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1   Conservation in the face of ambivalence – public perceptions of peatlands as 'the good, the bad and
2   the ugly '

3   Abstract

4   Most conservation efforts today recognise the need to involve the public if conservation is to
5   succeed in the long-term. A common approach has been to try to educate the public on why they
6   should care. However, information campaigns are often not effective in changing opinions, let alone
7   behaviour. In this paper, we try establishing the basis for alternative approaches based on
8   understanding people's motivations, perceptions and relationship with nature. Using focus groups,
9   we look at the case of peatlands in Scotland, as an example of an ecosystem which is currently the
10   focus of many conservation and restoration initiatives while seen as 'problematic' in the sense that
11   those advocating its conservation assume that the general public does not care about peatlands. Our
12   results show that perceptions of peatlands are ambivalent and many-facetted, and that they can be
13   understood, metaphorically speaking, as good, bad and ugly at the same time: they can be seen as
14   bleak wastelands; beautiful, wild nature and cultural landscape. The multiple and ambivalent views
15   of ecosystems such as peatlands seem not stem necessarily from lack of knowledge, but to be linked
16   to biophysical characteristics, history, trade-offs between different uses and differences in personal
17   relationships with nature. To ensure the long-term success of conservation, it is vital to understand
18   and manage the public's different and ambivalent views about and attitudes towards landscapes of a
19   greater or lesser degree of wilderness. Many practitioners have now come to accept and manage
20   the fact that there is uncertainty in relation to the outcomes of the biophysical processes
21   underpinning ecosystem restoration. It is now necessary to acknowledge human ambivalence and to
22   find mechanisms for dealing with it. This should become one of the new pillars of conservation
23   practice.

24

25

26   Key words: nature perceptions, restoration, trade-offs, cultural landscapes, wilderness

27   1. Introduction

28   Most conservation efforts today recognise the need to take perceptions and values of a range of
29   stakeholders into account if conservation is to succeed in the long term (Harrison and Burgess 2000;
30   Linnell et al. 2015; Mace 2011; Robinson 2011). This includes those who live in or close to
31   conservation areas, who will often bear costs in terms of restricted use and access, but also the
32   wider public, who shares the cost for publicly funded conservation. In the case of charismatic mega-
33   fauna it may be relatively easy to attract widespread support for conservation, although even in
34   these cases there may be conflicts and different interpretations of how species and ecosystems
35   should be managed (e.g., Fischer and Van der Wal 2007; Patterson et al. 2003). For less iconic fauna,
36   flora and ecosystems it may be more difficult to garner the support of the public. A common
37   approach from conservation organisations and governments has been to try to educate the public
38   on why they should care about for example rare moths and herbs (Buijs et al. 2008). However,
39   information campaigns are often not effective in changing opinions, let alone behaviour due to the
40   weak links between knowledge, attitudes and behaviour and a lack of understanding of the social
41   representations of nature (Buijs et al. 2008; Heberlein 2012). How and to what degree information is
42   taken on board depends for example on pre-existing beliefs and values (Groffman et al. 2010; Nisbet
43   and Scheufele 2009). A more fruitful approach may therefore be to look at the reasons why people
44   do or do not support certain conservation projects or approaches and how this is related to their
45   interactions with the environment. This includes perspectives on the appropriate use of a place or
46   ecosystem, and views on how perceived benefits and dis-benefits associated with an ecosystem and

47 its different uses have been and will be affected by human use (Bennett 2016; Cheng et al. 2003).
48 Studies on farmers' attitudes to agri-environmental schemes have for example shown the many-
49 facetted reasons for farmers' resistance to such schemes (Harrison et al. 1998; McHenry 1997).
50 These include different understandings of nature, conservation and humans' relationship with
51 nature and of the effects of their own actions as well as reactions against being portrayed as
52 ignorant, and feeling under pressure from an increasingly urban society (Harrison et al. 1998;
53 McHenry 1997). Here we look at the case of peatlands in Scotland, as an example of an ecosystem
54 which is currently the focus of many conservation and restoration initiatives, and which is seen as
55 'problematic' in the sense that those advocating its conservation assume that the general public
56 does not care about peatlands (Scottish Natural Heritage 2001, 2015).

