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Recognising plural valuation of nature when shaping conservation policies : a New Zealand perspective

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1 Recognising plural valuation of nature when shaping conservation policies: A New  
2 Zealand perspective

3 Abstract

4 Plural valuation of nature seeks to overcome a lack of attention by conservationists to the  
5 multiple values people assign to nature. Proponents claim plural valuation makes  
6 conservation socially and ecologically more effective. This study analyses conservation laws  
7 and uses a survey of New Zealand conservation professionals to investigate the potential of  
8 plural valuation for conservation. Document analysis revealed a plurality of values and  
9 multiple co-existing framings of nature in New Zealand's conservation laws. Also, relational  
10 values of nature, embedded in the uniqueness of New Zealand's native fauna and flora, are  
11 important to most surveyed conservation professionals and complement instrumental  
12 reasons to value nature. However, answers showed various positions on human-nature  
13 relationships that correspond to divergent perceptions of the place of introduced species  
14 and humans in nature. The New Zealand experience illustrates how multiple values of nature  
15 could influence conservation decision-making and management in different ways. Therefore,  
16 investigators of plural valuation of nature will need to elicit the divergent underlying  
17 understandings of what nature means for individual actors. Failing to do so may lead to an  
18 underestimation of the variety of visions of conservation values assigned to nature can  
19 sustain, hamper cooperation between conservation stakeholders, frustrate the potential of  
20 plural valuation of nature and hence, lead to less effective conservation.

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22 **Keywords:** plural valuation of nature; relational values; instrumental values; biodiversity  
23 conservation; anthropocentrism; ecocentrism; New Zealand

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## 35 1. Introduction

36 The global decline of biodiversity is attributed in part to a prioritisation of a narrow set of  
37 instrumental values of nature when making political and economic decisions (Chan et al.,  
38 2016). In response to this, the recent Values Assessment report of the Intergovernmental  
39 Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2022) and other  
40 scholars (Chan et al., 2016; Pascual et al., 2021) promote plural valuation of nature as a  
41 knowledge generation process that encompasses multiple visions of nature. Plural valuation  
42 of nature would enable the uptake of local or indigenous knowledge and ideas regarding  
43 nature, contest power imbalances and enhance collaboration among stakeholders (Diaz et  
44 al., 2018; Chan et al., 2016). Ultimately, its proponents claim plural valuation makes  
45 conservation more socially and ecologically effective (Pascual et al., 2021; Jacobs et al.,  
46 2020).

47 This study analyses conservation laws and uses a survey of New Zealand conservation  
48 professionals to investigate the potential of plural valuation for conservation. As Sandbrook  
49 et al. (2011) argue, values that conservation professionals assign to nature are only rarely  
50 empirically examined. In doing so, this study focuses mainly on instrumental and relational  
51 values, which form, together with intrinsic values, the trifecta of *specific values* in IPBES'  
52 (2022) value typology. According to Anderson et al. (2022) these *specific values* refer to how  
53 people judge the importance of particular elements of, or relationships with, nature in given  
54 situations and contexts. In this paper both 'values assigned to' or 'values of' nature refer to  
55 *such judgements*.

56 According to IPBES' typology, assigned values associate with worldviews, such as  
57 anthropocentrism and ecocentrism (Anderson et al., 2022). Worldviews guide different  
58 perspectives about human-nature relations and underlie specific framings and purposes of  
59 conservation (Mace, 2014). Instrumental values of nature refer to provisioning services, such  
60 as food, forage, energy and medicinal resources and regulating services such as the  
61 purification and detoxification of air and water and climate, pest and disease regulation  
62 (Chan et al., 2016; Diaz et al., 2018).

63 Instrumental valuation of nature also provides economic arguments for the protection of  
64 nature as provider of 'services' or 'contributions' to humanity (Diaz et al., 2018). However,  
65 critics say such self-interest disregards values of nature people view as non-marketable or  
66 non-commodifiable (Himes & Muraca, 2018, Muradian & Gómez-Baggethun, 2021).

67 Instrumental values are strongly associated with anthropocentrism, where the practical or  
68 ethical focus is primarily or exclusively on humans, with the natural world an object of study  
69 and use (Deplazes-Zemp & Chapman, 2021; Kopnina & Washington, 2020; Kopnina et al.,  
70 2018).

71 Relational values of nature are linked to notions such as 'place-based values' or 'sense of  
72 place', which pertain to how meaning is rooted in the land (Arias-Arévalo et al., 2018). Many  
73 people feel a connection to certain places because they believe their cultural identity and  
74 well-being emanates from relationships with people and natural features that are mediated  
75 by these places (Chan et al., 2016). Such connection may enable people to develop a sense  
76 of care towards nature, imbuing it with a sense of significance (Ghijselinck, 2023). Indigenous  
77 Peoples have since long been conscious of their connection to nature beyond instrumental  
78 ways (Arias-Arévalo et al., 2018). Relational values have also been seen as rooted in nature  
79 as a vehicle for curiosity and learning (Robert et al., 2015) and in a sense of wonder towards,  
80 and beauty of, nature (Jimenez et al., 2021; Tribot et al., 2018). Also presented here as

81 relational is the spending of time or recreation in nature, which is seen as contingent on  
82 enjoyment of nature through, for example, being away from the urban or built environment  
83 and the opportunity for relaxation, challenge and promotion of fitness and psychological  
84 well-being (Robert et al., 2015; Capaldi et al., 2014; Shanahan et al., 2016; Cervinka et al.,  
85 2012; Jimenez et al., 2021). Although some of these examples of relational values are  
86 frequently seen as instrumental in a non-material sense (Deplazes-Zemp & Chapman, 2021),  
87 these are here understood as standing in relation to a specific place or landscape in a way  
88 that shapes an individual's or communities' willingness to *care* for that place. Importantly,  
89 relational values are often associated with 'eudaimonia'. This 'eudaimonia', or what Chan et  
90 al., (2016) call "flourishing", involves "reflection on principles and virtues associated with a  
91 good life". Knippenberg et al. (2018) link this eudaimonia with nature, defining it as "nature-  
92 inclusive eudaimonic value".

93 Pascual et al. (2017) argue how relational values may enable intercultural dialogue and  
94 participatory negotiation among stakeholders in policy-making processes that affect  
95 conservation. IPBES (2022) too finds relational values and their importance for living a "good  
96 life" key elements in conveying the need to broaden the circle of human stakeholders  
97 included in policy-making processes that affect conservation. A concept claimed to further  
98 broaden the conceptual space for this is Nature's Contributions to People (NCPs) presented  
99 in the social-ecological framework of IPBES (2013). These are defined as all the  
100 contributions, both positive and negative, of living nature to the quality of people's life.  
101 Nature's Contributions to People resonate with the Ecosystem Services concept introduced  
102 in the Millennium Ecosystem Assessment (2005) that defines ecosystem services as the  
103 benefits people obtain from ecosystems. However, these 'contributions' are supposed to  
104 illustrate an evolution from Ecosystem Services by making the evaluation of nature more  
105 inclusive. Again, this inclusiveness refers to concepts associated with other worldviews on  
106 human-nature relations and knowledge systems in general, and of the perspectives of  
107 indigenous and local worldviews in particular (Diaz et al., 2018; Neuteleers et al., 2020;  
108 Kadykalo et al., 2019). Nature's Contributions to People therefore link conceptually to  
109 relational values because these too embody the desire for a richer representation of  
110 relationships between people and nature.

111 Assessing conservation professionals' views about intrinsic values in a comprehensive way is  
112 beyond the scope of this study. However, as this paper also discusses some New Zealand  
113 legal developments that seem to enshrine rights to natural entities, a brief summary of the  
114 literature on intrinsic values seems warranted. As Laastad (2020) explains, such legislation  
115 shifts the perception of nature as an object of human use to one that is aiming to incorporate  
116 nonhuman entities such as rivers, mountains, and entire ecosystems in the community of  
117 justice. IPBES (2016) exemplifies how 'intrinsic value' is interpreted in different and  
118 conflicting ways, defining it both as "the importance that people believe a thing has unto  
119 itself regardless of the interests of people or others" and "inherent properties of an entity or  
120 a state of the world independent of any external recognition of this value by people". These  
121 definitions root in much philosophical discussion around two overarching interpretations of  
122 intrinsic value of nature (O'Neill, 1992). More exactly, they point to respectively intrinsic  
123 value of nature in a *subjective* sense, in which case it is assigned to valued objects by people,  
124 and *objective* sense, as residing with the valued objects (in this context, various elements of  
125 nature). Both Rolston (2002) and Callicott (1992), who have been at the forefront of the field  
126 of environmental philosophy and ethics, discussed these distinct interpretations at length.

127 So, intrinsic value refers to nature deserving direct moral consideration for its own sake.  
128 Thus, something may be valued for itself, in a moral sense, and not for the sake of any  
129 subjective experience such as pleasure, knowledge, aesthetic satisfaction, etc. (Himes &  
130 Muraca, 2018). However, in a subjective sense, intrinsic values are seen as independent of  
131 expressed human interests or preferences *but not judgment* (Himes & Muraca, 2018). As  
132 such, assignment of intrinsic value is then ‘anthropogenic’ but, so the argument goes, need  
133 not be anthropocentric (Batavia & Nelson, 2017).

