using the botanical names of the plants listed in Schedule 97 of the Ngāi Tahu Claims Settlement Act to identify PVR that have been granted and are still in force for taonga plant species. The analysis focussed on intellectual property rights that have already been granted and remain current (Table 1), although it is important to note that for many taonga species, findings showed that PVR applications had been previously granted and were no longer active due to expiry, lapse, or withdrawal. Information about the owners of granted PVR concerning species recognised as taonga by Ngāi Tahu was obtained from the PVR Register and elaborated through web searches.

The results of searches in the New Zealand PVR Register showed that a total of 198 PVR claims have been lodged for species listed as taonga in the Ngāi Tahu Claims Settlement Act. Of these, 76 were granted and active PVR (38% of the total), while the remaining 122 cases represented claims that had been cancelled, withdrawn, surrendered, refused, or lapsed. The investigation further revealed that as of May 2023, the PVR system recognised ownership rights for 11 of the 53 plant species listed in the Ngāi Tahu Claims Settlement Act, while unsuccessful or expired claims covered varieties pertaining to an additional nine species. These results indicated that 21% of Ngāi Tahu taonga species have been claimed as intellectual property, and that proprietary claims have been lodged in Aotearoa for 38% of the species formally recognised as taonga by Ngāi Tahu. As of 30 June 2021 (the date for which the most current information is available), there were 1289 PVR currently under grant in the PVR Register. Varieties of plants recognised as taonga by Ngāi Tahu constituted 6% of this total. These findings indicate that while the New Zealand PVR system has been used primarily to protect non-taonga plant species, concerns about the extension of proprietary rights to taonga are valid.

The species of plants recognised as taonga by Ngāi Tahu that were most frequently protected with PVR were harakeke, karamū (coprosma; *Coprosma robusta*, *Coprosma lucida*, *Coprosma foetidissima*), koromiko/kōkōmuka (*Hebe*

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TABLE 1 Total number of plant variety rights granted for Taonga species.

Species name	Māori and/or English name	PVRs granted and active in NZ	PVRs granted overseas	PVR jurisdictions
Phormium tenax	Harakeke, NZ flax	14	39	NZ, Australia, Canada, EU, US, Japan
Coprosma robusta, coprosma lucida, coprosma foetidissima	Karamū, coprosma	13	27	NZ, Australia, EU, US, UK
Hebe salicfolia	Koromiko/ kōkōmuka	14	0	NZ
Leptospermum scoparium	Mānuka, tea tree	9	32	NZ, Australia, EU, US, Japan, Netherlands
Pittosporum tenuifolium	Rautāwhiri/kōhūhū, black matipo	9	38	NZ, Australia, EU, US, UK, Japan
Cordyline australis	Tī rākau/tī kōuka, cabbage tree	8	39	NZ, Australia, EU, US
Pseudopanax crassifolius	Horoeka, lancewood	1	0	NZ
Kunzea ericoides	Kānuka	1	0	NZ
Griselinia littoralis	Kāpuka, broadleaf	1	3	NZ, EU, US
Corokia cotoneaster	Korokio, wire netting bush	3	4	NZ, EU, US
Carex flagellifera	Mānia, sedge	2	0	NZ
Phormium cookianum	Wharariki, mountain flax	0	11	Australia, EU, US
Myoporum laetum	Ngaio	0	1	US
Pseudopanax crassifolius	Horoeka, lancewood	1	0	NZ

Source: The author.

salicfolia), mānuka, rautāwhiri/kōhūhū (black matipo; *Pittosporum tenuifolium*), and tī rākau/tī kōuka (cabbage tree; *Cordyline australis*) (Table 1 and Figure 1). Specifically, at the time of writing there were 14 granted and active PVR for harakeke, 13 for karamū, 14 for koromiko, nine for mānuka, nine for rautāwhiri/kōhūhū, and eight for tī rākau/tī kōuka. Other taonga plant species that were less commonly claimed as intellectual property included horoeka (lancewood; *Pseudopanax crassifolius*), kānuka (*Kunzea ericoides*), kāpuka (broadleaf; *Griselinia littoralis*), korokio (wire netting bush; *Corokia cotoneaster*), and mānia (sedge; *Carex flagellifera*) (Table 1 and Figure 1). For these species, PVR have been granted and as of May 2023 remained current in one case for horoeka, once for kānuka, once for kāpuka, three times for korokio, and twice for mānia.

While some of the owners of PVR for species recognised as taonga by Ngāi Tahu were individual people whose whakapapa could not be verified, most right-holders were commercial enterprises that did not appear to be Māori owned. These entities were nearly all private nurseries based either in Aotearoa or overseas. For instance, owners of PVR for harakeke included Naturally Native New Zealand Plants Ltd, Liner Plants NZ Ltd, Annton Nursery Ltd, and Kiwi Flora Ltd, all of which were New Zealand-based businesses that were not clearly affiliated with any iwi, hapū, or whānau Māori, or with any marae.[94] Overseas companies, including the Australian Ozbreed Pty Ltd, Bundameer Nurseries Ltd, and Benara Nurseries also owned PVR for varieties of harakeke. Furthermore, foreign commercial entities owned PVR pertaining to other taonga species in New Zealand, including the British John