57 Globally, peatlands cover around 3% of the earth's land surface, hold around 10% of the world's
58 freshwater and 33% of the world's terrestrial carbon (Joosten and Clark 2002). Around 9-15% of
59 Europe's peatland areas are found in the UK of which more than 77% are located in Scotland (Bain et
60 al. 2011; Bruneau and Johnson 2014). Scottish peatlands mainly consist of blanket bog, which is a
61 globally rare habitat type (Bruneau and Johnson 2014). Perceptions of peatlands have changed over
62 time with changing uses (Collier 2014). Archaeological finds indicate that peatlands in Europe used
63 to be sites of ritual importance as well as being sources of food and materials (McDermott 2007; Van
64 de Noort and O'Sullivan 2007). In the more recent past, peatlands in Scotland were mainly seen as
65 either a source of peat or as wastelands to be converted to other productive uses such as forestry or
66 agriculture (Johnston and Soulsby 2000; Rawlins and Morris 2010; Smout 1997; Van de Noort and
67 O'Sullivan 2007). As a consequence a large portion of Scottish peatlands has been degraded to some
68 extent leading to biodiversity loss, release of greenhouse gases and problems with soil erosion and
69 water regulation (Bain et al. 2011).

70 Today, experts view peatlands as important providers of ecosystem services such as carbon
71 sequestration, biodiversity, water regulation, preservation of natural and human history, sense of
72 place, fuel, grazing, and field sports (Bain et al. 2011). Conservation of peatlands is advocated on the
73 basis of these services, especially regulating and supporting services (carbon sequestration, water
74 regulation and biodiversity)(Bain et al. 2011; Evans et al. 2014) and is reflected in international
75 policies and agreements such as the RAMSAR convention and EU Habitats Directive, and in national
76 policies in countries such as Scotland. To win the public's support for peatland restoration,
77 information materials seek to convey the many benefits of peatlands, including the use of the peat
78 itself even though this is seen as one of the causes of degradation (Whitfield et al. 2011).

79 However, little is known about what peatlands mean to people today (with a few notable exceptions
80 such as e.g. Collier and Scott 2010; Reed and Kenter 2014), especially beyond their direct use for
81 economic activity, and how people view conservation and restoration efforts. The few existing
82 studies have shown that both cultural and provisioning ecosystem services are important (Collier
83 and Scott 2010; Collier and Scott 2009; Reed and Kenter 2014), but that existing trade-offs between
84 different types of uses may not be acknowledged (Bullock and Collier 2011). While cultural
85 ecosystem services are often defined as a category of their own comprising 'immaterial benefits and
86 services' provided by ecosystems, we here use a broader definition where we include cultural
87 significance of e.g. provisioning services and material benefits such as income from e.g. recreation
88 businesses. In addition, culturally shaped values are essential in defining what are regarded as
89 services or dis-services, and are therefore key to perceptions and attitudes towards management
90 and conservation of ecosystems.

91 In this study we investigate present day perceptions of peatlands in two locations in Scotland
92 including the views of people who live or work in peatlands, as well as the views of those who do
93 not. We argue that support of both groups is important if conservation is to succeed in the long-
94 term, and that it is necessary to better understand their views of peatlands. This can help to

95   understand support or resistance to conservation and particular management interventions, tailor
96   communication material and identify common ground as a first step to resolve conflicts (Fischer and
97   Van der Wal 2007; Patterson et al. 2003). To gain a better understanding of how people perceive
98   peatlands we conducted qualitative research focusing on

99   • the range of uses, benefits, dis-benefits, problems or conflicts people recognise in relation to
100   peatlands,
101   • people's perceptions of the consequences of peatland degradation and of peatland
102   restoration

103   The study took the form of three focus groups, two in an urban setting far from larger peatland
104   areas, and one in a rural location in a peatland dominated landscape. The results help us to identify
105   barriers which need to be overcome, in order for restoration and conservation of ecosystems such as
106   peatlands to be successful.

107

108   2. Peatlands in Scotland

109   Peatlands can be defined in several ways, and classified according to geographical location, whether
110   they are actively forming peat at present or not, and the different types of vegetation associated
111   with them (Bruneau and Johnson 2014). General characteristics of peatlands include that they are
112   waterlogged, nutrient poor and that the soil consists of an accumulation of partly decayed
113   vegetation (peat) with great water holding capacity.

114   Peatlands are estimated to cover more than 20% of Scotland's land surface (Bruneau and Johnson
115   2014). Most peatlands are located in the western and northern parts of Scotland and continue to be
116   used in a number of ways. In some rural peatland areas, peat is still a source of fuel that is extracted
117   and burned by local people to heat their homes. Peatlands are also used for grazing (mainly sheep),
118   although the economic importance of these local uses has declined. Most people in Scotland do not
119   currently live close to areas that are dominated by peatlands and their experiences with peatlands
120   are more likely to consist of recreational use in the form of walking or use of products such as peat-
121   based gardening compost or whisky. Other uses include field sports (shooting and stalking), which
122   often entail some drainage of the land and burning to create improved feeding conditions for game.
123   If the land is drained or burned, this typically implies that peat forming processes are disrupted and
124   that existing peat may be at risk of erosion and loss through decomposition (Evans et al. 2014).