134 Others besides Rolston (2002) have repeatedly argued how nonhuman natural entities have  
135 intrinsic value in an objective and non-relational sense, in that they have a good of their  
136 own, or interests of their own, *independent* of evaluations by human valuers (Piccolo, 2017;  
137 Washington et al., 2017; Kopnina & Washington, 2020). Authors adhering to this objective  
138 intrinsic value of nature argue that it is an essential component of conservation. Piccolo  
139 (2017) states, while a recognition of this objective intrinsic value of nature “in no way implies  
140 that we have created this good” it does “encumber upon us a duty to uphold it”. Whereas  
141 with subjective intrinsic value, nature only comes to have intrinsic value when humans take  
142 it up into their experience (Rolston, 2002). Intrinsic values are generally linked to  
143 ecocentrism, which considers humanity as an integrated part of nature (Washington et al.,  
144 2017; Kopnina & Washington, 2020).

#### 145 1.1. New Zealand: its nature conservation and indigenous people

146 New Zealand’s social-ecological context makes a useful case study to explore plural valuation  
147 of nature because the loss of native biodiversity is a highly debated and challenging problem  
148 there (Ministry for the Environment, 2019). With 34 %, New Zealand has one of the highest  
149 percentages of terrestrial protected areas per total land area worldwide (Willis, 2017). The  
150 island nation has an exceptional evolutionary history that resulted in a rich, endemic  
151 biodiversity (Ministry for the Environment, 2019). But the once pristine New Zealand has  
152 been under severe pressure so that many of its ecosystems are fragmented, modified, and  
153 much reduced in extent compared with pre-human times (Holland, 2000).

154 Two waves of human settlement contributed to this pressure. Firstly, there was the  
155 Polynesian settlement, about 850 years ago, by Māori - a sophisticated stone-age culture.  
156 Indigenous forests that once covered 78% of New Zealand’s land surface were reduced by a  
157 quarter due to Māori fires (Atkinson & Cameron, 1993). Secondly, there was the European  
158 (*Pākehā*) agricultural and extractive settlement, especially since 1840. In this much shorter  
159 period, slash-and-burn techniques to create fields have reduced indigenous forests further  
160 to 23% of their former range (Atkinson & Cameron, 1993). However, nowadays exotic  
161 mammalian species have a severe impact on the endemic avifauna and have irreversibly  
162 modified the vegetation (Russell et al., 2015).

163 These two waves also embody different valuations of nature. European values are complex  
164 and evolving, as the dominant culture seeks to reconcile European agricultural systems and  
165 resource extraction with a growing environmental awareness and desire to protect the  
166 remaining relatively wild landscapes in response to this (Forest and Bird, 2018; Lyver et al.,  
167 2019). Māori interests express a plurality of values assigned to nature ranging from  
168 traditional and customary use and flora and fauna as an inspiration for many forms of  
169 cultural expression, to principles that refer to replenishment and sustainability of the  
170 environment to safeguard the future (Lyver et al., 2019; Ghijssels, 2023).

171 The protection of rights and property of Māori, the Indigenous People of New Zealand (or  
172 *tangata whenua, the people of the land*) is guaranteed within the Treaty of Waitangi 1840 (*in*  
173 *Māori: Te Tiriti O Waitangi 1840*), the constitutional framework between Māori and the New  
174 Zealand government (Lyver et al., 2019). However, there have been various wrongs and  
175 breakings of the Treaty which began to be addressed in the 1970s. Māori rights and  
176 ownership are still a very complex and evolving topic. (Lyver et al., 2019).

177 The identity of Māori is very much connected to their ancestral land. *Whenua* means both  
178 'land' and 'placenta', and after the birth of a baby many Māori parents would bury the  
179 placenta at a location on their ancestral land as part of traditional practice (Gunn & McCallig,  
180 1997). The earth itself is identified with the original mother, *Papatūānuku*. A fundamental  
181 principle in Māori culture is *whakapapa*, which can be broadly interpreted as genealogy.  
182 However, it more specifically portrays the interrelatedness between the natural and  
183 supernatural realms and connects people to each other, to their ancestors, to the land and  
184 natural resources (Lyver et al, 2019). Reciting *whakapapa* is declaring your Māori identity. As  
185 such, you place yourself in a wider context, linked to the land and tribal groupings and the  
186 authority and prestige that is derived from within these (*mana*).

187 Another concept that is very important in this regard is *kaitiakitanga* or the ethic of  
188 guardianship. Through *kaitiakitanga* a worldview is embraced that includes the  
189 conservation, replenishment and sustainability of the environment to safeguard the future  
190 (Lyver et al. 2019). The ties to the land are seen by Māori within the notion of  
191 *rangatiratanga*, which refers to rights of authority and self-determination or sovereignty but  
192 also has spiritual connotations (Jones, 2016, p54.).

193 Ultimately, this paper aims to investigate the potential of plural valuation of nature for  
194 conservation. In order to meet this, the following research questions are posed: i. Which  
195 different values of nature are reflected within New Zealand's conservation legislation? ii.  
196 What main patterns and differences regarding conservation can be found across these  
197 statutes? iii. What values (instrumental, relational) do New Zealand conservation  
198 professionals assign to nature? iv. What are these professionals' opinions on future  
199 biodiversity conservation policies and actions in New Zealand?

## 200 2. Methods

### 201 2.1. Analysis of New Zealand conservation legislation

202 We analysed the major statutes within which conservation in New Zealand is managed  
203 following the method described by Bowen (2009) and a qualitative coding approach similar  
204 to the one described by Rose et al. (2014): Reserves Act 1977, National Parks Act 1980,  
205 Conservation Act 1987, Resource Management Act 1991 and Te Urewera Act 2014.

206 The individual statutes were first read to identify meaningful passages of text pertinent to  
207 the valuation of nature. Closer rereading and coding of these texts suggested three themes  
208 that shape the legal context within which the survey respondents operate and identify the  
209 main patterns regarding conservation across the different statutes.

210 Firstly, we analysed the general purposes of the different statutes to identify the kind of  
211 species and landscapes that form the focus of nature valuation. Secondly, we identified the  
212 presence of or references to particular values assigned to nature within the statutes. These  
213 values were also used to structure the survey questionnaire. Words used in the titles or long  
214 titles and interpretation sections, and excerpts from the purpose statements of individual

215 statutes suggesting different values assigned to nature were identified, using the  
 216 instrumental and relational values described in Table 1 as a guide.

217 Te Urewera Act 2014 is novel, formalising the recognition of ‘rights’ or ‘legal personhood’ of  
 218 nature (Bataille et al., 2020; Ghijselinck, 2023). Accordingly, we identified the main  
 219 similarities to, and differences from, the earlier statutes with regard to nature’s role and  
 220 valuation.

221 Table 1:

222 *Summary of particular instrumental and relational values used to structure the survey questionnaire*

Category	Specific values	Specific reasons why value is assigned to nature
<b>Instrumental</b>	<b>Provisioning and regulating services values</b>	food, forage, energy, raw materials and medicinal resources climate-, water-, or air quality regulation and the maintenance of ecosystems (Diaz et al., 2018).
	<b>Knowledge values</b>	generation of knowledge on biodiversity, ecosystem processes, its resources and their management (McNeely, 2020)
	<b>Relational</b>	
<b>Relational</b>	<b>Altruistic values</b>	nature protection in favour of a present community (intragenerational altruism) or future generations (intergenerational altruism) (Arias-Arévalo et al., 2018)
	<b>Recreational values</b>	recreation, relaxation, invigoration (Robert et al., 2015; Capaldi et al., 2014)
	<b>Educational values</b>	vehicle for curiosity, inspiration and learning (Robert et al., 2015)
	<b>Aesthetic values</b>	beauty, grandeur, silence, tranquillity or harmony inspiring people to relate with reverence, awe, wonder towards nature (Tribot et al., 2018)
	<b>Cultural identity &amp; heritage values</b>	establishment of emotional connections with places, which enables to deeply experience nature and to which a sense of attachment and care is developed (Chan et al., 2016)
	<b>Nature-inclusive eudaimonic value</b>	‘eudaimonia’, or “flourishing”, involves actions, experiences, and habits conducive of a meaningful, ethically responsible, and overall satisfying life (Pascual et al., 2017). Nature-inclusive eudaimonic values refer to how a meaningful relation with nature is fundamental for this ‘flourishing’
	<b>Wilderness value</b>	appreciation of lands where any imprint of human interference is substantially unnoticeable (following Molloy, 1997)

## 223 2.2. Survey of conservation professionals

### 224 2.2.1. Survey respondent identification and selection

225 All respondents are directly involved in biodiversity conservation in New Zealand - either  
 226 through policy setting or action or through management, research or activism (Table 2). The  
 227 survey aided in the mapping of the plural - not only instrumental - ways nature is valued by  
 228 these actors that belong to different institutional or organisational contexts. It is argued that  
 229 this may facilitate a more in-depth exploration of how these different values of nature could  
 230 influence conservation narratives and enable the identification of cross-cutting or recurrent  
 231 themes within the data these respondents provide.

232 Also respondents involved in research into, or having (field) experience with, either nature  
 233 protection or biodiversity conservation in New Zealand were selected. To that end, *Science*  
 234 *Direct*, *Taylor & Francis* and *Web of Science* search engines and the *Journal of New Zealand*  
 235 *Ecology* were consulted to track down post 2015 publications on *New Zealand biodiversity*  
 236 *conservation* and identify the lead authors of these publications.

### 237 2.2.2. Design of the questionnaire

238 Between January 12 and March 7, 2022, we received 164 completed surveys. Despite best  
 239 efforts response was low for Māori (4). Therefore, *quantitative* data of this group has been

240 set aside in the presentation of results to make the comparison of groups more meaningful.  
 241 The survey asked actors to score their support on several statements on a 5-point Likert  
 242 scale, with response options ranging from 1 (disagree strongly) to 5 (agree strongly). Ranking  
 243 and open questions were also used to examine to what extent conservation professionals  
 244 agree on statements on human-nature relationships and whether policies, actions or  
 245 approaches implied by statements should, in their view, be incorporated into future  
 246 biodiversity conservation policy (see Supporting Information).