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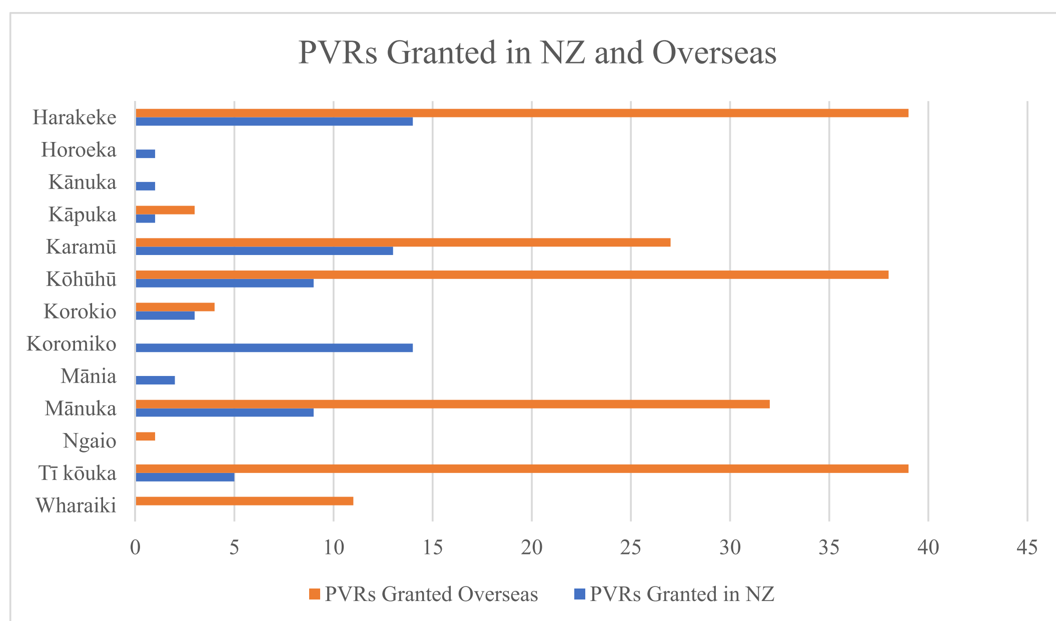

FIGURE 1 PVR granted in NZ and overseas. NZ, New Zealand; PVR, plant variety rights. *Source*: The author. [Color figure can be viewed at wileyonlinelibrary.com]

Woods Nurseries (with rights to karamū) and Seiont Nurseries (with rights to koromiko), the Irish Tully Nurseries (also with rights to koromiko), and the Dutch Eternal Plants Boijl (with rights to mānia).

The top three owners of PVR for species recognised as taonga by Ngāi Tahu were Liner Plants NZ Ltd, Growing Spectrum Wholesale Plant Nursery, and Bywong Nursery. The first two entities are enterprises based in Auckland and Hamilton, New Zealand, respectively, while Bywong Nursery is based in Bywong, New South Wales, Australia. Liner Plants NZ owned rights to varieties of harakeke (9), karamū (1), mānuka (1), and tī kōuka (5), both in Aotearoa and overseas. Growing Spectrum held PVR in relation to karamū (10) and tī kōuka (11), and Bywong Nursery owned rights to multiple varieties of mānuka (14) (Figure 2). Beyond these three most prominent right-holders, the landscape of PVR for taonga species was found to be fragmented, with a number of entities owning smaller intellectual property portfolios.

To substantiate the findings from the New Zealand PVR Register, the second stage of the intellectual property landscape involved conducting a series of searches using the PLUTO Plant Variety Database, which contains information on the ownership of plant varieties compiled from members of the UPOV Convention and the Organisation for Economic Co-operation and Development.[95] Searches in the PLUTO Database for overseas PVR were conducted in April 2023 using the relevant UPOV codes[96] and based on the botanical names from species listed as taonga in the Ngāi Tahu Claims Settlement Act 1998. The analysis investigated intellectual property claims lodged across all 79 jurisdictions whose information is contained in the PLUTO database, focussing on PVR[97] that had already been granted. In contrast to the searches conducted in the New Zealand PVR Register, the analysis of results from the PLUTO database focussed on all granted PVR claims, whether or not they were currently active. The reason for this is that information on currently active intellectual property rights would have been more difficult to verify for overseas jurisdictions.

The results of the searches in the PLUTO database demonstrated that plants recognised as taonga by Ngāi Tahu have been regularly claimed as intellectual property in foreign territories. The landscape analysis revealed that of the 53 plant species listed in the Ngāi Tahu Claims Settlement Act, varieties from 11 species or more than 20%

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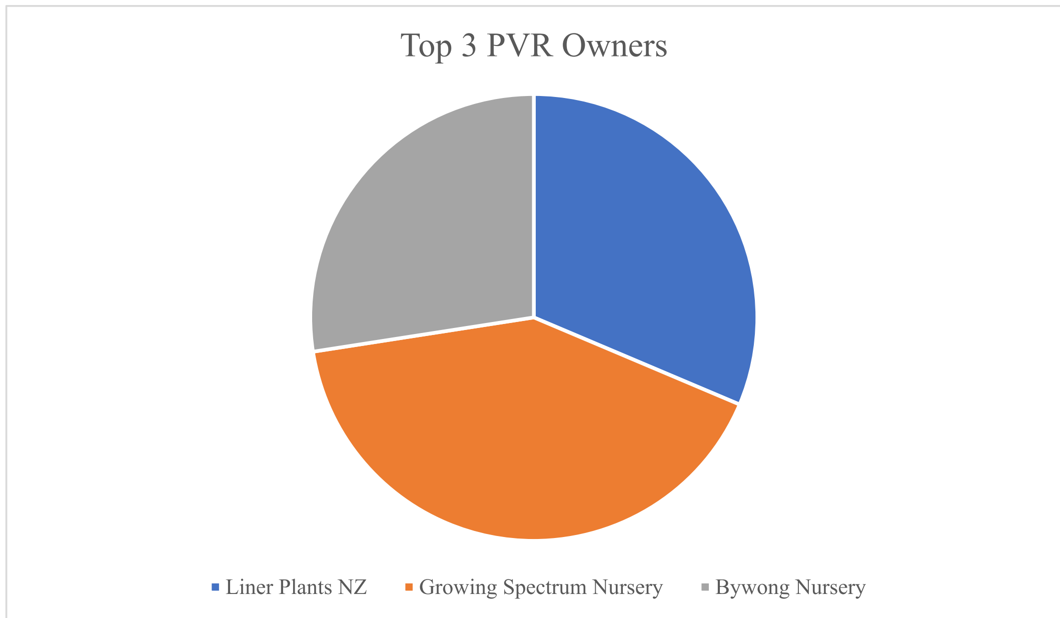

