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**Title:** Embracing diverse worldviews to share planet Earth

**Year:** 2019

**Version:** Accepted version (Final draft)

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**Please cite the original version:**

Kohler, F., Holland, T. G., Kotiaho, J. S., Desrousseaux, M., & Potts, M. D. (2019). Embracing diverse worldviews to share planet Earth. *Conservation Biology*, 33(5), 1014-1022.

<https://doi.org/10.1111/cobi.13304>

## 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 21<sup>st</sup> 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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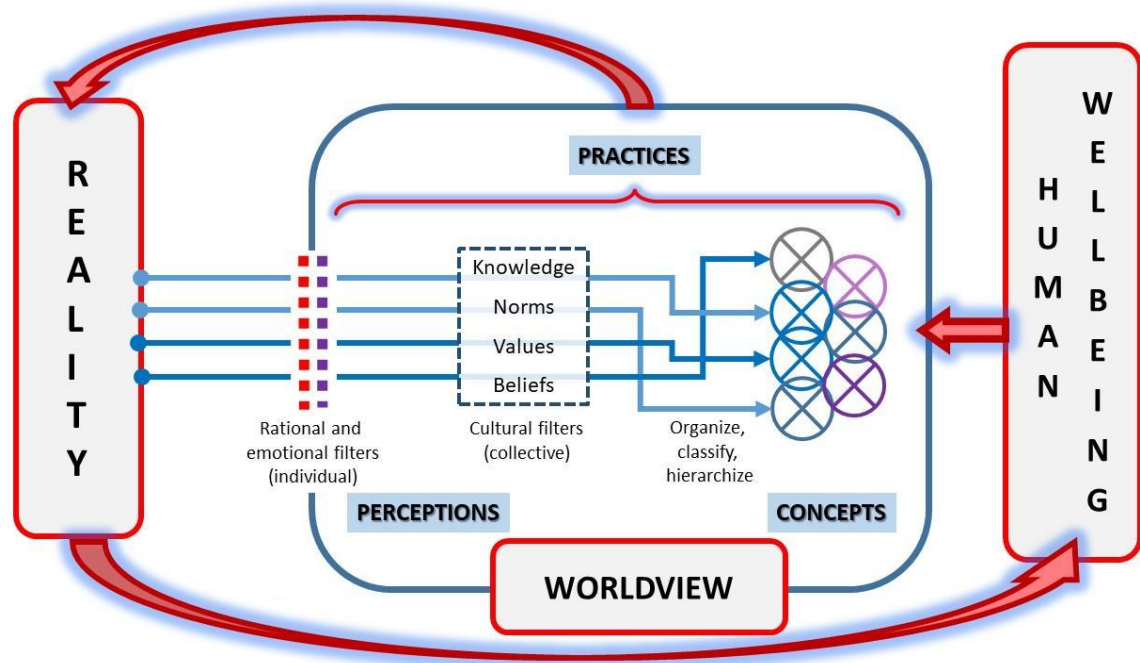
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494

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).