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Embracing diverse worldviews to share planet Earth

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Abstract:

Leading societies toward a more sustainable, equitably shared, and environmentally just future requires elevating and strengthening conversations on the non-material and perhaps unquantifiable values of non-human nature to humanity. Many of the sustainability solutions proposed by scientists and decision-makers are based on a human-centered perspective that put at risk non-utilitarian aspects of ecosystems and species. Our essay explores the wide global diversity of perspectives on the human-nature relationship and argues that our best chance for effective conservation is to take a pluralistic approach that engages seriously with the worldviews of all stakeholders. We also highlight how many worldviews—particularly those in many indigenous cultures—place a higher value on the spiritual and non-material aspects than what is often represented by the discourse surrounding Western conservation policy. We discuss how alternative framings of human-nature relationships that recognize nature’s intrinsic value can be powerful motivators for social change and for local-scale conservation efforts. At a national and international level, changing ethical framings of our relationship with nature have already started influencing our conceptions of human rights relating to the environment and of the rights of nature itself; this has led to an increased role of the judiciary in promoting environmental sustainability and in promoting justice for those groups who are most often affected by environmental harms. It is our hope that this essay will motivate the scientific community to change its own perception of what a sound and sustainable relationship between humanity and other species should be and will help citizens become active environmental subjects, connected to the ecosystems around them.

1 **Embracing diverse worldviews to share planet Earth**

2 **Abstract**

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21 help citizens become active environmental subjects, connected to the ecosystems around them.

22 1. Introduction

23 As the 21st century progresses, humanity faces an increasingly crowded, hotter, and more degraded
24 planet, creating an urgent need to reevaluate our relationship with the natural world. Despite
25 decades of international multidisciplinary scholarship, global biodiversity and climate
26 conventions, and concerted efforts by policymakers, human impact on the Earth's natural systems
27 has become unsustainable across a wide range of metrics (Steffen et al. 2015). We contend that to
28 preserve the species and ecosystems that humanity has interacted with and depended on for
29 millennia, scientists, government officials, decision makers, and society at large must all deepen
30 and expand their understanding of diverse ways human societies relate to and interact with non-
31 human nature.

32 Conservation is a global endeavor and is by definition a multicultural project. The international
33 conservation discourse has often been dominated by a set of worldviews that originated in Western
34 societies; this has in many cases been an obstacle to its success. The worldviews and ethical
35 constructs that scientists and society bring to problems of environmental sustainability determine
36 how situations are perceived, how problems are framed (Figure 1), and what solutions are preferred
37 or simply considered. The worldviews that presently dominate the international discourse on
38 sustainability—in particular ecosystem services and related frameworks—have emerged out of a
39 materialistic worldview that has taken a primarily anthropocentric perspective (Descola 2013).
40 These perspectives lead humans to undervalue nature, in particular the multitude of non-material
41 dimensions of the human-nature relationship, which can in turn influence the practice of ecosystem
42 management and restoration (Machaqueiro & Grinker 2019).

43 Our essay argues that effective conservation requires practitioners to study more deeply the diverse
44 ways that societies conceive the human-nature relationship and to put these conceptions and
45 perspectives on an equal footing to those that have historically dominated the conservation
46 discourse (Brondizio et al. 2016). An additional benefit of studying diverse alternative worldviews
47 is that it will likely improve our understanding of what constitutes a good life and will provide
48 new and alternative approaches to addressing environmental problems. The rest of our essay is
49 organized as follows. We first discuss the necessity of viewing conservation as multicultural
50 project and the significance of cultural difference in conservation. We next discuss the importance
51 of non-material values across cultures which creates an inherent weakness for conservation
52 approaches based on ecosystems services. We conclude with an agenda for the future that
53 highlights the recent global emergence of the judiciary as a powerful means to obtain more rapid
54 and effective conservation actions.