FIGURE 2 Top three owners of PVR for taonga species. PVR, plant variety rights. *Source*: The author. [Color figure can be viewed at wileyonlinelibrary.com]

have been subjected to private ownership by non-Māori entities overseas (Table 1 and Figure 1). The jurisdictions where PVR have been granted in relation to varieties of species recognised as taonga by Ngāi Tahu were Australia, Canada, the European Union (EU), the Netherlands, Japan, the United Kingdom (UK), and the United States (US). Proprietary rights were most commonly granted to the same species as under domestic law in New Zealand. For instance, for harakeke, 10 PVR applications have been granted in Australia, one in Canada, 16 in the EU, 10 in the US, and two in Japan. For mānuka, there were 18 granted PVR cases in Australia, three in Japan, two in the Netherlands, eight in the EU, and one in the US. Varieties of karamū were likewise protected as intellectual property numerous times overseas, with four granted PVR claims in Australia, five in the US, eight in the UK, and 10 in the EU. Rautāwhiri/kōhūhū was subjected to ownership rights 17 times in Australia, six in the US, five in the UK, nine in the EU, and once in Japan. Tī rākau/tī kōuka was also commonly protected as intellectual property, with 12 granted PVR cases in Australia, 16 in the US, and 11 in the EU.

Some species recognised as taonga by Ngāi Tahu were less commonly claimed as intellectual property overseas, but nevertheless had been protected in multiple territories. For instance, wharariki (mountain flax; *Phormium cookianum*) had six PVR claims granted in Australia, two in the EU, and three in the US. Similarly, kāpuka was protected once in the US and twice in the EU, and korokio was successfully claimed twice in the US and twice in the EU. In all, searches in the PLUTO database found that private rights had been granted for varieties of plant species recognised as taonga by Ngāi Tahu in overseas jurisdictions in a total of 194 cases. This number is very small compared to the volume of PVR applications that have been granted in UPOV member countries for major food plants such as strawberry (1503 claims granted) or ornamentals such as rose (34,899 claims granted). Nevertheless, the results of the intellectual property landscape demonstrate that in dozens of cases, taonga plants have provided the basis for commercial products in the form of new varieties. There is no evidence to suggest that kaitiaki have participated in or benefitted from this process.

Similar to the domestic situation in Aotearoa, it was impossible to verify any whakapapa connections that owners of PVR granted in overseas jurisdictions may have had with the species to which their intellectual property

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pertained. However, it is unlikely that the foreign commercial enterprises which held PVR in relation to species recognised as taonga by Ngāi Tahu had kaitiaki interests in these species. For instance, the company Ozbreed Pty Ltd, which owned rights to several varieties of harakeke in Australia and New Zealand, is a plant nursery based in Richmond, New South Wales.[98] Similarly, Hillier Nurseries, which held granted and active rights to varieties of harakeke in Australia and Europe, is based in the UK and the scale of its operations make it one of the largest nurseries of shrubs and trees in Britain.[99] Other owners of PVR were businesses based in countries far from Aotearoa New Zealand, such as the Japanese company Saitama Gardening Market Wholesale Co Ltd and the French enterprise Horvital Diffusion S.A.S., which owned rights to rautāwhiri/kōhūhū in Japan and Europe, respectively.

While the results of the intellectual property landscape conducted here may raise concerns, it is important to recognise that the conferral of PVR to non-Māori entities for species understood as taonga by iwi, hapū, and whānau in Aotearoa New Zealand is not unlawful, nor does it necessarily indicate that biopiracy has occurred. Instead, the landscape of PVR for taonga species demonstrates the gaps that previous and current intellectual property laws contain. For instance, even though the 2022 reform of the PVR Act now requires the Māori Plant Varieties Committee to review applications for rights related to taonga species where plant material was obtained from New Zealand, this requirement does not apply if the plant material was sourced from another jurisdiction. The result is that a nursery based in Aotearoa could simply purchase breeding material from an overseas entity, import it, develop a new variety, and circumvent review by the Māori Plant Varieties Committee. Conversely, because the PVR Act is only enforceable domestically, there is nothing to stop plant breeders based in other countries from lawfully obtaining germplasm from Aotearoa, exporting it, and developing and protecting a new variety in their home territories. These gaps, in addition to other issues and challenges related to the implementation of the kaitiakitanga provisions of the PVR Act, will be discussed in greater detail in the following section.

5 | TOWARDS THE FULFILMENT OF TINO RANGATIRATANGA

This article has analysed the changes made in the 2022 reform of the New Zealand PVR Act, and it has also mapped the landscape of PVR that have already been granted and remain in effect for varieties of taonga plants. The doctrinal analysis conducted above shows that the PVR Act now endeavours to protect kaitiaki interests in taonga plants and mātauranga Māori, an aim that the formation of a new Māori Plant Varieties Committee is designed to realise. A close examination of the statute also reveals some limitations and areas of uncertainty, particularly in relation to the practical reach of the authority of the Māori Plant Varieties Committee, which at the time of writing had not yet been constituted.