247 Table 2:

248 *Profile of the contacted conservation professionals (including categories and the number of actual survey*  
 249 *respondents)*

Affiliation	Nature of involvement in conservation	Actors contacted	Number of responding actors
<b>1. Public lands: conservation management within public lands</b>			28
<b>Department of Conservation (DoC)</b>	Governmental department charged with conservation and protection of threatened species and historical heritage on public lands.	policy managers & staff	18
<b>Conservation Boards/New Zealand Conservation Authority (NZCA)</b>	Statutory authorities. NZCA advises DoC and its minister on conservation policy. Fifteen regional conservation boards provide regional level-policy direction	chairs	10
<b>2. Councils: conservation management outside public lands</b>			41
<b>Regional Councils</b>	11 elected councils are responsible for regional level natural resource management	chairs and co-chairs environment/biodiversity committee	17
	Senior policy staff	policy managers	7
	Scientists, stakeholder engagers	biodiversity senior advisors	17
<b>3. Researchers</b>	University, Crown Research Institutes	Lead authors of post-2015 papers on conservation	34
<b>4. Forest &amp; Bird Protection Society</b>	Leading conservation NGO promoting protection and conservation of indigenous flora and fauna and wild places.	branch chairs/National Board	20
<b>5. Other activist non-governmental groups</b>			37
<b>Federated Mountain Club (FMC)</b>	NGO peak body promoting wilderness-located recreation	13 executive members + president	4
<b>Queen Elizabeth II Trust</b>	Promotes biodiversity/heritage on private land	27 regional representatives	10
<b>Other NGOs</b>	Conservation stakeholder organisations: Predator Free 2050 Ltd, Game Animal Council (GAC), New Zealand Landcare Trust (NZLT), and Fish & Game Conservation	heads, chairs or executives	23
<b>6. Māori</b>	Indigenous People of New Zealand	Contacted via Te Kāhui Māngai directory of Iwi (tribe) authorities	4
			Total: 164



250 **2.2.3. Cognitive validity of questionnaire statements**

251 Cognitive validity is concerned with how survey items are interpreted by respondents. When  
 252 an operationalisation has cognitive validity this means that the items are understood by  
 253 respondents as intended by the researchers (Willis & Artino, 2013). To enhance the cognitive  
 254 validity of the survey the authors set up a workshop to discuss the different questions and to  
 255 make them more sensitive to the New Zealand context. Subsequently, before it was  
 256 administered, the resulting survey was pretested by three persons who work in a  
 257 biodiversity conservation senior advisory capacity in New Zealand. This further led to  
 258 suggestions and modification of the survey and filtered out questions or statements that  
 259 were considered too abstract or theorised. A table of instrumental, relational and two  
 260 intrinsically oriented values and their indicators (survey statements) is presented in table 3  
 261 below.

262 Table 3:

263 *Particular instrumental and relational values and corresponding questionnaire statements.*

Particular values		Corresponding questionnaire Likert-statement
<b>Intrinsically oriented value</b>		The concept of giving the former Te Urewera National Park legal standing of a natural person is a bad idea regardless of implementation. We have the moral obligation to ensure native fauna and flora do not go extinct due to our actions.
<b>Instrumental value</b>	<b>Provisioning services values</b>	Nature should be protected because it provides us with food, raw materials, clean air and water.
	<b>Regulating services values</b>	The well-being of the people of New Zealand relies on the state of our native fauna and flora.
	<b>Knowledge values</b>	New Zealand's National Parks are important for generating knowledge on biodiversity and ecosystem processes.
	<b>Tourism values</b>	Conservation funding should be prioritised for those parts of nature that tourists visit in order to support New Zealand's tourism sector.
<b>Relational value</b>	<b>Altruistic values</b>	We should use our natural resources in a way that also allows future generations to benefit from them.
	<b>Recreational values</b>	I like to spend time in a relatively natural environment to recreate, relax and feel reinvigorated.
	<b>Educational values</b>	I like learning about our natural environment and heritage.
	<b>Aesthetic values</b>	I often think how beautiful nature is. Being in the outdoors fills me with wonder, awe and inspiration.
	<b>Cultural identity &amp; heritage values</b>	Nature landscapes around me say something about who we are as a community.
	<b>Nature-inclusive eudaimonic value</b>	I often think about natural places and the wildlife in it, whose fate I care about, even though I may never see them myself. I always think about how my actions affect the environment. I am very aware of environmental issues. I am not separate from nature, but a part of nature. My feelings about nature do not affect how I live my life. My relationship to nature is an important part of who I am. I feel very connected to all living things and the earth.
<b>Wilderness value</b>	We need to protect those lands that appear to have been affected only by the forces of nature and where any imprint of human interference is substantially unnoticeable. The thought of being deep in the forest, away from civilization, is frightening My ideal vacation spot would be a remote, wild area.	

264 2.2.4. Procedure and analysis of survey results

265 The survey was administered online by using the Qualtrics Software Survey Platform. Most  
266 potential respondents were invited to complete the survey by sending them an email with  
267 the survey attached. For others, of whom individual contact addresses were not available or  
268 who work for an organisation that was reluctant to supply contact addresses, it was agreed  
269 to work with one contact person who served as a gatekeeper. This person distributed the  
270 survey to potential respondents within the organisation. As such, no personal contact  
271 addresses were needed and participating people could remain anonymous. However, in  
272 these cases, it was not possible to establish participation rates. For persons of which contact  
273 addresses were known and who did not reply, two reminders were sent. Respondents were  
274 only granted access to the survey once.

275 Survey data were screened and analysed quantitatively using the Qualtrics Results tab and  
276 Jamovi Version 2.2 Software. Descriptive statistics, such as percentages, means, standard  
277 deviations, interquartile ranges and medians have been utilized to summarize the Likert-data  
278 collected.

279 Following a similar analytic path as in Braun & Clarke (2008) & Ritchie et al. (2014) thematic  
280 analysis was used to analyse the answers given to the open questions in the survey.  
281 Thematic analysis involved discovering, interpreting and reporting patterns of meaning  
282 within the data and combining elements to yield categories of higher-level classes that  
283 capture conceptual differences in the data (Ritchie et al., 2014, p.345). The manual coding of  
284 features that appear interesting in these data enabled the identification of overarching  
285 themes and underlying dimensions, and the capture of meanings that relate to valuation of  
286 nature and how biodiversity and its conservation is interpreted. Because the sample of  
287 actors participating in the survey was small and purposive this study also attempted to map  
288 range and diversity and present survey data in terms of associations and quotes rather than  
289 focusing only on proportions, frequencies and quantitative statistics (see Supporting  
290 Information for an overview).

291 2.2.5. Ethics

292 Questions of the online survey were preceded by information that told participants that  
293 responses were to be analysed and used in a study to explore how people value New  
294 Zealand's nature and biodiversity. Also, a confidentiality statement guaranteeing that results  
295 are used in a way that individual respondents cannot be identified, was added. Lastly,  
296 respondents were made aware that by taking part in the survey they understood that:

- 297     ▪ participation in the study is voluntary and they could withdraw at any time without  
298         giving a reason
- 299     ▪ any data provided could not be withdrawn once it has been submitted online
- 300     ▪ only the researcher will have access to the identities of the participants and the data

301 In the few cases where the answers given suggested misinterpretation or contradiction a  
302 follow-up question was sent when possible to ask for clarification.

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### 306 3. Results

#### 307 3.1. Document analysis: values of nature within New Zealand conservation legislation

308 The New Zealand legislation demonstrate a range of relational and intrinsic understandings  
309 in their drafting (Table 4). Besides knowledge values the different provisions of especially the  
310 Reserves Act, National Parks Act and Conservation Act refer to the intrinsic worth and  
311 aesthetic, altruistic, cultural, recreational and educational significance of the landscape.

312 The purpose of the National Parks Act 1980 is to preserve:

313 *in perpetuity as national parks, for their intrinsic worth and for the benefit, use, and*  
314 *enjoyment of the public, areas of New Zealand that contain scenery of such distinctive*  
315 *quality, ecological systems, or natural features so beautiful, unique, or scientifically*  
316 *important that their preservation is in the national interest (section 4.1)*

317 and:

318 *they shall be preserved as far as possible in their natural state (section 4.a).*

319 The Conservation Act 1987, section 2, defines conservation as:

320 *the preservation and protection of natural and historic resources for the purpose of*  
321 *maintaining their intrinsic values ... and safeguarding the options of future*  
322 *generations,*

323 and preservation as:

324 *in relation to a resource, means the maintenance, so far as is practicable, of its*  
325 *intrinsic values*

326 However, section 2 of the Conservation Act seems to bestow a superiority on 'resource' over  
327 'intrinsic', which may be confusing, as it does not make clear what exactly is meant by  
328 'intrinsic', or how this relates to instrumental values here.

329 The Department of Conservation is tasked with advocacy, educational and recreational  
330 responsibilities under the National Parks Act and Conservation Act. In section 2 from the  
331 Conservation Act one can read:

332 *... providing for their appreciation and recreational enjoyment by the public.*

333 Section 6.e of the Conservation Act 1987 states:

334 *to the extent that the use of any natural or historic resource for recreation*  
335 *or tourism is not inconsistent with its conservation, to foster the use of natural and*  
336 *historic resources for recreation, and to allow their use for tourism.*

337 Recreation and tourism are a legal responsibility for the Department of Conservation, but  
338 nature conservation, which is the highest ranked objective should, as such, not be  
339 compromised. Also, while preservation remains a priority, the National Parks Act requires a  
340 balance to be struck between the dual requirements of "preservation in perpetuity" and

341 "public access and enjoyment". Dinica (2017) elaborates on how tourism concessions by  
 342 authorities to private sector companies creates opportunities and challenges in this regard.