125   Perceptions of different uses of peatlands today need to be seen against the backdrop of historical
126   events and patterns of land ownership in Scotland. The areas most rich in peatland are areas with a
127   violent history of conflict between estate owners and tenant farmers who were evicted in large
128   numbers in the 18th and 19th century to make room for extensive sheep farming (Smout 2000).
129   Despite land reforms in recent years, land ownership continues to be very unequally distributed with
130   a large proportion of the land being owned by a small number of individuals, including many
131   absentee landowners. During the 20th century, large areas of peatlands were afforested with conifer
132   plantations. This was partly done by the Forestry Commission (the UK agency responsible for
133   forests), and partly by (mostly non-local) private investors attracted by lucrative tax arrangements.
134   However, in the 1980's this practice was largely stopped due to increasingly vocal opposition from
135   conservationists (Smout 1997). Some peatlands have also been used as the location for wind farms
136   or have been converted to built-up areas (Bruneau and Johnson 2014).

137   While efforts to transform peatlands into productive uses such as agriculture and forestry
138   dominated until well into the 20th century, nowadays Scottish government and environmental
139   interest groups emphasise the need to preserve and restore peatlands. No exact data are available

140 on the status of peatlands in Scotland outside of protected areas, but it is estimated that only
141 around 18% of all the UK's blanket bogs are in a natural or near-natural ecological condition
142 (Littlewood et al. 2010). These figures are expected to change towards more peatlands being in bad
143 or intermediate conditions if no restoration action is taken. Causes of deterioration include grazing,
144 afforestation, burning, drainage as well as climate change (Bain et al. 2011; Bruneau and Johnson
145 2014).

146 To promote the restoration and conservation of Scottish peatlands, a National Peatland Plan has
147 been developed (Scottish Natural Heritage 2015) and funds have been set aside for restoration[1].
148 While the importance of land owners is emphasised it is also recognised that peatland restoration
149 needs public support to succeed. The public is generally believed to hold negative attitudes towards
150 peatlands perceiving them as bleak and boring (Scottish Natural Heritage 2001, 2015). Consequently,
151 public attitudes are seen as one of the challenges that need to be addressed, and awareness raising
152 and education are advocated to change people's attitudes. Accordingly, part of the National
153 Peatland Plan's vision is to make sure that peatlands are 'no longer seen just as special interest
154 habitats' (Scottish Natural Heritage 2015, p.4). The means to do so are 'to demonstrate and
155 communicate the wider public benefits of healthy peatland landscapes and peatland restoration'
156 (Scottish Natural Heritage 2015, p.6).

157

158   3.   Study area

159 In order to explore public perceptions of peatlands and to capture a variety of views, we conducted
160 three focus groups with members of the general public in two locations in Scotland: one on the Isle
161 of Lewis and two in the city of Aberdeen. As explained, the two locations were chosen due to their
162 contrasting characteristics in relation to peatlands and the different relationships and experiences
163 that we assumed people in these two areas would have with peatlands.

164 The Isle of Lewis constitutes the northern part of the Outer Hebrides, off the west-coast of Scotland,
165 and consists to a large extent of blanket bogs. The Isle of Lewis was chosen as a rural peat area
166 where peatlands are still being actively used for domestic extraction of peat and grazing, although
167 these uses are less widespread nowadays compared to the past.

168 Aberdeen is located on the east coast of Scotland, and was chosen as an urban, non-peat area where
169 most people have limited personal experiences with peatlands and these are based mainly on
170 recreational activities such as hill walking. Although small pockets of lowland peatland areas can be
171 found in the surrounding rural areas, these are not conspicuous elements of the landscape. Larger
172 areas of upland peatbogs can be found a few hours' drive inland.

173

174   4.   Methods

175 Each focus group lasted around 3 hours. They were advertised locally using social media, posters in
176 public places and word of mouth. Participants were provided with a small monetary incentive
177 presented as compensation for travelling to participate. The focus groups in Aberdeen were held in
178 October and November 2014, while the focus group in Lewis was held in July 2015[2].