In addition to the doctrinal study of the PVR Act, the article conducted an intellectual property landscape analysis of rights that have already been granted in relation to varieties of taonga plants. The results revealed the taonga plant species that have generated the greatest commercial interest to date, indicating which species may be subjected to scrutiny under the Act in the future. Given the number of PVR claims that already have been granted in Aotearoa for varieties of harakeke, karamū, koromiko/kōkōmuka, mānuka, rautāwhiri/kōhūhū, and tī rākau/tī kōuka, it is probable that the Māori Plant Varieties Committee will need to evaluate whether kaitiaki interests in these species should prevent similar proprietary claims from proceeding in the future. The PVR Act now empowers the Committee to make such determinations, provided that the plant material used to develop the new variety was sourced from New Zealand. However, if breeders use material from taonga plants that they obtain from overseas, they will be able to avoid evaluation by the Committee when seeking PVR in Aotearoa. It is difficult to know how significant this gap will prove to be, and further research should be conducted once the Māori Plant Varieties Committee becomes operational.

Another important finding from the intellectual property landscape is that varieties of taonga plant species have been protected with PVR by non-Māori entities in multiple jurisdictions worldwide. While relatively few in number,

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these cases nevertheless may be significant, depending on the kaitiaki interest involved, the extent to which mātauranga Māori is being used by non-Māori without consent or the sharing of benefits, and the volume of revenues generated from the commercialisation of protected varieties. The research presented here did not delve deeply enough into any individual case to determine whether materials from taonga plants or associated mātauranga Māori had been misappropriated. However, even if biopiracy were to occur, the PVR Act does not contain any mechanism to prevent or redress such acts.

Overall, the reforms made to the PVR Act in 2022 align with the recommendations that the Waitangi Tribunal made in its Ko Aotearoa Tēnei report, particularly in relation to the establishment of the Māori Plant Varieties Committee. As noted earlier, the Tribunal only proposed that such a committee have an advisory role, whereas the PVR Act recognises most of the determinations that this body will make to be binding. The Act also gives effect to the Tribunal's recommendation that tangata whenua should have greater control over the names of plant varieties that are protected in the intellectual property system, particularly where the proposed name of a variety may be offensive to Māori. Consistent with Ko Aotearoa Tēnei, the Act does not recognise that kaitiaki have any proprietary rights in taonga plants, but instead that their interests are essentially cultural in nature.

While not directly related to PVR, it is interesting to highlight that in its response to the Wai 262 claim the Waitangi Tribunal was not concerned about the sale and exportation of unmodified taonga plant species by non-kaitiaki. In Ko Aotearoa Tēnei, the Tribunal affirmed that such activities should not be construed as inconsistent with protecting kaitiaki relationships with taonga species. Indeed, the Tribunal thought it was

> entirely desirable to encourage businesses and individuals dedicated to the revegetation of New Zealand in native flora, and that such replanting is consistent with kaitiaki relationships. Nor is a basis for the argument that Māori consent is necessary for the sale or export of unmodified taonga species. Sale and export is [*sic*] really about specimens, not species. It does not affect the underlying nature of the species, or kaitiaki relationships with them, and it is that which must be properly protected.[100]

Whether most kaitiaki would agree with this statement is a question that is beyond the scope of the present investigation. However, it is important to recognise that the intellectual property landscape analysis presented above demonstrates that commercial activities are not only occurring in relation to unmodified taonga plant species. Instead, there is a relatively small yet active plant breeding industry dedicated to developing new varieties of taonga species, both in Aotearoa and overseas. Whether the recent overhaul of the PVR Act might impede breeding activity for taonga species remains to be seen.

Returning to the original question of whether the 2022 reform to the PVR Act fulfils the promises of Te Tiriti and advances tino rangatiratanga for taonga plants, much will need to be worked out in practice. As discussed throughout this article, the binding authority of the Māori Plant Varieties Committee may be sufficient to prevent harm to kaitiaki interests in taonga plant species and the misappropriation of mātauranga Māori, at least in some cases. However, it is already clear that the Committee will need to operate within the bounds of certain constraints that the PVR Act imposes. The Committee will have no power to evaluate PVR applications for varieties developed with germplasm that was obtained from outside of New Zealand, nor will it have the authority to assess claims to species that have recently become taonga based on evolving interactions between tangata whenua and te taiao (the natural world). Because intellectual property laws are necessarily territorial in scope, the Committee will not be able to prevent parties from claiming rights to varieties of taonga plant species in jurisdictions beyond Aotearoa.

Within the context of these limitations, it will be up to the Māori Plant Varieties Committee to determine the best way to fulfil the promise of tino rangatiratanga in the intellectual property system. The Committee will enjoy some scope for ensuring that its operations are consistent with tikanga Māori, because the PVR Act allows it to regulate its own procedure as it thinks fit, subject to the Act and other New Zealand legal frameworks.[101] In theory, the Committee could re-evaluate some of the recommendations that the Waitangi Tribunal made in Ko Aotearoa

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Tēnei but which were not adopted in the PVR Act. Such proposals could include the establishment of a national voluntary registry of kaitiaki interests in taonga plant species, or the formulation of procedures to determine how the misappropriation of mātauranga Māori can best be prevented, whether or not this knowledge relates directly to a species defined in the Act as indigenous or nonindigenous of significance.