343 Also the Resource Management Act seems to refer to other than instrumental notions, for  
 344 example:

345 *the protection of outstanding natural features and landscapes from inappropriate*  
 346 *subdivision, use, and development section 6(b).*

347 These “outstanding features” are not defined, but suggest aesthetic landscape properties.

348 Counterintuitively, the Resource Management Act, which is the main land-use planning law  
 349 and addresses allocation and use of the natural environment for private benefit, does, in  
 350 some more detail, define intrinsic value of nature in Part 1, in relation to ecosystems and  
 351 their constituent parts:

352 ... which have value in their own right including their biological and genetic diversity  
 353 and their essential characteristics that determine an ecosystem’s integrity, form,  
 354 functioning and resilience.

355 It is not clear why this is not as such defined in the statutes that deal with public lands.

356 Table 4:

357 *Examples of the presence of words or references within provisions that emphasise the preservation of values of*  
 358 *nature within the general purposes of a selection of New Zealand’s nature management legislation*

Legislation	Intrinsic value	Relational value references & sections				
		Altruistic	Aesthetic	Cultural heritage	Educational	Recreational
<b>Reserves Act 1977</b>	Related to scenic reserves, s.19(a)	Preservation s.3	Scenic 3(1)(a) Beauty s.17 (1) & s.19	History, culture s.3(1)(a)(v)	Educational features s.3(1)(a)(v), Fostering, promoting preservation s.3(1)(c)	Enjoyment, recreation s.(1)(a)
<b>National Parks Act 1980</b>	s.4(1) Natural state s.(4)(2)(a)	Preservation s. 4(1) & s.4(2)(e)	Beautiful, unique s.4(1)	Historical interests s.4(2)(c)	Inspiration s.4(2)(e)	Enjoyment s.4(1) Recreation s.4(2)(e)
<b>Conservation Act 1987</b>	s.2	Promoting benefits to future generations s.6(c)	No references in purposes	Natural and historical resources s.6	Educational role s.6(d) & s.6 B(g) Advocate conservation s.6(b)	Appreciation & recreational enjoyment s.2(1)
<b>Resource Management Act 1991</b>	s. 2 & s.7(d)	Sustainable management s.5(2)	Outstanding natural features s.6(b)	Historic heritage s.6(f)	No references in purposes	Pleasantness ...recreational attributes s.2
<b>Te Urewera Act 2014</b>	Intrinsic worth, integrity s.4	Preservation s.4(b)	Remote beauty s.3(1) Spiritual reflection s.4	Historical and cultural heritage s.5(e)	Inspiring people to commit to its care s.3(3) Learning s.4(c)	Public use, enjoyment & recreation s.4(c)

359 3.2. Document analysis: native species and unique landscapes as focus of nature  
360 valuation

361 A recurring theme in the statutes is the need to preserve New Zealand's unique landscapes  
362 and high levels of endemism. The Reserves, National Parks and Conservation Acts provide for  
363 protection of native fauna and flora on public lands which still cover mostly alpine  
364 ecosystems and montane indigenous forests. The purpose of the Reserves Act perhaps  
365 expresses best the joint emphasis on native species and notions of New Zealand's unique  
366 landscapes.

367 *Ensuring, as far as possible, the survival of all indigenous species of fauna and flora ...*  
368 *and the preservation of representative samples of all classes of natural ecosystems*  
369 *and landscapes which in the aggregate originally gave New Zealand its own*  
370 *recognizable character (section.3(b)).*

371 However, they hold little regard for introduced species. For example, the National Parks Act,  
372 section 4.2(b) states:

373 *native plants and animals of the [national] parks shall as far as possible be preserved*  
374 *and the introduced plants and animals shall as far as possible be exterminated.*  
375

376  
377 In the Resource Management Act a somewhat different, more instrumentally inspired  
378 language is used that is reminiscent to ecosystem-services thinking. It focusses on:

379 *safeguarding the life-supporting capacity of air, water, soil, and ecosystems*

380 and

381 *avoiding, remedying, or mitigating any adverse effects of activities on the*  
382 *environment (section 5(c)).*

383 In relation to the protection of native biodiversity this Act requires regional councils to:

384 *recognise and provide for... the protection of areas of significant indigenous vegetation*  
385 *and significant habitats of indigenous fauna (section 6(c)).*

386 and makes them responsible for:

387 *the establishment, implementation, and review of objectives, policies, and methods for*  
388 *maintaining indigenous biological diversity (section 30(1)(ga)).*

389 However, these significant natural areas are only a small part of the Resource Management  
390 Act's scope. Whereas on public lands, the focus is on preservation, the Resource  
391 Management Act more explicitly emphasizes *sustainable management of natural resources*.

392 3.3. Document analysis: innovative "rights of nature" legislation

393 New Zealand has begun to recognise 'rights' of nature, through which, at first glance,  
394 intrinsic values of nature seem to be legalised. Te Urewera Act 2014, gave Te Urewera, a  
395 former national park and the largest remaining area of rainforest of New Zealand's North  
396 Island, spanning 212,700 hectares:

397 *all the rights, powers, duties, and liabilities of a legal person (section 11).*

398 In section 4 the Act states that its purpose is:

399 to establish and preserve in perpetuity a legal identity and protected status for Te Urewera  
400 for its intrinsic worth... and in particular to:

401 (a)

402 *strengthen and maintain the connection between Tūhoe and Te Urewera; and*  
403 *(b)*  
404 *preserve as far as possible the natural features and beauty of Te Urewera, the*  
405 *integrity of its indigenous ecological systems and biodiversity, and its historical and*  
406 *cultural heritage; and*  
407 *(c)*  
408 *provide for Te Urewera as a place for public use and enjoyment, for recreation,*  
409 *learning, and spiritual reflection, and as an inspiration for all.*

410 Superficially, the language used in the purpose of Te Urewera Act 2014 still seems one that  
411 emphasizes the preservation, aesthetic and recreation themes found in other conservation  
412 legislation.

413 But this legislation's innovative structure can be found in other provisions. Through the Act,  
414 the National Park became a self-owning legal entity while, according to section 11(2)(a), the  
415 aforementioned rights, powers and duties must be exercised on behalf of Te Urewera by a  
416 statutory board which is required to assume guardian rights for the entity. The Board, two-  
417 thirds of which are members of the Māori Tūhoe tribe, administers the former park, while  
418 collaborative provisions extend beyond advisory roles to include final decision-making  
419 power. Moreover, section 18 (2) and (3) allow the Board to govern according to Māori  
420 principles, while section 44 (1) states that the Board must prepare and approve a Te  
421 Urewera management plan, providing the space for Tūhoe to gain more authority. The  
422 Board is also able to create bylaws (section 70) and to authorize, within certain limits,  
423 activities that are otherwise prohibited under conservation laws but uphold customary  
424 practices (section 58) such as:

425 *disturbing, trapping, taking, hunting, or killing indigenous animals within Te Urewera*

426 These provisions and opportunity to design bylaws chime well with Māori perceptions of a  
427 reciprocal relationship with nature and the use of practices that see elements of nature as  
428 resources in a conservation-through-sustainable-use manner. Guiding concepts (section  
429 18(3)) such as *mana me mauri*, *rāhui* and *tapu me noa* are important here. These convey  
430 notions of spirituality, sanctity and respectful behaviour in a place.

### 431 3.4. Survey data results

432 Notably, survey answers reveal that relational values of nature, embedded in the uniqueness  
433 of New Zealand's native fauna and flora and the originality of its landscapes, are important  
434 to most of conservation professionals, both within and across groups, and complement  
435 instrumental valuation.

### 436 3.5. Survey data: values assigned to nature by respondents

437 Surveyed conservation actors regarded provisioning and regulating (84%) and knowledge  
438 values (90%) of nature as important and gave a number of instrumental reasons to care for  
439 biodiversity. Ecosystems in a natural state were seen as more "healthy", resilient to climate  
440 change and scientifically interesting. However, there was a general disagreement (95%) with  
441 the notion of humans having the right to use natural resources in any way they need.

442 Likert-results on relational values of nature are presented in tables 5 and 6. Nature-inclusive  
443 eudaimonic value (Tables 7 & 8) is a type of relational value presented separately because it  
444 suggests a more explicit willingness to care for nature that is embedded in a meaningful

445 relationship with it. Several items have been used to represent this particular value and to  
 446 get a better sense of how actors feel about it.

447 Overall, agreement with relational and nature-inclusive eudaimonic value statements is high,  
 448 within and across the different participating groups. Thematic analysis (see Supporting  
 449 Information) showed that references to all relational values were common, even dominant  
 450 in most actors' remarks. Caring for nature was linked to working on the future, enriching,  
 451 important to a sense of identity and New Zealand culture. Nature was said to bring peace,  
 452 beauty, fascination, healing and ability to cope with stress.