55 2. Motivating conservation on a multicultural planet

56 While global efforts to conserve species and ecosystems have not kept up with the pace and scale
57 of global environmental change (WWF 2018), successful conservation actions have occurred and
58 continue to occur across the globe. The success of those efforts is often determined by the degree
59 to which they align with local cultural conventions and worldviews; techniques that work in one
60 locale may find limited success elsewhere.

61 To take one particularly prominent example, the nature as service provider framework—including
62 the concept of ecosystem services (ES) and associated programs such as payments for ecosystem
63 services (PES)—has been successful in driving conservation efforts in many locales, for example,
64 wolf conservation in the Northwest of the United States and in Finland where compensation

65 payments to ranchers have been a central part of conservation efforts (Muhly & Musiani 2009;
66 Hiedanpää et al. 2016). Another example comes from Switzerland, where the Landscape Quality
67 Contribution program (Contribution à la qualité du paysage), which provides payments to promote
68 aspects of landscape quality such as increased biodiversity and reduced erosion, expanded in the
69 three years following its 2014 launch to the point where it was working with three quarters of
70 farmers in the country (OFAG 2017). However, in many contexts these efforts have fallen short
71 of expectations. This may partly be due to a phenomenon called motivation crowding: financial
72 incentives may crowd out pre-existing motivations for pro-environmental behavior because they
73 can promote a shift in the way people relate to their environment (Frey & Jegen 2001). In addition
74 to motivation crowding, a broader obstacle facing PES schemes in some areas is that the idea of
75 nature as commodity implied by PES can itself be at odds with the worldviews of some
76 stakeholders whose support these programs need to succeed (Winthrop 2014).

77 On what could be considered the opposite end of the spectrum from the valuation and
78 compensation approach taken by PES programs, globally there are growing efforts where
79 nonmaterial aspects of nature as well as spiritual beliefs regarding nature take center stage in
80 motivating conservation efforts. For example, La Via Campesina, an international farmers'
81 organization created in 1993 supporting peasant empowerment and promoting sustainable
82 alternatives to large-scale agriculture, shows that alternative movements can be motivated in part
83 by a non-materialistic perspective on human well-being that is based on community integrity and
84 on respect for human and natural balance (Kohler & Negrão 2018; Caraway 2018). More broadly,
85 small farmers and indigenous movements have worked to restore traditional knowledge, improve
86 gender equality, promote virtuous environmental practices through agroecology, and enable

87 peasant empowerment (Perfecto et al. 2010; Altieri & Toledo 2011). In all of these cases,
88 underlying motivation has no connection to financial incentives.

89 Sacred sites—present on every inhabited continent—are frequently a powerful motivator of
90 conservation (Dudley et al. 2009) and illustrate the diverse and important role that local belief
91 systems can play in driving nature conservation. Sacred sites have motivated conservation efforts
92 in areas as ecologically and politically diverse as tropical forests in southwestern China (Xu et al.
93 2005), broadleaved and dry forests in several Indian states (Chandrashekara & Sankar 1998;
94 Bhagwat & Rutte 2006), montane systems in the Ecuadorian (Carter & Sarmiento 2011) and
95 Chilean (Herrmann 2006) Andes, riverine ecosystems in Siberia (Klubnikin et al. 2000), boreal
96 forest in Canada's western arctic (Gill et al. 2014), and the high desert of the western United States
97 (Stoffle et al. 2017). Sacred natural sites are often community focal points with specific ecosystem
98 features having particular significance, for example in spiritual ceremonies (Jeeva et al. 2006;
99 Ormsby & Ismail 2015). The psychological and spiritual well-being of individuals and
100 communities is often linked to knowledge of the existence and integrity of sacred sites, meaning
101 that the degradation of these sites can represent an important spiritual loss to individuals (Russell
102 et al. 2013). Sacred sites can in some cases be so inextricably linked to cultural identity itself that
103 the loss of a site can result in a significant change to a society's identity (Garibaldi & Turner 2004;
104 Vitebsky 2015).