When considering whether the PVR Act has been made consistent with Te Tiriti and its promise of tino rangatiratanga in relation to taonga, it is important to recognise that PVR have always been and likely will remain a narrow area of law. While the prospective privatisation of plant varieties has proven polemical worldwide due to concerns over the loss of seed sovereignty, corporate control over agriculture, and the misappropriation of traditional knowledge held by Indigenous and other land-based peoples,[102] most PVR laws—including the system in Aotearoa New Zealand—are concerned with a relatively small number of exotic species that have been developed for the commercial production of food, feed, or ornamental plants. Therefore, it will be crucial for adjacent laws and policies to be developed alongside of the PVR Act. Prospective legal frameworks could include a regime to regulate bioprospecting—as the Waitangi Tribunal recommended in Ko Aotearoa Tēnei[103]—or a standalone system designed to protect mātauranga Māori in all of its manifestations. The advancement of Treaty partnership will remain incremental following the full implementation of the PVR Act, and the achievement of tino rangatiratanga will need to be exercised, not merely legislated.

GLOSSARY OF TERMS IN TE REO MĀORI[104]

hapū: a kinship group, clan, tribe, or subtribe that constitutes a section of a wider kinship group and the primary political unit in traditional Māori society.

iwi: extended kinship group, tribe, nation, people, nationality, race; often a large group of people descended from a common ancestor and associated with a distinct territory.

kaitiaki: guardian, trustee, minder, custodian, caregiver, steward.

kaitiakitanga: guardianship, stewardship; an innate sense of responsibility to care for and nurture the whenua and its taonga.

karakia: incantation, ritual chant, intoned incantation; a sets form of words to state or make effective a ritual activity.

kāwanatanga: government, governorship, rule, authority, dominion.

korero: narrative, story, account, conversation, discourse, discussion.

Māori: (n) Indigenous New Zealander, Indigenous person of Aotearoa New Zealand.

Māori: (v) to be Māori, or to apply in a Māori way (e.g. in relation to *tikanga Māori*).

mana: prestige, authority, control, power, influence, status, spiritual power, charisma; mana is a supernatural force in a person, place, or object.

mātauranga Māori: Māori knowledge; the body of knowledge originating from Māori ancestors, including the Māori worldview and perspectives, Māori creativity, and cultural practices.

mauri: life principle, lifeforce, vital essence; the essential quality and vitality of a being or entity. Also used for a physical object, individual, ecosystem, or social group in which this essence is located.

Pākehā: New Zealander of European descent; foreign, exotic, introduced from or originating in a foreign country.

rangatiratanga: chieftainship, the right to exercise authority, self-determination.

taiao: the natural world, the environment, nature, the Earth, country.

takiwā: district, area, territory.

tangata whenua: local people, Indigenous people, people born of the *whenua* (the land).

taonga: treasures; applied to anything considered to be of value including socially or culturally valuable objects, resources, phenomena, ideas, and techniques.

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tapu: to be sacred, prohibited, restricted, or set apart.

tikanga: correct procedure, custom, rule, convention, protocol; the customary system of values and practices that have developed over time and are embedded in a broader social context.

tūpuna: ancestors

whakapapa: genealogy, lineage, kinship descent

whānau: family group, extended family

whanaungatanga: kinship, relationships with a sense of belonging or family connection, kinship rights and obligations, familial friendship

whenua: land, country, territory, nation, ground

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DATA AVAILABILITY STATEMENT

The author confirms that the data supporting the findings of this study are either available within the article or available upon request from the author.

ENDNOTES

[1] Plant Variety Rights Act 2022, s 3(b).

[2] Different iwi, hapū, and whānau across Aotearoa New Zealand have different interpretations of the meaning of tino rangatiratanga, as do Māori academics and lawyers. For example, for Moana Jackson (Ngāti Kahungunu, Ngāti Porou), tino rangatiratanga is akin to sovereignty. Moana Jackson, 'Where Does Sovereignty Lie?' in Colin James (ed), *Building the Constitution* (Institute of Policy Studies 2000), 196–197. Other scholars, such as Valmaine Toki (Ngati Rehua, Ngātiwai, Ngāpuhi) point out that tino rangatiratanga contains elements of the Western international legal norm of self-determination but that it is not limited by some of the constraints of this concept, while also containing other elements such as leadership and governance. Valmaine Toki, 'Māori Seeking Self-Determination or Tino Rangatiratanga? A Note' (2017) 5 JMII 134. In the context of protecting mātauranga Māori and taonga plants from misappropriation, tino rangatiratanga includes decision making power and Māori control over things Māori. Debbie Broughton (Taranaki Te Aitanga-a-Hauiti, Ngāti Porou) and K McBreen (Kāti Māmoe Waitaha, and Ngāi Tahu) 'Mātauranga Māori, Tino Rangatiratanga and the Future of New Zealand Science' (2015) 45(2) JRSNZ 83.

[3] The relevant text states, 'Ko te Kuini o Ingarani ka wakarite ka wakaae ki nga Rangatira ki nga hapu-ki nga tangata katoa o Nu Tirani te tino rangatiratanga o o rātou wenua o rātou me o rātou taonga katoa' (Ko te Tuarua). Treaty of Waitangi Act 1975, Schedule 1. Notably, the text of Te Tiriti in English does not translate tino rangatiratanga as 'absolute Māori sovereignty', and furthermore it employs a very narrow translation of the concept of taonga. The relevant text guarantees to Māori the 'exclusive and undisturbed possession of their lands and estates, forests, fisheries and other properties'. Treaty of Waitangi 1840, Second Article. The differences between the English and Māori versions of the text have been widely debated, and are beyond the scope of the present article, whose analysis adheres to the language employed in the te reo Māori version.

[4] Plant Variety Rights Act 2022, s 6.

[5] Waitangi Tribunal *Ko Aotearoa Tēnei* (Wellington, 2011) at 23.

[6] Treaty of Waitangi 1840, Second Article.

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[7] Paul Tapsell, 'The Flight of Pareraututu: An Investigation of Taonga from a Tribal Perspective' (1997) 106(4) JPS 323–374 at 326.