453 Moreover, thematic analysis identified perspectives on why to care for nature that covered  
 454 an ethic of guardianship (kaitiakitanga), a meaningful relationship with nature and being part  
 455 of a wider context and kinship (whakapapa) to the land. Some actors referred to Māori terms  
 456 and Te Ao Māori (Māori worldview) even when they did not identify as Māori. For example, a  
 457 Conservation Board member stated:

458 *Nature is so heavily connected to Te Ao Māori that it has a critical place in health,*  
 459 *wellbeing and cultural identity of Māori.*

460 Table 5:

461 *Relational value items (except nature-inclusive eudaimonic values) means, medians, standard deviations and*  
 462 *percentages of agreement for 160 respondents for respectively altruistic, aesthetic (2 & 4), cultural identity,*  
 463 *educational and recreational values.*

Relational value item	Mean	Standard deviation	Median	% agreement
<b>We should use our natural resources in a way that also allows future generations to benefit from them</b>	4.77	0.675	5.00	96%
<b>I often think how beautiful nature is</b>	4.87	0.477	5.00	98%
<b>The natural landscapes around me say something about who we are as a community</b>	4.52	0.801	5.00	90%
<b>Being in the outdoors fills me with wonder, awe and inspiration</b>	4.73	0.546	5.00	96%
<b>I like learning about our natural environment and heritage</b>	4.79	0.542	5.00	96%
<b>I like to spend time in a relatively natural environment to recreate, relax and feel reinvigorated</b>	4.83	0.479	5.00	99%

464 Table 6:

465 *Relational value descriptive statistics of the sum value (max.30) of 6 statements for all respondent groups.*

Group affiliation	Number of respondents	Mean	Standard deviation	Median
Councils	41	27.9	3.70	29
Organisation	37	28.9	1.63	29
Researcher	34	28.4	1.84	29
Public conservation lands	28	28.5	1.69	29
Forest & Bird	20	29.3	1.13	30

466

467

468

469 Table 7:  
 470 *Items for nature-inclusive eudaimonic values, means, standard deviations and percentages of agreement and*  
 471 *disagreement for 160 respondents. The mean in yellow is the one obtained after reverse coding of the*  
 472 *statement.*

Nature-inclusive eudaimonic value items	Mean	Standard deviation	% agreement	% disagree
I often think about natural places and all the wildlife in it, whose fate I care about, even though I may never see them myself	4.54	0.776	91	4
I always think about how my actions affect the environment.	4.20	0.775	90	5
I am very aware of environmental issues	4.67	0.599	97	2
I am not separate from nature, but a part of nature	4.48	0.801	90	4
My feelings about nature do not affect how I live my life	4.40	0.870	5	89
My relationship to nature is an important part of who I am	4.73	0.546	96	1
I feel very connected to all living things and the earth	3.95	0.917	71	5

473 Table 8:  
 474 *Means, standard deviations, medians and interquartile ranges of sum value (max.35) of 7 statements explicitly*  
 475 *linked to nature-inclusive eudaimonic values*

Group affiliation	Mean	Standard deviation	Median	Interquartile range
Councils	29.1	3.88	30	4.00
Organisation	32.0	2.46	32	3.00
Researcher	31.0	2.94	31	2.75
Public lands	31.5	2.56	32	2.25
Forest & Bird	32.0	2.70	33	3.50

476 As for wilderness values, across different groups there was 58% agreement (42% strongly,  
 477 16% somewhat) with the statement: “We need to protect those lands that appear to have  
 478 been affected only by the forces of nature and where any imprint of human interference is  
 479 substantially unnoticeable”. This shows more variation in agreement than the other  
 480 statements, although this variation was found more within, and not between, groups (table  
 481 9).

482 Table 9:  
 483 *Wilderness value means, standard deviations, medians and interquartile ranges.*

Group affiliation	Mean	Standard deviation	Median	Interquartile range
Councils	3.12	1.55	3.00	3.00
Organisation	3.81	1.45	5.00	2.00
Researcher	3.41	1.56	4.00	3.00
Public lands	3.64	1.45	4.00	2.00
Forest & Bird	4.30	1.17	5.00	1.25

484 Correspondingly, 66% of respondents wish to attempt, through conservation policies, to  
 485 restore New Zealand’s natural landscapes to those prior to European colonisation. Clearly,  
 486 opinions on wilderness landscapes and restoration are more divided among respondents.  
 487 Not everyone wants to recreate the landscapes from the past. This is evidenced by  
 488 individuals who expressed different opinions on what conservation baseline to use, what  
 489 exactly is ‘native’, whether ‘wilderness’ needs to be protected, or can be named as such.



490 For example, one researcher explained that “nowhere nature is left untouched” and that:  
 491 *the danger of the pristine myth also is that it leads us to ignore nature that doesn't fit*  
 492 *our view of what nature should be.*

493 Others seemed to disagree with this in that they even see a choice of ‘pre-European’ not  
 494 sufficient as a conservation baseline and would prefer conservation’s benchmark in New  
 495 Zealand to be the time before human colonisation. As one person remarked:

496 *conservation's reference point needs to be human colonisation, rather than*  
 497 *colonisation by any particular group of humans. After all, we [different ethnic groups]*  
 498 *are all the same species.*

499 As for giving Te Urewera rights or legal personality (Table 10), most (63%) respondents  
 500 agreed, while a quarter (26%) were neutral. A wider spread was found *within* groups than  
 501 *between* groups. Some individuals appeared to be suspicious of the legislative content and  
 502 branded ‘legal personhood’ as undesirable. They regarded this concept as a stealthy way to  
 503 extract resources or develop what are relatively anthropogenically undisturbed areas. For  
 504 example, one respondent stated personhood legislation “allows for the 'person' to sacrifice  
 505 parts for the good of the community”. More respondents seemed to agree with the  
 506 statement: “Nature and animals have the right to exist regardless of people's needs”.

507 Table 10:

508 *Mean, standard deviation, median and interquartile range of the statement enquiring about the concept of*  
 509 *'legal personhood of nature'*

Group affiliation	Mean	Standard deviation	Median	Interquartile range
Councils	4.02	1.21	5.00	2.00
Organisation	3.78	1.20	4.00	2.00
Researcher	4.29	1.00	5.00	1.00
Public lands	4.39	0.786	5.00	1.00
Forest & Bird	4.20	1.15	5.00	2.00

### 510 3.6. Survey data: future direction of New Zealand conservation

511 Nearly all (90%) respondents considered achieving better biodiversity outcomes requires  
 512 collaboration between central and local government. Only half (52%) agreed this happened  
 513 now. Moreover, 84% of participants agreed recognising and incorporating Māori knowledge  
 514 in conservation policies is desirable. Also, 85% agreed with more active involvement of local  
 515 communities in formulating conservation decision-making.

516 The data revealed very high agreement across groups regarding the perceived need to halt  
 517 the loss of New Zealand's remaining native fauna and flora (98%), the wish to reintroduce  
 518 native species back in as many of their former home ranges (87%) and the necessity for  
 519 conservation action to achieve this (93%). The ‘uniqueness’ of New Zealand’s native  
 520 biodiversity is a commonly mentioned reason to care for nature. Two-thirds of those  
 521 surveyed find that ensuring native fauna and flora do not go extinct due to human actions is  
 522 a moral obligation. These results are reflected by a general agreement with the question  
 523 whether introduced species need to be removed from New Zealand as much as possible  
 524 (> 70% for councillors & staff, > 80 % for all others, nearly 100% for Forest & Bird) (Table 11).  
 525 More spread was found between researchers, with only 35% of them agreeing on the need  
 526 for removal of introduced species.

527 Table 11:

528 *Summary of results on (dis)agreement with statements pertaining to introduced species*

Survey statements	strongly disagree	somewhat disagree	neutral	somewhat agree	strongly agree
<b>We have to exterminate stoats, possums and rats from the entire country to halt the decline of our native biodiversity.</b>	6%	10%	5%	27%	52%
<b>Introduced flora and fauna in protected areas are 'bad' and indigenous species are 'good'.</b>	5%	9%	21%	40%	25%
<b>I reflect a lot on how to prevent our actions from causing suffering of animals.</b>	4%	14%	23%	40%	19%

529 Nonetheless, some stated that eradication of introduced species is unachievable with  
530 current technology and may well need genetic engineering for which there is no social  
531 license. Methods used for non-native species eradication led some individuals to want more  
532 insights in impacts of toxins on native animals, water and the food chain. Others wondered  
533 about food chain changes such as the release of mice and rats from predation by stoats or  
534 how, with fewer rats, stoats may prey switch to birds (See Supporting Information).

535 Also, across groups, half of the people surveyed regard non-native species as an integral part  
536 of New Zealand's nature. In this light, it is also interesting that nearly half (48%) agreed with  
537 the use of conservation resources to target saving native species that have more chance of  
538 recovering and surviving in a human-impacted environment (24% disagrees). Intuitively,  
539 eradication of non-native species seems conducive for survival of native ones. But those  
540 wanting to focus on species which can more easily survive in an altered environment, or who  
541 deem non-native species integral to New Zealand's nature, may also be resigned to a  
542 situation that is deemed to be impossible to revert or even be willing to accept non-native  
543 species *up to a degree*. Indeed, "control" of introduced species and "co-existence" with  
544 native species in some areas has been suggested among those surveyed to be more feasible,  
545 with some in favour of allowing the use of introduced species as "resource". Others, while  
546 seeing native species as important, agree that certain non-native species can have a  
547 beneficial or neutral function in some contexts and especially researchers viewed predator  
548 eradication as secondary. They noted that it is more important to halt fragmentation and  
549 loss of habitat, to be active in restoration and habitat preservation and use mainland  
550 'islands' or exclusion fenced areas to protect native species as alternative.