105 Even in the absence of traditional sacred sites, or in cultures where such sites do not exist, a sense
106 of connection to place can nonetheless be an important motivator for conservation (Windsor &
107 McVey 2005). This can be seen in the motivation of support for national parks (Weiler & Moore
108 2013), or in the manner that an appeal to cultural tradition has been effective at motivating
109 conservation of working landscapes in countries across Europe (Fischer et al. 2012).

110 These examples emphasize that effective conservation actions require the support of diverse
111 stakeholders who invariably perceive the world differently and have different sets of motivations.
112 The path to success lies in finding strategies that work for the worldviews and motivations of the
113 different stakeholders involved in any given project or location—not all strategies work in all
114 contexts. Improving our understanding of the diverse ways that people globally conceive of the
115 human-nature relationship, and in parallel, according those different conceptions the same respect
116 that we give our own, is an essential step to successful conservation.

117 3. Seeing the human-nature relationship differently

118 The diverse approaches to conservation described above succeeded in part because they were well-
119 aligned with the worldviews of the stakeholders whose buy-in and support mattered. While the
120 number of potential perspectives on the human-nature relationship is limitless, there are
121 nonetheless some common themes of difference that can be seen when we study the human
122 worldviews. In particular, the degree to which nature and humans are seen as separate as well as
123 the degree to which nature is considered to have intrinsic value as opposed to value that derives
124 from its utility to humans.

125 Considering intrinsic value means according a value to other species or ecosystem components
126 that is separate from the question of whether or not any human is benefited by their existence
127 (Davidson 2013). Considering intrinsic value means that non-human species are seen as ends in
128 themselves and not simply as means to benefit human well-being; it suggests that other species
129 have a right to exist that is independent of any consideration by humans (Taylor 1986; Rolston
130 1989; Batavia & Nelson 2017). The question of intrinsic value has figured prominently in critiques
131 of conservation approaches that assign a monetary value to ecosystem services (Kumar & Kumar

132 2008; Wegner & Pascual 2011). Although the effort to value ecosystem services is primarily a tool
133 for analyzing trade-offs and do not necessarily preclude a consideration of intrinsic value
134 (Costanza et al. 2017), it is nevertheless important to remain conscious of the degree to which the
135 framing of an approach—and the degree to which that framing is consistent with the worldviews of
136 stakeholders—matters when it comes to project success.

137 Findings from the environmental social sciences illustrate several areas where an economic
138 valuation of ecosystems can conflict with the worldviews of relevant stakeholders; in particular,
139 (i) in many cultures, the concepts of “nature as service provider”, “ownership of nature”, and
140 simply “nature” as an entity that is separate from humanity are foreign and objectionable; (ii) many
141 aspects of the human connection with nature are unquantifiable and are not amenable to trade-offs
142 with any kind of material benefit; (iii) many environmental practices are highly social in nature,
143 rendering inadequate the notion of an economic exchange among individuals as a basis for
144 evaluating those practices; and finally, (iv) many cultures and individuals consider nature to have
145 intrinsic value apart from any utilitarian value (Winthrop 2014).

146 Many Indigenous and local peoples’ concepts of human-nature relationships are based on a sense
147 of spiritual, non-materialistic connection. These cosmologies and spiritualities of Indigenous
148 peoples and other groups are anchored in specific territorial contexts and offer alternative
149 worldviews and frameworks for guiding relationships between humans and the rest of nature
150 (Kealiikanakaoleohaililani & Giardina 2016; Descola 2013). In many indigenous cultures, human
151 societies and the environment are perceived not as separate, but rather as involved in a unique
152 relationship (Berkes 2012) that embraces both spiritual and symbolic values (Caillon et al. 2017).
153 Generally, worldviews based on indigenous experience have more completely internalized the idea
154 that humans are living organisms among many others and that we depend on the rest of nature for

155 our own survival (Saxena et al. 2018). These worldviews have helped many indigenous and local
156 people to sustainably manage their environment for decades or centuries (Johnson et al. 2016).