[8] Ibid 331.

[9] Ibid 331.

[10] Ibid 331–332.

[11] Amiria Henare, 'Taonga Māori: Encompassing Rights and Property In' in Amiria Henare, Martin Holbraad, and Sari Wastell (eds) *Thinking Through Things: Theorising Artefacts Ethnographically* (Routledge 2007), 57–77 at 61.

[12] Ibid 62.

[13] The claimants, who lodged the Wai 262 claim on behalf of themselves and their iwi, were Haana Murray (Ngāti Kurī), Hema Nui a Tawhaki Witana (Te Rarawa), Te Witi McMath (Ngāti Wai), Tama Poata (Ngāti Porou), Kataraina Rimene (Ngāti Kahungunu), and John Hippolite (Ngāti Koata), with the assistance of lawyer Moana Jackson (Ngāti Kahungunu). Waitangi Tribunal (n 5), at vi.

[14] Ibid 50.

[15] The 1991 Act of the UPOV Convention, in comparison to the 1978 Act that it replaced, contained a number of provisions that together expanded the scope of proprietary rights that breeders of new plant varieties could obtain. For instance, the 1991 Act increased the minimum number of plant genera and species for which rights must be available, enlarged the scope of protection by requiring the breeder's authorisation for a greater number of uses of protected varieties and lengthening the periods of exclusivity, and expanding the types of plant material for which breeders' rights are available. David J. Jefferson, *Towards an Ecological Intellectual Property: Reconfiguring Relationships Between People and Plants in Ecuador* (Routledge 2020) at 64.

[16] Specifically, Article 27.3(b) of the TRIPS Agreement requires members to provide for the protection of plant varieties as intellectual property, either through patent law or by creating an 'effective *sui generis* system'. Aotearoa New Zealand has been a member of the WTO since the TRIPS Agreement took effect on 1 January 1995. World Trade Organization 'Members and Observers' <https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm> accessed 31 October 2023.

[17] Waitangi Tribunal (n 5), at 63.

[18] Ibid 24.

[19] Ibid 24.

[20] Ibid 24.

[21] Ibid 24.

[22] Jefferson (n 15).

[23] For example, Vandana Shiva "Bioprospecting as Sophisticated Biopiracy" (2007) 32(2) SJWCS 307–313.

[24] In fact, as of May 2023, New Zealand still had not joined the Nagoya Protocol or the Plant Treaty.

[25] Waitangi Tribunal (n 5), at 74–75.

[26] Ibid 5.

[27] Ibid 63.

[28] Ibid 63.

[29] Ibid 63.

[30] Ibid 87.

[31] Ibid 87.

[32] Ibid 87.

[33] Ibid 88.

[34] Ibid 94.

[35] Ibid 94.

[36] Ibid 94.

[37] Ibid 92.

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[38] Carwyn Jones, 'Ko Aotearoa Tēnei: A Report into Claims Concerning New Zealand Law and Policy Affecting Māori Culture and Identity' (2012) MLR 1–20 at 3.

[39] Seamus Woods, 'Patents, PVRs and Pragmatism: Giving Effect to Wai 262' (2013) 19 CLR 97–129.

[40] Yao Dong, 'The Protection of Matauranga Maori Associated with Taonga Species' (2016) 6 PILJNZ 183.

[41] Woods (n 39); Paige Coulter, 'Addressing the Root of the Problem: Suggested Amendments to the Plant Variety Rights Framework in New Zealand' (2018) 24 AULR 121.

[42] Comprehensive and Progressive Agreement for Trans-Pacific Partnership 2018, Art 18-A(1).

[43] For instance, many of the submissions made by parties with interests in scientific or commercial interests in plant breeding when the 2021 Plant Variety Rights Bill was under consideration specifically endorsed giving effect to the 1991 Act of the UPOV Convention, arguing that doing so would 'strengthen the economic return from our primary industries, enhance the protective framework for plant breeding innovation, [and] encourage investor confidence…'. Zespri International Ltd. 'Zespri Submission to the Economic Development, Science and Innovation Committee on the Plant Variety Rights Bill' (1 July 2021) New Zealand Parliament <https://www.parliament.nz/resource/en-NZ/53SCED_EVI_111271_ED1148/7728f3a669a9fb8e385ff35daf41f2eaf89fdd93> accessed 31 October 2023.

[44] Plant Variety Rights Act 2022, s 3(b). Note that the other two purposes are: (1) to provide an efficient and effective plant variety rights system that revises and consolidates the law on plant variety rights in light of New Zealand's obligations under the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) in relation to the UPOV Convention (s 3(a)); and (2) to promote innovation and economic growth in New Zealand by providing incentives for the development and use of new plant varieties while maintaining an appropriate balance between the interests of plant breeders, growers, and others so there is a net benefit to society as a whole (s 3(c)).

[45] Ibid s 4.

[46] Ibid s 6.

[47] Ibid s 56. Note that the Act further states that nonindigenous species of significance are those which will eventually be listed as such in the plant variety rights regulations, which had not yet been elaborated at the time of writing.

[48] Ibid s 57(4).

[49] For instance, Bevan Erueti (Taranaki, Te Ati Haunui-ā-Papārangi, Ngāti Tūwharetoa) and coauthors note that '[w]hile the term mātauranga Māori can be (and has been) employed to reflect a wide variety or knowledge, values, concepts, principles and practices that have been homogeneously accumulated by Māori, it is more suitable to consider mātauranga Māori discreetly within its distinct social group experiences, localised to specific iwi (tribes), hapū (sub-tribes), marae (communal sites of origin) and whānau (families) history and aspirations'. Bevan Erueti, Natasha Tassell-Matamua, Pikihuia Pomare, Bridgette Masters-Awatere, Kiri Dell, Mariana Te Rangi, and Nicole Lindsay '"Pūrākau o te Ngahere": Indigenous Māori Interpretations, Expressions and Connection to Taonga Species and Biosecurity Issues' (2023) 11(1) KC 34–54 at 37. For an explanation of how tikanga Māori varies from one area of tribal authority to another, see Hirini Moko Mead, *Tikanga Māori: Living by Māori Values* (Huia Publishers 2016).