551 Moreover, not all regard introduced species as 'bad' and some mentioned enjoying seeing  
552 them. Lastly, others raised animal welfare issues. They criticised the type of messaging about  
553 "pests" or children's involvement in "animal cruelty", wanted more transparent and  
554 sensitive education around predator control and doubted a positive "ethical balance-sheet"  
555 is possible, because this:

556 depends on the humaneness of control techniques and eradication success, about  
557 which there are substantial uncertainties (senior biodiversity advisor).

#### 558 4. Discussion and conclusion

559 According to proponents, plural valuation of nature, especially through the notion of  
560 relational values, could enrich conservation and in general make conservation socially and

561 ecologically more effective. This study examined the potential of plural valuation of nature  
562 for conservation decision-making by exploring New Zealand's conservation legislation and  
563 shedding light upon how New Zealand conservation professionals value nature. It was shown  
564 that relational values factor strongly in how conservation professionals react to statements  
565 about nature. No clear differences were detected between separate groups of conservation  
566 professionals in the way they responded to relational and nature-inclusive eudaimonic value  
567 statements. Among surveyed people, those involved in research and designing, managing  
568 and implementing conservation policies seem to justify conservation without invoking only  
569 purely anthropocentric notions and instrumental claims about ecosystem services or  
570 ecological functionality. Moreover, two thirds of the surveyed actors deem the protection of  
571 native biodiversity a moral obligation. Almost all actors see the halting of native  
572 biodiversity's decline as an important conservation target and believe conservation action  
573 can make a difference.

574 Most conservation professionals also supported the incorporation of *mātauranga Māori*  
575 (Māori knowledge) in New Zealand's biodiversity management policies. Māori concepts and  
576 principles conveying their relationship with nature even seemed to inspire some of them.  
577 This may well point to the potential of plural valuation of nature to shift beliefs, and to  
578 identify overlap in what initially appear to be different worldviews. For example, very  
579 relevant conservation messages may well be found within relationally inspired place-based  
580 philosophical traditions that enhance, and broaden the horizon on, human-nature  
581 relationships (Ghijssels, 2023). Local knowledge and ecological practices rooted in  
582 different (indigenous) principles may be a source of inspiration for environmental educators  
583 and conservationists (Niigaaniin & MacNeill, 2022).

584 Several arguments call for caution though. Firstly, while referred to in the different statutes,  
585 the role of intrinsic values is not entirely clear, and 'intrinsic' is even combined with  
586 'resource' in the New Zealand Conservation Act. It is also not obvious how to distinguish  
587 relational from instrumental values in both statutes and survey results. This is not mere  
588 semantics: for the recognition of relational or intrinsic values to be more straightforward it is  
589 advisable to reflect on exactly what meaning these values have as these may be different in  
590 a particular context. For example, pinpointing what 'moral obligation' means to conservation  
591 professionals, and how this corresponds to the different interpretations of intrinsic value  
592 warrants research. In this regard, as already alluded to, the conceptualisation of relational  
593 values has also been criticised. As Kenter & O'Connor (2022) explain, relational values are  
594 considered as non-instrumental in the sense of *non-substitutable* and *incommensurable* with  
595 instrumental values, but are often seen as still anthropocentric. Said differently, relational  
596 values may widen the scope for a better understanding of the different ways nature is  
597 *significant to humans* and to *their 'good life'* but need not therefore be perceived as also  
598 furthering the consideration of nature's moral standing (Piccolo, 2017; Piccolo et al., 2022;  
599 Muradian & Gómez-Baggethun, 2021).

600 Ghijssels (2023) argued that when reflecting on our relation with nature is *not* rooted in a  
601 sense of reciprocity and care, only the *instrumental side* of the relation is emphasized or  
602 supported. For example, as for feelings of pleasure of walking in an old forest, the  
603 recreational, emotional or aesthetic value assigned to the forest may be regarded as trivial  
604 or inferior in comparison with revenues from clear-cutting or using the forest as production  
605 forest. Several scholars argue that valuing nature in a non-material way can be part of a  
606 nature-detached, self-serving attitude (Putney, 2003). For instance, recreational or aesthetic

607 values of nature may, but certainly do not always, lead to care. This is evident from natural  
608 places that are increasingly encroached upon by tourism infrastructure, consumerism and  
609 the recreational commercialisation of protected areas (Shultis, 2003, p.69). Moreover,  
610 Harmáčková et al. (2021), based on value-based participatory scenario-building  
611 processes, found that participants considered similar values in different ways and that, for  
612 example, they did not appear to differentiate between the instrumental and relational  
613 values of recreation. A limitation of this study is therefore that it is difficult to discern  
614 whether respondents viewed the statements we classified as relational *as part of a*  
615 *reciprocal relationship*. The translation of abstract philosophical value concepts into a more  
616 pragmatic use of value concepts is important for future research. Relevant questions to ask  
617 can be how instrumental, relational and intrinsic values coexist, how they can jointly  
618 strengthen the basis of nature conservation or whether relational values could also be  
619 leveraged to foster human-nature connectedness and non-anthropocentric moral  
620 considerations (Piccolo, 2017; Ghijssels, 2023).

621 Secondly, what can be derived from both the statutes and respondents' answers is that the  
622 focus of valuation is perhaps not simply 'nature' but a *particular part of nature* that is  
623 embedded in emotional or culturally inspired visions about nature. Most conservation  
624 professionals seem to assign value to the uniqueness of New Zealand's *native* species. This  
625 corresponds with a care for nature that is delineated by what Peretti (1998) called  
626 "nativism", meaning value of nature that is represented by mainly, or exclusively, native  
627 fauna and flora. Indeed, to many respondents, the originality of New Zealand's nature and  
628 its beauty and heritage are a source of pride, learning, cultural identity and part of a  
629 meaningful relationship with the outdoors. Conversely, as Peretti (1998) and Wallach (2020)  
630 explain, nativism sets species deemed *not* to be native outside conservation's moral world.  
631 In their attitudes, most conservation professionals therefore seem to concur with specific  
632 provisions in legislation pertaining to public lands, which reflect such nativism and also link  
633 nature to natural, cultural and historic heritage. Arguably, this explains the huge efforts of  
634 some conservationists to save functionally extinct, but endemic, species (Elliott et al., 2001).

635 Thirdly, beyond a value-convergence, the survey also identified differences of opinion. These  
636 have important implications for conservation-related decision-makers that want to account  
637 for multiple values assigned to nature in support of conservation. Although these different  
638 opinions are not found *between* groups, individual differences hinge upon what priorities in  
639 future conservation are, the perceived status of introduced species and how to deal with  
640 them, what conservation baseline to use, how to communicate conservation issues and to  
641 what degree the inclusion of people is needed as a part of nature everywhere. Interestingly,  
642 an overall high non-instrumental valuation of nature within and between groups did not  
643 reveal such differences. Among conservation professionals, the *same* values of nature seem  
644 linked to different interpretations of what 'nature' - and biodiversity's role - should or could  
645 be. Decision-makers in conservation who adopt plural valuation of nature may therefore  
646 have to include recognition of ambiguities and vagueness implicit in using 'nature' or  
647 'biodiversity' as catch-all terms.

648 Lastly, different New Zealand conservation laws link to different worldviews or presentations  
649 of human-nature relationships. Legislation pertaining to public lands has an ecocentric ring  
650 and a preservation outlook that sees humans as visitors to nature and their activities marked  
651 by a passive use, in response to increasing impacts elsewhere. Here, a sense of care for  
652 nature roots in notions of protection, of 'disowning' the land and setting it aside. The

653 innovative right of nature laws, despite representing a pragmatic bridge between Western  
654 and Māori perceptions of human-nature relationships, yet again depict nature primarily as  
655 useful to, and to be managed by, humans. Te Urewera Act is, after all, not just about  
656 'nature', even when nature is granted legal personhood. This Act shows how the concepts of  
657 'rights for nature' and 'legal personhood' can also be about social issues and rights for  
658 minorities and not simply about intrinsic values of nature (Ghijssels, 2023). Having a  
659 'human board' and a 'human face of the river' may leave room for anthropocentric notions  
660 and different interpretations about whose concerns will eventually be voiced, those of  
661 humans or those of the 'self-owning entity'. This may spark doubts about what measures of  
662 protection nature will ultimately receive and be perceived as contrary to the intrinsic values  
663 found in a conservation ethic that wishes to morally include nonhuman nature. Indeed,  
664 some surveyed individuals see a Māori focus on conservation-through-sustainable-use as  
665 having instrumental connotations that are at odds with the preservation approach in  
666 National Parks. How 'rights of nature' are conceptualised and applied may therefore also be  
667 strongly context-dependent, and the inclusion of indigenous relationships with nature and  
668 morally including nonhuman nature may be perceived as more or less contradicting, or  
669 surely not as always complementing, each other.

670 Although this study found a relative convergence of opinion regarding values New Zealand  
671 conservation professionals assign to nature, it needs to be acknowledged that this is not  
672 necessarily representative of positions held by those outside the sample we used. It is likely  
673 that prominent land users and the private and tourism sectors are not as prepared to value  
674 nature in more than instrumental or economic ways. It may therefore be recommendable to  
675 conduct similar research to gauge what other stakeholders value in nature and whether yet  
676 more distinct viewpoints on conservation can be identified. This can add to the complexity,  
677 as these people may also feel that they more directly undergo the consequences of  
678 conservation policies that conservation professionals help design, manage or implement and  
679 support. Our study, showing how a majority of surveyed conservation professionals'  
680 attitudes embrace relational values of New Zealand's 'original' nature may further indicate  
681 this. Also, for those having to operate in a capitalist economy and deal with economic  
682 growth-oriented policies it may be easier to set aside human-nature relationships embedded  
683 in cultural and natural heritage or morality as irrelevant (Washington, 2019).