157 Among worldviews that provide a model for the human-nature relationship, animism deserves
158 special attention. The first understanding and description of animism was basically that of a
159 religion attributing a soul to both animate and inanimate objects. The definition has since evolved
160 to embrace the so-called “shamanic complex”, a worldview mainly found in Siberia, North-Eastern
161 America, South America, and among several aboriginal peoples of South-Eastern Asia (Descola
162 2013). Animism has been considered the antithesis of Naturalism, the Western worldview that
163 considers humans (Culture) separate from Nature—the rest of the living beings. Animist
164 spiritualities are based on the idea that “humanity” does not characterize or constitute a species
165 (ours), but rather is a condition of existence shared among all living beings. In contrast to
166 Naturalism and the associated Nature-Culture dichotomy, animism is based on the idea that all
167 living beings share the same culture, while their bodies differ according to their ecological
168 behavior (Viveiros de Castro 2015). In animist worldviews, living beings—humans and all others—
169 engage with each other in social relationships that include exchange, reciprocity, predation, and
170 even sexual relations. special rights to humans above other beings (Descola 2013).

171 Spiritual or emotional bonding with nature is not unique to animist cultures. The importance of
172 place and sense of place in maintaining human well-being in both indigenous and non-indigenous
173 cultures is documented in a rich and diverse literature (Windsor & McVey 2005 and references
174 therein). Whether it be termed “place attachment,” “settlement identity,” “homelands,” or
175 “landscape of home,” a sense of place provides individuals and groups with a sense of belonging,
176 of security, and of control (Windsor & McVey 2005). These perspectives are not immutable but
177 can in fact be promoted: time spent interacting with nature leads many individuals to report a sense

178 of belonging and spiritual fulfilment, or a sense of the presence of something greater (Vorkinn &
179 Riese 2001). This spiritual connection—which has been shown to be relatively independent of an
180 individual’s belief system—can result in emotional or spiritual harm being experienced by
181 individuals in response to degradation of natural areas (Cunsolo Willox et al. 2012). On the
182 positive side, these connections can lead to individuals taking greater responsibility for the
183 conservation and integrity of natural places (Heintzman 2003, 2012).

184 4. An agenda for culturally-responsive conservation

185 To be effective, conservation policies and programs need to take a pluralistic approach and
186 recognize cultural differences in what motivates people in their relationship with nature.
187 Conservation that takes seriously all worldviews and all perspectives on the human-nature
188 relationship is strategic, practical, and ethical. It is strategic because it will improve program buy-
189 in; practical because it increases the likelihood that practitioners will identify locally-appropriate
190 approaches; and ethical because it commits to the inclusion of views that too frequently are
191 marginalized. Conservation programs and policies will see greater success if they invest in
192 understanding local worldviews and if they give a place at the table to stakeholders with diverse
193 worldviews. In recent decades, conceptions of nature as service provider have perhaps taken an
194 oversized role as the guiding worldview in policy discussions around conservation, particularly at
195 the international level. Recently, the concept of nature’s contributions to people (NCP) has
196 provided an alternative to ecosystem services (ES) that provides an avenue where cultural
197 differences are considered in the valuation of what nature provides to humanity (Diaz et al. 2018);
198 however, NCP nonetheless retains the ES focus on benefits to humans. A more holistic approach
199 to conservation—that we argue would be a more effective approach—would in particular provide

200 more space for worldviews that recognize the intrinsic value or the inherent rights of nature. A
201 recognition of the rights of nature would be particularly impactful in its influence on national and
202 international jurisprudence.