[50] It has been widely observed that using language like 'invasive' or 'alien' to describe nonhuman species that have been newly introduced into an area is aggressive and contributes to the use of war-like metaphors to promote combative control. In contrast, Indigenous peoples' understandings of new species is more commonly focussed on management that promotes health, care, and creation. Thomas Michael Bach and Brendon MH Larson, 'Speaking About Weeds: Indigenous Elders' Metaphors for Invasive Species and Their Management' (2017) 26(5) EV 561–581.

[51] Interview with a senior leader from a Crown Research Institute, 17 April 2023.

[52] Ibid.

[53] Ashleigh McCaull, 'Māori Landowners Want More Certainty Exotic Trees Will Remain in ETS After Govt Backdown' (30 July 2022) Radio New Zealand <https://www.rnz.co.nz/news/national/471905/maori-landowners-want-more-certainty-exotic-trees-will-remain-in-ets-after-govt-backdown> accessed 31 October 2023.

[54] Farm Forestry New Zealand, 'Pine—Radiata Pine, *Pinus Radiata*' <https://www.nzffa.org.nz/farm-forestry-model/species-selection-tool/species/pine/radiata-pine/> accessed 31 October 2023.

[55] Plant Variety Rights Act 2022, s 54.

[56] At the time of writing in May 2023, the Māori Plant Varieties Committee had not yet been constituted by the Plant Variety Rights Commissioner, meaning that Part 5 of the PVR Act (Additional provisions that apply to indigenous plant species and nonindigenous species of significance) remained to be implemented. Notably, even senior officials in the New Zealand Intellectual Property Office acknowledge many years may pass before the Committee would review a

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plant variety rights application for an indigenous species or nonindigenous species of significance. Interview with senior official for Plant Variety Rights, 8 March 2023.

[57] Plant Variety Rights Act 2022, s 55(a).

[58] Ibid s 61.

[59] Ibid s 62.

[60] Ibid s 67.

[61] Ibid s 69(1).

[62] Ibid s 69(2).

[63] Ibid s 69(3).

[64] Patents Act 2013, s 226.

[65] Ibid s 227.

[66] Trade Marks Act 2002, s 178.

[67] Plant Variety Rights Act 2022, s 58(c).

[68] Ibid s 57(4).

[69] Ibid s 57(5).

[70] Ibid s 57(3).

[71] Ibid s 71, and Schedule 2.

[72] The Marine and Coastal Area (Takutai Moana) Act 2011 requires claims to be filed in the High Court, which is a judicial body of general jurisdiction. Marine and Coastal Area (Takutai Moana) Act 2011, s 98.

[73] New Zealand Parliament, 'Report from the Parliamentary Economic Development, Science and Innovation Committee on the New Zealand Plant Variety Rights Bill' (19 November 2021) <https://www.parliament.nz/resource/en-NZ/SCR_117872/9a49cdd4adc820a40ac0bd225db6231d262318d9> at 5, accessed 31 October 2023.

[74] Plant Variety Rights Act 2022, s 55(b).

[75] David J. Jefferson, 'Treasured Relations: Towards Partnership and the Protection of Māori Relationships with Taonga Plants in Aotearoa New Zealand' (2022) 25(2) JWIP 347–374.

[76] Te Hunga Rōia Māori, 'Submission to Parliament on the Plant Variety Rights Bill by Te Hunga Rōia Māori' (26 November 2021) New Zealand Parliament <https://www.parliament.nz/resource/en-NZ/53SCED_EVI_111271_ED1141/4bc5a2bf8676ed93328df92d4ca9f36541a40235> at 2, accessed 31 October 2023.

[77] Te Kāhui Rongoa Trust 'Submission by Te Kāhui Rongoa Trust to the Parliamentary Economic Development, Science and Innovation Committee' (July 1, 2021) New Zealand Parliament <https://www.parliament.nz/resource/en-NZ/53SCED_EVI_111271_ED1142/71bb40e5886ec42a1fc2d9ecf68abe6933a79658> at 2, accessed 31 October 2023.

[78] Hema Wihongi "Submission by Hema Wihongi on behalf of Ngā Kaiawhina o Wai 262 to the Parliamentary Economic Development, Science and Innovation Committee" (July 1, 2021) New Zealand Parliament <https://www.parliament.nz/resource/en-NZ/53SCED_EVI_111271_ED1192/1c47b7ee306e7e33dbbf3be61d00795ea173eaff> accessed 31 October 2023.

[79] For instance, of the 362 plant varieties that were under test as of 30 June 2021, 165 were varieties of fruits including strawberry, raspberry, blackberry, blueberry, apple, and kiwi fruit. A further 109 varieties were from mostly exotic ornamental species such as roses and other flowers, while 50 varieties pertained to horticultural crops and grains including lettuce, potato, wheat, and barley. The vast majority of these species are not native to Aotearoa New Zealand. Intellectual Property Office New Zealand 'Plant Variety Rights' <https://www.iponz.govt.nz/assets/pdf/PVR/iponz-plant-variety-rights-infographic-2021.pdf> accessed 31 October 2023.