684 In conclusion, while accounting for the different values of nature in conservation is claimed  
685 to contribute to the transformational social-ecological change needed to halt biodiversity  
686 loss, our study suggests a more nuanced approach. We have shown how values assigned to  
687 nature may link to relatively convergent views on the importance of biodiversity but be  
688 grounded in culturally or emotionally specific visions of nature and which species to protect,  
689 even among conservation professionals. More importantly, while Sandbrook et al. (2011)  
690 identified how conservation professionals assign *different values* to nature, this study adds  
691 to this by showing that even when conservation professionals *do assign value to nature in a*  
692 *convergent manner*, underlying different viewpoints on conservation may still be present.  
693 Also, our study illustrates how multiple values may be embedded in conservation laws, and  
694 how these laws, together with the 'rights of nature' concept, give rise to multiple co-existing  
695 framings of nature. All of this suggests how multiple values of nature have shaped, and may  
696 continue to shape, future conservation decision-making and management in complex ways  
697 that are not easily understood. Therefore, investigators of the ways people value nature will  
698 need to allow for divergent underlying understandings of what nature means for individual

699 actors to emerge. Otherwise, this creates the risk of rendering invisible the variety of  
700 particular objectives pursued under conservation's banner. This in turn may thwart mutual  
701 understanding, hamper cooperation between conservation stakeholders, frustrate the  
702 potential of plural valuation of nature and hence, lead to less effective conservation.

703 While the outcomes of this study are found in a New Zealand context, the intention is also to  
704 stimulate thinking about, and research into, the role of plural valuation within conservation  
705 in general. It is therefore hoped this study may prompt debate on whether, how and when  
706 this notion could live up to its reputed potential to achieve more socially and ecologically  
707 effective biodiversity conservation, not only in New Zealand, but also elsewhere.

## 708 References

- 709 Anderson, C.B., Athayde, S., Raymond, C.M., Vatn, A., Arias, P., Gould, R.K., Kenter, J., ... &  
710 Cantú-Fernández, M. (2022). *Chapter 2: Conceptualizing the diverse values of nature and*  
711 *their contributions to people*. In: Methodological Assessment Report on the Diverse Values  
712 and Valuation of Nature of the Intergovernmental Science-Policy Platform on Biodiversity  
713 and Ecosystem Services. Balvanera, P., Pascual, U., Christie, M., Baptiste, B., and González-  
714 Jiménez, D. (eds). IPBES secretariat, Bonn, Germany.  
715 <https://doi.org/10.5281/zenodo.6493134>
- 716 Arias-Arévalo, P., Gómez-Baggethun, E., Martín-López, B., & Pérez-Rincón, M. (2018).  
717 Widening the evaluative space for ecosystem services: a taxonomy of plural values and  
718 valuation methods. *Environmental Values*, **27**(1), 29-53.
- 719 Atkinson, I. A., & Cameron, E. K. (1993). Human influence on the terrestrial biota and biotic  
720 communities of New Zealand. *Trends in Ecology & Evolution*, **8**(12), 447-451.
- 721 Bataille, C. Y., Luke, K., Kruger, T., Malinen, S., Allen, R. B., Whitehead, A. L., & Po'b, L. (2020).  
722 Stakeholder Values Inform Indigenous Peoples' Governance and Management of a Former  
723 National Park in New Zealand. *Human Ecology*, **48**(4), 439–453.
- 724 Batavia, C., & Nelson, M. P. (2017). For goodness sake! What is intrinsic value and why  
725 should we care? *Biological Conservation*, **209**, 366-376.
- 726 Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative*  
727 *research journal*, **9**(2), 27-40.
- 728 Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in*  
729 *psychology*, **3**(2), 77-101.
- 730 Capaldi, C. A., Dopko, R. L., & Zelenski, J. M. (2014). The relationship between nature  
731 connectedness and happiness: a meta-analysis. *Frontiers in psychology*, **5**, 976.
- 732 Cervinka, R., Röderer, K., & Hefler, E. (2012). Are nature lovers happy? On various indicators  
733 of well-being and connectedness with nature. *Journal of health psychology*, **17**(3), 379-388.
- 734 Chan, K. M., Balvanera, P., Benessaiah, K., Chapman, M., Díaz, S., Gómez-Baggethun, E., ... &  
735 Turner, N. (2016). Opinion: Why protect nature? Rethinking values and the  
736 environment. *Proceedings of the national academy of sciences*, **113**(6), 1462-1465.
- 737 Conservation Act 1987. Retrieved on November 6, 2021 from  
738 <https://www.legislation.govt.nz/act/public/1987/0065/latest/DLM104215.html>

739 Deplazes-Zemp, A., & Chapman, M. (2021). The ABCs of relational values: Environmental  
740 values that include aspects of both intrinsic and instrumental valuing. *Environmental*  
741 *Values*, 30(6), 669-693.

742 Díaz, S., Pascual, U., Stenseke, M., Martín-López, B., Watson, R. T., Molnár, Z., ... &  
743 Shirayama, Y. (2018). Assessing nature's contributions to people. *Science*, 359(6373), 270-  
744 272.

745 Dinica, V. (2016). Protected areas: how will they contribute to third millennium  
746 challenges?. *Policy Quarterly*, 12(1).

747 Elliott, G. P., Merton, D. V., & Jansen, P. W. (2001). Intensive management of a critically  
748 endangered species: the kakapo. *Biological Conservation*, 99(1), 121-133.

749 Forest and Bird (2018). *About Forest and Bird*. Retrieved on November 28, 2021 from  
750 <https://www.forestandbird.org.nz/about-us>

751 Ghijssels, D. (2023). Relational values of nature: outgrowing anthropocentrism by  
752 enriching human-nature relationships?. *Journal for Nature Conservation*, 73, 126386.

753 Gunn, A. S., & McCallig, C. (1997). Environmental values and environmental law in New  
754 Zealand. *Ethics and the Environment*, 103-120.

755 Harmáčková, Z. V., Blättler, L., Aguiar, A. P. D., Daněk, J., Krpec, P., & Vačkářová, D. (2022).  
756 Linking multiple values of nature with future impacts: value-based participatory scenario  
757 development for sustainable landscape governance. *Sustainability Science*, 17(3), 849-864.

758 Himes, A., & Muraca, B. (2018). Relational values: the key to pluralistic valuation of  
759 ecosystem services. *Current opinion in environmental sustainability*, 35, 1-7.

760 Holland, P. (2000). Cultural landscapes as biogeographical experiments: a New Zealand  
761 perspective. *Journal of Biogeography*, 27(1), 39-43.

762 IPBES. (2013). *Decision IPBES-2/4: Conceptual framework for the Intergovernmental Science-*  
763 *Policy Platform on Biodiversity and Ecosystem Services*. Bonn: Intergovernmental Science-  
764 Policy Platform for Biodiversity and Ecosystem Services.  
765 [https://ipbes.net/sites/default/files/downloads/Decision%20IPBES\\_2\\_4.pdf](https://ipbes.net/sites/default/files/downloads/Decision%20IPBES_2_4.pdf) (accessed 2 June  
766 2023).

767 IPBES. (2016). *Preliminary guide regarding diverse conceptualisation of multiple values of*  
768 *nature and its benefits, including biodiversity and ecosystem functions and services*.  
769 [https://www.ipbes.net/sites/default/files/downloads/IPBES-4-INF-13\\_EN.pdf](https://www.ipbes.net/sites/default/files/downloads/IPBES-4-INF-13_EN.pdf) (accessed 20  
770 June, 2023)

771 IPBES. (2022). *Summary for policymakers of the methodological assessment of the diverse*  
772 *values and valuation of nature of the Intergovernmental Science-Policy Platform on*  
773 *Biodiversity and Ecosystem Services (IPBES)*. Retrieved on July 21, 2022 from  
774 <https://zenodo.org/record/6832427#.YtpGsnbP23A>

775 Jacobs, S., Zafra-Calvo, N., Gonzalez-Jimenez, D., Guibrunet, L., Benessaiah, K., Berghöfer, A.,  
776 ... & Balvanera, P. (2020). Use your power for good: plural valuation of nature—the Oaxaca  
777 statement. *Global Sustainability*, 3.

778 Jimenez, M. P., DeVille, N. V., Elliott, E. G., Schiff, J. E., Wilt, G. E., Hart, J. E., & James, P.  
779 (2021). Associations between nature exposure and health: A review of the evidence.  
780 *International Journal of Environmental Research and Public Health*, 18(9), 4790

781 Jones, C. (2016). *New treaty, new tradition: reconciling New Zealand and Māori law*. UBC  
782 Press.

783 Kadykalo, A. N., M.D. López-Rodríguez, J. Ainscough, N. Droste, H. Ryu, G. Ávila-Flores, ... &  
784 Z.V. Harmáčková (2019). Disentangling 'ecosystem services' and 'nature's contributions to  
785 people'. *Ecosystems and People*, 15(1), 269-287.

786 Kenter, J. O., & O'Connor, S. (2022). The Life Framework of Values and living as nature;  
787 towards a full recognition of holistic and relational ontologies. *Sustainability Science*, 17(6),  
788 2529-2542.

789 Knippenberg, L., De Groot, W. T., Van Den Born, R. J., Knights, P., & Muraca, B. (2018).  
790 Relational value, partnership, eudaimonia: a review. *Current opinion in environmental  
791 sustainability*, 35, 39-45.

792 Kopnina, H., Washington, H., Taylor, B., & Piccolo, J. J. (2018). Anthropocentrism: More than  
793 just a misunderstood problem. *Journal of Agricultural and Environmental Ethics*, 31(1), 109-  
794 127.