203 The recently-completed IPBES Land Degradation and Restoration Assessment (IPBES 2018)
204 contends that the scientific community, government officials, decision-makers, and civil society
205 need to move beyond a narrative of nature as a commodity in order to better understand how
206 individuals and societies conceive their relationship with nature and how those relationships with
207 nature affect human well-being in both material and nonmaterial ways. A richer engagement with
208 diverse worldviews and perspectives on human-nature connection can guide the development of
209 policy and management options that more effectively avoid and reverse environmental
210 degradation. We also believe that there is an urgent need to reconnect citizens with Nature.
211 Alternative but potentially universal concepts of human-nature relationships have already begun
212 to diffuse into societies in a variety of ways. At a global level, the concept of “environmentality”
213 (Agrawal 2005) acknowledges the rise of “environmental subjects”: people who no longer accept
214 remaining passive while the global environment is threatened (Fletcher 2010). At the national
215 level, other alternative concepts can be found in the Constitution of Ecuador (2008) and in Bolivia
216 (Law No. 071, of Mother Earth Rights, and Law No. 300, the Framework Law of Mother Earth
217 and Integral Development for Living Well) which have integrated the concept of “Buen vivir” or
218 “Vivir bien” in order to recognize that individuals depend on nature. These concepts regard land
219 as a living territory with multiple dimensions—both material and immaterial—and define human
220 societal well-being not only in terms of work and material consumption, but instead in terms of
221 social connection, community ties, and harmony with nature (Acosta 2008; Walsh 2010).

222 Movements such as La Via Campesina and new legal frameworks such as those in Ecuador and
223 Bolivia show that it is possible to shift from a worldview where land is perceived as a commodity
224 to another where social organization is based on an ethic of natural balance as a condition for living
225 a good life. A growing number of global consumers are knowledgeable and supportive of efforts
226 to realign our relationship with the natural world and alter their consumption patterns accordingly.
227 However, even with radical changes to consumption patterns, citizens acting individually will not
228 be sufficient to shift human society to a more sustainable relationship with nature. In many
229 countries, the judiciary is playing an increasingly important role as a tool for citizens to influence
230 policy and decision-makers (Banda & Fulton 2017). A recent report by the United Nations
231 Environment Program documented nearly 900 legal cases initiated worldwide that raise issues of
232 law or fact relating to climate change; to date, the majority of these have related to claims of
233 insufficient government efforts in reducing greenhouse gas emissions (UNEP 2017). Among the
234 most prominent of these is the *Juliana vs. United States* suit, the complainants of which are 21
235 children and teenagers supported by the NGO Our Children's Trust. The *Juliana* complaint asserts
236 that because of its lack of sufficient action to mitigate emissions, the US Government has violated
237 the complainants' constitutional rights to life, liberty, and property and has also violated the federal
238 public trust doctrine (Blumm & Wood 2017).

239 Litigation related to climate change and to other aspects of the environment has often sought to
240 broaden our conceptions of what rights humans have. For example, in many countries, courts are
241 becoming more receptive to the idea that citizens have a right to a stable climate system and to
242 safety from harm resulting from climate change and that citizens may seek legal redress if those
243 rights are violated (Peel & Osofsky 2018). As an example, the circuit court judge in the *Juliana*
244 *vs. USA* suit wrote in a decision that "the right to a climate system capable of sustaining human

245 life is fundamental to a free and ordered society” (Juliana v. United States, sec III-A). Additionally,
246 climate litigation has in some cases sought to broaden our conceptions of who—among humans—
247 can claim these rights. Future generations, and the duty of care that the present generation owes
248 them, are increasingly referenced in litigation such as *Juliana* (Blumm & Wood 2017). A
249 particularly important development in the legal standing of future generations came in the case of
250 *Rabab Ali v. Pakistan* when the Pakistani Supreme Court allowed a climate change lawsuit to
251 proceed that specifically identified future generations as a claimant (Banda & Fulton 2017). Courts
252 have long played a role in ensuring protection for marginalized groups, and this has consistently
253 been the case when it comes to environmental justice; there are abundant examples of individuals
254 and groups successfully using the courts to protect indigenous rights to lands, to limit industrial
255 pollution, and to reduce other environmental harms (Osofsky 2005).