[80] Daniel Robinson and Margaret Raven 'Identifying and Preventing Biopiracy in Australia: Patent Landscapes and Legal Geographies for Plants with Indigenous Australian Uses' (2017) 48(3) AG 311–331; Daniel Robinson, Margaret Raven, and John Hunter, 'The Limits of ABS Laws: Why Gumbi Gumbi and Other Bush Foods and Medicines Need Specific Indigenous Knowledge Protections' in Kamalesh Adhikari and Charles Lawson (eds) *Biodiversity, Genetic Resources and Intellectual Property* (Routledge 2018) 185–207.

[81] Daniel F. Robinson, Margaret Raven, Donna Kalfatak, Trinison Tari, Hai-Yuean Tualima, and Francis Hickey, 'Patent Landscaping for Vanuatu: Specific Legal Geographic Methods for Indigenous Knowledge Protection and Promotion' in Tayanah O'Donnell, Daniel F Robinson, and Josephine Gillespie (eds) *Legal Geography* (1st edition, Routledge 2019)

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74–90; Daniel Robinson, Margaret Raven, Elizabeth Makin, Donna Kalfatak, Francis Hickey, and Trinison Tari, 'Legal Geographies of Kava, Kastom and Indigenous Knowledge: Next Steps Under the Nagoya Protocol' (2021) 118 Geoforum 169–179.

[82] Daniel F. Robinson (with collaborators), 'Pacific Patent Landscaping' (2021) The ABS Capacity Development Initiative <https://www.abs-biotrade.info/fileadmin/Downloads/2.%20PARTNER%20COUNTRIES/PACIFIC/1.%20GENERAL%20INFORMATION/Patent_Landscape_Report/Report-Pacific-Patent-Landscaping-2021.pdf> accessed 31 October 2023.

[83] Jessica C. Lai, Daniel F. Robinson, Tim Stirrup, and Hai-Yuean Tualima, 'Māori Knowledge Under the Microscope: Appropriation and Patenting of Mātauranga Māori and Related Resources' (2019) 22(3–4) JWIP 205–233.

[84] Ibid 209.

[85] Ibid 210–211.

[86] Ibid 213.

[87] Ibid 214.

[88] Jessica C. Lai, 'A Successful Recalibration of Patent Law Vis-à-Vis Mātauranga Māori? A Case Study of Mānuka (*Leptospermum scoparium*)' in Susy Frankel (ed) *The Object and Purpose of Intellectual Property* (Edward Elgar Publishing 2019) 30–56.

[89] Ibid 50.

[90] Ibid 52.

[91] Ibid 54.

[92] Ngāi Tahu Claims Settlement Act 1998, Schedule 97.

[93] New Zealand Intellectual Property Office, 'Search Plant Variety Rights Case(s)' <https://app.iponz.govt.nz/app/Extra/IP/PVR/Qbe.aspx?sid=638182920763461985&op=EXTRA_pvr_qbe&fcoOp=EXTRA__Default&directAccess=true> accessed 31 October 2023.

[94] Ownership information for these companies was obtained from the Open Corporates database. None of the businesses mentioned appeared to be Māori owned based on web searches related to the names of the listed owners. See Open Corporates 'Search Companies' <https://opencorporates.com> accessed 31 October 2023.

[95] UPOV 'PLUTO Plant Variety Database' <https://pluto.upov.int/search> accessed 31 October 2023.

[96] UPOV 'UPOV Code (Principal Botanical Name)' <https://www.upov.int/genie/species.xhtml> accessed 31 October 2023.

[97] Note that most UPOV jurisdictions use the terminology of 'plant breeders' rights', rather than plant variety rights. In the United States, plant varieties may be protected under the national 'plant variety protection' system, or via 'plant patents'. The searches conducted for this analysis looked at all of these forms of intellectual property protection, because they are essentially analogous to plant variety rights in Aotearoa New Zealand.

[98] Ozbreed Greenlife <https://www.ozbreed.com.au/> accessed 31 October 2023.

[99] Hillier Garden Centres <https://www.hillier.co.uk/> accessed 31 October 2023.

[100] Waitangi Tribunal (n 5) at 94.

[101] Plant Variety Rights Act 2022, s 64(f).

[102] For example, Walter Jaffé and Jeroen van Wijk, *The Impact of Plant Breeders' Rights in Developing Countries* (University of Amsterdam, 1995). Jack Kloppenburg, 'Impeding Dispossession, Enabling Repossession: Biological Open Source and the Recovery of Seed Sovereignty' (2010) 10(3) JAC 367–388; Jack Kloppenburg, 'Re-purposing the Master's Tools: The Open Source Seed Initiative and the Struggle for Seed Sovereignty' (2014) 41(6) JPS 1225–1246; Berne Declaration. *Owning Seeds, Accessing Food: A Human Rights Impact Assessment of UPOV 1991 Based on Case Studies in Kenya, Peru and the Philippines* (Berne Declaration 2014); David J. Jefferson 'Development, Farmers' Rights, and the Ley Monsanto: The Struggle over the Ratification of UPOV 91 in Chile' (2014) 55(1) IDEA: LRFPCIP 31; Bram De Jonge, *Reconciling Farmers' and Plant Breeders' Rights* (Oxfam International 2016).

[103] Waitangi Tribunal (n 5) at 96.

[104] The terms included in this Glossary were adapted, in part, from Te Aka Māori Dictionary <https://maoridictionary.co.nz/> accessed 31 October 2023. Review of the Glossary was conducted by Lyndon Waaka, Kaiārahi Māori to Kaupeka Ture | the Faculty of Law at Te Whare Wānanga o Waitaha | the University of Canterbury.

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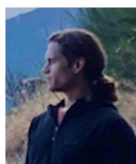

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