795 Kopnina, H., & Washington, H. (2020). Ethical Approaches to Conservation.  
796 In *Conservation* (pp. 17-31). Springer, Cham.

797 Laastad, S. G. (2020). Nature as a subject of rights? National discourses on Ecuador's  
798 constitutional rights of nature. In *Forum for Development Studies* (Vol. 47, No. 3, pp. 401-  
799 425). Routledge.

800 Lyver, P. O. B., Richardson, S. J., Gormley, A. M., Timoti, P., Jones, C. J., & Tahī, B. L. (2019).  
801 Complementarity of indigenous and western scientific approaches for monitoring forest  
802 state. *Ecological Applications*, 28(7), 1909-1923.

803 Mace, G. M. (2014). Whose conservation? *Science*, 345(6204), 1558-1560.

804 McNeely, J. A. (2020). Today's protected areas: supporting a more sustainable future for  
805 humanity. *Integrative zoology*, 15(6), 603-616.

806 Millennium Ecosystem Assessment. (2005). *"Ecosystems and Human Well-being. Synthesis"*.  
807 Island Press.

808 Ministry for the Environment. (2019). *He Kura Koiora i hokia: A discussion document on a  
809 proposed National Policy Statement for Indigenous Biodiversity*. Retrieved on December 13,  
810 2021 from [https://environment.govt.nz/assets/Publications/Files/he-kura-koiora-i-hokia-  
811 discussion-document.pdf](https://environment.govt.nz/assets/Publications/Files/he-kura-koiora-i-hokia-discussion-document.pdf)

812 Molloy, L. (1997). *Wilderness in New Zealand: A policy searching for someone to implement  
813 it*. Retrieved on August 5, 2022 from  
814 <https://www.doc.govt.nz/globalassets/documents/science-and-technical/wildernessa.pdf>

815 Muradian, R., & Gómez-Baggethun, E. (2021). Beyond ecosystem services and nature's  
816 contributions: Is it time to leave utilitarian environmentalism behind?. *Ecological  
817 Economics*, 185, 107038.



818 National Parks Act 1980. Retrieved on July 13, 2021 from  
819 [https://www.legislation.govt.nz/act/public/1980/0066/latest/DLM36963.html?search=ts\\_ac](https://www.legislation.govt.nz/act/public/1980/0066/latest/DLM36963.html?search=ts_ac)  
820 [t%40bill%40regulation%40deemedreg\\_National+Parks+Act+1980\\_resel\\_25\\_a&p=1](https://www.legislation.govt.nz/act/public/1980/0066/latest/DLM36963.html?search=ts_ac&resel=25_a&p=1)

821 Neuteleers, S. (2020). A fresh look at 'relational' values in nature: Distinctions derived from  
822 the debate on meaningfulness in life. *Environmental Values*, **29**(4), 461-479.

823 Niigaaniin, M., & MacNeill, T. (2022). Indigenous culture and nature relatedness: Results  
824 from a collaborative study. *Environmental Development*, **44**, Article 100753.

825 O'Neill, J. (1992). The varieties of intrinsic value. *The Monist*, **75**(2), 119-137.

826 Pascual, U., Balvanera, P., Díaz, S., Pataki, G., Roth, E., Stenseke, M., ... & Yagi, N. (2017).  
827 Valuing nature's contributions to people: the IPBES approach. Current Opinion in  
828 *Environmental Sustainability*, **26**, 7-16.  
829 <https://www.pce.parliament.nz/media/1294/evaluating-the-use-of-1080.pdf> (accessed 2  
830 September 2022)

831 Pascual, U., Adams, W. M., Díaz, S., Lele, S., Mace, G. M., & Turnhout, E. (2021). Biodiversity  
832 and the challenge of pluralism. *Nature Sustainability*, 1-6.

833 Peretti, J. H. (1998). Nativism and nature: rethinking biological invasion. *Environmental*  
834 *values*, 183-192.

835 Piccolo, J. J. (2017). Intrinsic values in nature: Objective good or simply half of an unhelpful  
836 dichotomy?. *Journal for Nature Conservation*, **37**, 8-11.

837 Piccolo, J. J., Taylor, B., Washington, H., Kopnina, H., Gray, J., Alberro, H., & Orlikowska, E.  
838 (2022). "Nature's contributions to people" and peoples' moral obligations to  
839 nature. *Biological Conservation*, **270**, 109572.

840 Putney, A.D. (2003). Introduction. In D. Harmon & A.D. Putney, (Eds.), *The Full Value of*  
841 *Parks. From Economics to the Intangible* (pp.3-11). Rowman & Littlefield Publishers, Inc.

842 Reserves Act 1977. Retrieved on July 13, 2021 from  
843 <https://www.legislation.govt.nz/act/public/1977/0066/latest/DLM444305.html>

844 Resource Management Act 1991. Retrieved on October 28, 2021 from  
845 <https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html>

846 Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (Eds.). (2014). *Qualitative research*  
847 *practice: A guide for social science students and researchers*. Sage.

848 Roberts, L., Brower, A. L., Kerr, G. N., Lambert, S. J., McWilliam, W. J., Moore, K., ... &  
849 Wratten, S. D. (2015). *The nature of wellbeing: how nature's ecosystem services contribute to*  
850 *the wellbeing of New Zealand and New Zealanders*. Department of Conservation. Retrieved  
851 on September 2, 2021 from  
852 [https://www.researchgate.net/publication/274713827\\_The\\_nature\\_of\\_wellbeing\\_How\\_nat](https://www.researchgate.net/publication/274713827_The_nature_of_wellbeing_How_nature%27s_ecosystem_services_contribute_to_the_wellbeing_of_New_Zealand_and_New_Zealanders)  
853 [ure%27s ecosystem services contribute to the wellbeing of New Zealand and New Ze](https://www.researchgate.net/publication/274713827_The_nature_of_wellbeing_How_nature%27s_ecosystem_services_contribute_to_the_wellbeing_of_New_Zealand_and_New_Zealanders)  
854 [alanders](https://www.researchgate.net/publication/274713827_The_nature_of_wellbeing_How_nature%27s_ecosystem_services_contribute_to_the_wellbeing_of_New_Zealand_and_New_Zealanders)

855 Rolston III, H. O. L. M. E. S. (2002). Naturalizing Callicott. *Land, value, community: Callicott*  
856 *and environmental philosophy*, 107-122.

857 Rose, D. C., Brotherton, P. N., Owens, S., & Pryke, T. (2018). Honest advocacy for nature:  
858 presenting a persuasive narrative for conservation. *Biodiversity and conservation*, 27, 1703-  
859 1723.

860 Russell, J. C., Innes, J. G., Brown, P. H., & Byrom, A. E. (2015). Predator-free New Zealand:  
861 conservation country. *BioScience*, 65(5), 520-525.

862 Sandbrook, C., Scales, I. R., Vira, B., & Adams, W. M. (2011). Value plurality among  
863 conservation professionals. *Conservation biology*, 25(2), 285-294.

864 Shanahan, D. F., Bush, R., Gaston, K. J., Lin, B. B., Dean, J., Barber, E., & Fuller, R. A. (2016).  
865 Health benefits from nature experiences depend on dose. *Scientific reports*, 6(1), 1-10.

866 Shultis, J. (2003). Recreational Values of Protected Areas. In D. Harmon & A.D. Putney, (Eds.),  
867 *The Full Value of Parks. From Economics to the Intangible* (pp. 59-75). Rowman & Littlefield  
868 Publishers, Inc.

869 Te Urewera Act 2014. Retrieved on April 1, 2022 from  
870 <https://www.legislation.govt.nz/act/public/2014/0051/latest/whole.html>

871 Tribot, A. S., Deter, J., & Mouquet, N. (2018). Integrating the aesthetic value of landscapes  
872 and biological diversity. *Proceedings of the Royal Society B: Biological Sciences*, 285(1886),  
873 20180971.

874 Wallach, A. D., Batavia, C., Bekoff, M., Alexander, S., Baker, L., Ben-Ami, D., ... & Ramp, D.  
875 (2020). Recognizing animal personhood in compassionate conservation. *Conservation*  
876 *Biology*, 34(5), 1097-1106.

877 Washington, H., Taylor, B., Kopnina, H. N., Cryer, P., & Piccolo, J. J. (2017). Why ecocentrism  
878 is the key pathway to sustainability. *Ecological Citizen*, 1(1), 35-41.

879 Washington, H. (2019). *A Sense of Wonder Towards Nature. Healing the Planet through*  
880 *Belonging*. Routledge.

881 Willis, G. (2017). *Biodiversity and the role of Regional Councils Stage 2 of a thinkpiece on the*  
882 *future of biodiversity management in New Zealand*. Retrieved on October 4, 2021 from  
883 [https://cdn.boprc.govt.nz/media/670492/gerard-willis-2017-08-frodo-1890305-v1-](https://cdn.boprc.govt.nz/media/670492/gerard-willis-2017-08-frodo-1890305-v1-biodiversity_and_the_role_of_regional_councils_2017.pdf)  
884 [biodiversity\\_and\\_the\\_role\\_of\\_regional\\_councils\\_2017.pdf](https://cdn.boprc.govt.nz/media/670492/gerard-willis-2017-08-frodo-1890305-v1-biodiversity_and_the_role_of_regional_councils_2017.pdf)

885 Willis, G. B., & Artino Jr, A. R. (2013). What do our respondents think we're asking? Using  
886 cognitive interviewing to improve medical education surveys. *Journal of graduate medical*  
887 *education*, 5(3), 353-356.

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889

890

891

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894