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[1] http://www.snh.gov.uk/climate-change/taking-action/carbon-management/peatland-action/;
http://news.scotland.gov.uk/News/Peatland-action-underway-2006.aspx

[2] The focus groups were held within a year after the referendum on Scotland's independence where land
ownership and use were important issues. The discussions on the use and management of peatlands may thus

179 In Aberdeen, 23 participants took part in the first focus group (9 men, 14 women, ages ranging from
180 early 20's to around 70), and 21 of these (8 men, 13 women) also took part in the second focus
181 group[3]. They came from a variety of professional and personal backgrounds, but apart from two
182 people, they did not have any direct experience of using peatlands (other than as the setting for
183 recreational activities such as hill walking) or living in peatland areas. In Lewis, the focus group was
184 attended by 14 participants (6 men, 8 women, ages ranging from around 30 to 70). Participants
185 represented a mix of different background, including three crofters but also several people who
186 were not native to Lewis and had only moved there as adults. The main purpose of qualitative
187 research as applied here is not to arrive at generalizations but to understand meanings in their
188 context (Babbie 2005), and hence these groups were not meant to be representative of Scotland's
189 population. However, the participants in both areas included a wide spectrum in terms of gender,
190 age and socio-economic background, and reported varying reasons for wanting to attend the focus
191 groups (from a general interest in the environment and outdoor recreation to being offered some
192 food at the workshop or "having nothing better to do that day", etc.).

193 The focus groups were organized using a combination of different types of activities, including break-
194 out groups, plenary sessions and carousel activities, so that every participant had sufficient
195 opportunity to express his/her views and interact with larger and smaller sections of the overall
196 group. Four expert facilitators managed the focus groups, allowing for three break-out groups
197 individually managed, with an additional facilitator monitoring time, participation and other
198 logistical aspects.
199
200 The topics covered in the two locations were the same, although individual exercises varied to allow
201 incorporating experiences from the first focus group in the subsequent ones and to take the
202 different levels of knowledge and experience of the participants in the two locations into account
203 (see the supplementary material for the activities carried in each area). The main topics covered in
204 the focus groups were
205 • associations, experiences and memories related to peatlands;
206 • uses, activities and 'good things' associated with peatlands;
207 • conflicts and negative or 'bad things' associated with peatlands;
208 • peatland degradation, restoration and management.
209
210 While we were building on concepts of ecosystem services (and dis-services), we chose to use
211 everyday language in the focus groups. While acknowledging the importance of terminological
212 debates (e.g. distinction between ecosystem services and benefits, Martin-Ortega et al. 2015) we do
213 not enter into these discussions here. During discussions, notes were taken on a flip chart placed so
214 that participants could see what was written down and could clarify any mistakes or
215 misrepresentations. The materials produced during the focus group and notes taken by facilitators
216 were transcribed and entered into qualitative data analysis software (Nvivo). The documents were
217 coded using a grounded approach (Corbin and Strauss 2008; Glaser and Strauss 1967). This implies
218 carefully going over the material several times to identify recurrent themes or topics which emerge
219 from the data themselves rather than on the basis of pre-defined topics and to include insights into

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have been influenced by these recent events. However, none of the participants made explicit references to the issue of independence in the discussions.

[3] Two focus groups were held in Aberdeen to facilitate the overall research design. The first focus group gathered information on people's general perceptions of peatlands and tested the terminology used in the rest of the process. In the second focus group additional aspects were addressed mainly focusing on management and restoration. It cannot be ruled out that some degree of social learning for those participants attending both might have occurred and that views towards conservation of peatlands were more positive as a result. On the Isle of Lewis, exercises from both the previous focus groups were combined into one session.

220 further data gathering. All the parts of a text or other document related to a particular theme or
221 'code' are then marked as such. In subsequent rounds of going over the material, codes were refined
222 further, for example by identifying sub-themes within existing themes or codes.

223

224   5.   Results

225 Across the topics and sites, different narratives, attitudes and ambivalences emerged. These are
226 summarised in the following while details on the uses, benefits, dis-benefits, characteristics of
227 peatlands in different ecological status and criteria for the selection of potential restoration areas as
228 reported by focus groups participants can be found in Tables 1-4. The information reported in these
229 tables has been used for the development of the different narratives summarised in Figure 1.