256 As much as these lawsuits are ground-breaking in many ways, they nonetheless remain grounded
257 in a worldview where the only rights being considered are those of humans—even if the humans
258 being considered are individuals who are yet to be born. The risk of reliance on such an
259 anthropocentric vision of humanity's relationship with the natural world is that it is not sufficiently
260 balanced by moral or ethical principles that would provide an alternate means of respect and
261 protection for non-human components of nature, including individual animals (Braverman 2018).

262 As Claude Lévi-Strauss puts it: “If man possesses rights as a living being, then it follows
263 immediately that these recognized rights of humanity as a species will encounter their natural
264 limits in the rights of other species. Thus, the rights of mankind stop whenever and wherever their
265 exercise imperils the existence of other species” (Lévi-Strauss 1985: 282). Lévi-Strauss advocated
266 for a “well-conceived humanism” that would leave space on the planet to other species.
267 Considering the interests of non-humans and allowing them to evolve and adapt would be an

268 important step in a more inclusive human ethic and a first step to acknowledging nature's intrinsic
269 value (Burdon 2011). From these new principles could derive new laws framing a new
270 conservation ethic and legal framing for a renewed ecological governance (Wooley 2014;
271 Kauffman & Martin 2018).

272 Indeed, there are examples where the rights of non-human species and of nature generally have
273 already been codified in law. This includes the adoption by the New Zealand Parliament of an Act
274 by which Te Urewera National Park became not simply a park but also a legal entity with "all the
275 rights, powers, duties, and liabilities of a legal person (Ruru 2014); the Colombian Supreme Court
276 of Justice instructing the Government to take action to halt and reverse the degradation of the
277 Amazon forest because of the intrinsic right of the forest to exist (García Pachón 2018). These
278 laws codify the idea that the environment should be defended for its own sake and that have
279 acknowledged both the spiritual and intrinsic values of nature (Knauß 2018). In some cases, the
280 shift to these laws that enshrine the rights of nature have been supported by conceptions of the
281 rights of nature that are products of or influenced by non-western cosmologies (Kauffman &
282 Martin 2018).

283 "Ecological solidarity," an emerging concept in France, could provide a broad-reaching legal
284 framework for the recognition of the inherent value of nature as well as the recognition of the
285 ethical duties that humans have towards nature and towards future generations. As a legal
286 principle, ecological solidarity relies on the existence of moral relationships between humans and
287 non-humans. This kind of coupling is very similar to the spiritual dimension of the
288 human/environment relationship in some indigenous societies and especially that relationship as
289 it is framed by animist worldviews. Originally conceived as a way to consider biological
290 connections around protected areas, it now conveys a more global message based on the

291 straightforward idea that humans are part of their environment. Ecological solidarity operates on
292 three dimensions: it recognizes the planetary-scale interconnections of ecosystems and ecological
293 process, it encourages intergovernmental negotiations based on global and mutual solidarity, and
294 it promotes a moral framing that emphasizes the common fate of humankind and all living beings
295 (Thompson et al. 2011; Mathevet et al. 2018). Establishing this principle in more countries around
296 the world would more broadly establish the idea that our current generation owes a duty of care to
297 future generations and to other species, requiring legislators, judges, and other actors of the law to
298 take into account the long-term consequences of their actions on nature and future generations. By
299 focusing on the relationship that humans have with the rest of nature (Mathevet et al. 2018),
300 ecological solidarity is a framework that is inherently adaptable to diverse ways of defining what
301 that relationship is.

302 While the spiritual and ethical worldviews held by individuals are beyond the reach of a policy or
303 a legal framework, we believe that research and outreach—especially in increasing humanity’s
304 contact with nature and in increasing engagement with worldviews that value nature’s non-
305 material and intrinsic values—would create conditions where more sustainable concepts of human-
306 nature relationships can emerge: concepts that emphasize values of cooperation and solidarity over
307 competition and reduce the degree to which high levels of consumption are seen as a symbol of a
308 successful life. Alternative concepts already exist, with more adherents each year, that are based
309 on a moral economy (Edelman 2005). This economy values social relations, limited and local
310 consumption, respect, and solidarity, and is inspired by traditional populations and practices. Its
311 aim is to consolidate social cohesion through community mutual aid and sustainable production-
312 consumption systems (Lebel & Lorek 2008; Tukker et al. 2008). A pluralistic approach to
313 environmental stewardship—one that engages seriously with diverse conceptions of the human-

314 nature relationship—is our best chance to motivate and to lead societies toward a more sustainable,
315 equitably shared, and environmentally just future.

316

For review only

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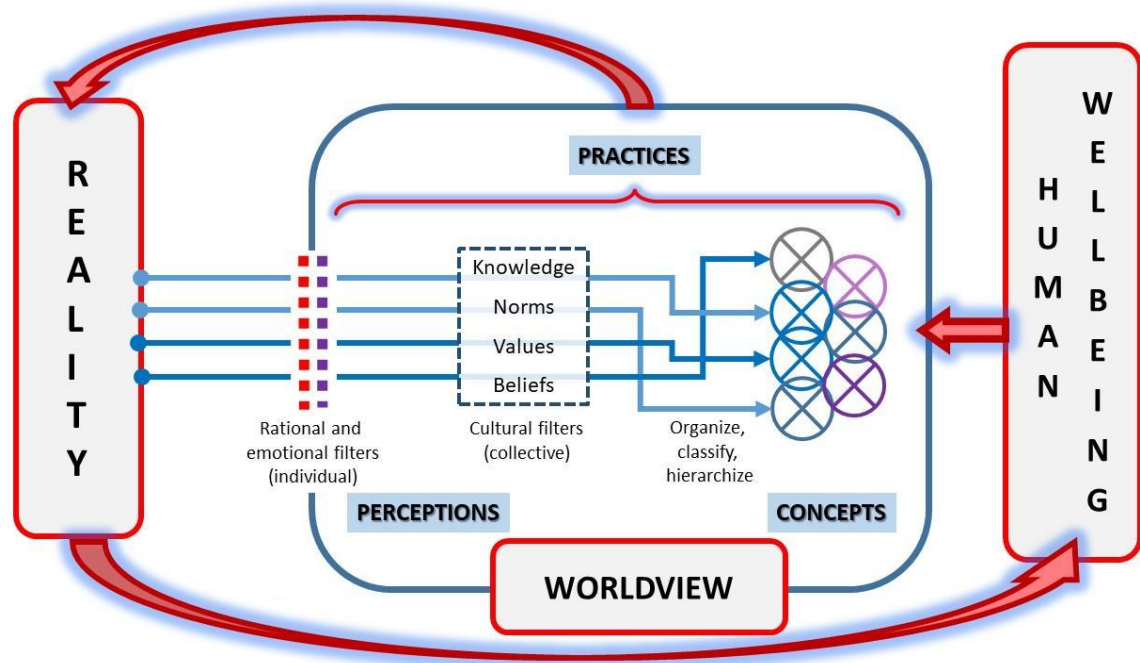
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494

495 **Figure 1:** Perceptions are organized into a hierarchy of concepts dependent on collective
 496 systems of knowledge, norms, values and beliefs. These concepts in turn guide cultural,
 497 governance and land management practices, as well as resource use and consumer behaviors.
 498 Taken together, these elements constitute a worldview. When dominant or mainstream
 499 worldviews lead to undesired impact on reality, i.e. the natural world, promoting alternative
 500 perceptions and concepts may transform practices towards more desired impacts (Kohler et
 501 al. 2018).