230

231   5.1 Peatland narratives, attitudes and ambivalence

232 While the views of individual participants contained many nuances, some common attitudes or ways
233 of viewing peatlands emerged from the responses. Based on these, we identified four frames, which
234 emerge from the intersection of two sets of dichotomies (the two axes in Figure 1). The first
235 dichotomy relates to peatlands viewed as wilderness versus anthropogenic landscapes (vertical axis).
236 Within each of these views, another dichotomy occurred between seeing this as something positive
237 versus negative (horizontal axis). Wilderness can thus be understood positively as something to be
238 preserved and cherished (for its biodiversity, scenic beauty, etc.), or as something negative with
239 connotations of danger and useless wasteland. Likewise, peatlands as anthropogenic landscape can
240 be seen in a positive light, a historic, cultural landscape which speaks of traditions and human
241 stewardship, or as degraded nature damaged by human activities.

242 Accordingly, in the following we discern four broad categories to group and discuss aspects of the
243 participants' perceptions of peatlands that emerged during the focus groups (Tables 1-4) : 1)
244 peatlands as wonderful wilderness, 2) peatlands as wastelands (or dangerous wilderness), 3)
245 peatlands as cultural landscape, and 4) peatlands as degraded nature (or anthropogenic wasteland)
246 (Figure 1). The different positions were characterised by differences in emphasis that participants
247 placed on different uses, services, benefits and dis-benefits. The views were not mutually exclusive,
248 and some were strongly linked to each other: Wilderness understood in a positive light (quadrant 1
249 in figure 1) was often linked to a view of human influenced landscapes as degraded nature (quadrant
250 4), while wilderness as wasteland (quadrant 2) was often linked to a positive view of landscapes
251 managed by humans (quadrant 4). These paired positions were also found to be related to views
252 about how peatlands should be treated to go from a bad state to a positive state or to maintain an
253 existing positive state (dashed arrows going from quadrant 2 to 3, and from 4 to 1).

254 These categories are ideal types in the sense that individual participants and their views did not
255 necessarily match a single type. Instead, most people drew on concepts from several or all
256 categories depending on the context. Importantly, it was also evident that there was a lot of
257 ambivalence in the way peatlands were perceived. They can be seen as *good, bad and ugly* at the
258 same time, metaphorically speaking, as nature and culture, and often by the same persons. The
259 different positions or frames were not named as such by the participants, but were identified by the
260 authors based on the participants' use of normative statements, how they described the role of
261 humans and the nature of peatlands, and the context in which different words and views were
262 expressed. Next we present each of these narratives in more depths.

263   5.2 Peatlands as wonderful wilderness

264 We found framing of peatlands as valuable wilderness amongst participants in both locations,
265 though most strongly in the non-peat area. We classified words such as "nature", "wildlife",
266 "biodiversity", "peaceful" and "open space" as part of this framing. Participants used these words to
267 describe the importance of preserving wildlife and biodiversity for their own sake, as well as positive
268 experiences of directly experiencing wild places such as peatlands, their beauty and the
269 opportunities these places afforded for adventure. This frame was also evident during discussions
270 about threats and the right use of peatlands. Here, we included statements about the fragility of
271 peatlands, humans as threat, and conservation (of biodiversity, habitat and wildlife), and non-
272 intrusive uses (e.g., research, bird watching, photography, walking, as carbon sink) as the "right"
273 management of peatlands. Perceived benefits that we categorised as part of this frame were
274 "space", "wilderness", "natural heritage", "wildlife", "habitat and food chain for animals", "views",
275 "landscape", "inspiration for artists", "health" (physical and mental) and "education".

276 ## 5.3 Peatlands as wastelands

277 The frame of peatlands as "bad and ugly wastelands" corresponds to the position that the general
278 public is often assumed to hold. We found this framing most prevalent amongst the participants in
279 the non-peat area. We categorised negatively loaded words such as "muddy", "smelly", "bleak",
280 "boring", "dangerous", "unfortunate", "wet", "cold", "exposed", and "a problem to be solved" in
281 addition to the word "wasteland" itself as part of this frame. They were used to describe peatlands
282 as exposed and hostile places without any shelter or redeeming features that at best were boring
283 and bothersome and at worst outright dangerous. Examples that we included under this frame were
284 participants' stories of falling into water filled holes and getting stuck in peat while hiking. We also
285 included statements advocating drainage of peatlands or other uses (e.g. housing developments) as
286 the appropriate use or management to turn peatlands from wastelands into something useful.
287 Amongst the participants in the peat area, there was less reference to peatlands as wastelands,
288 although participants mentioned negative aspects associated with natural elements of peatlands
289 such as getting wet or being bothered by biting midges[4] when performing tasks such as extracting
290 peat, the danger of sheep and machinery getting stuck in the peat, geese causing damage to
291 farmers' crops, and non-locals getting lost in peatlands. These were stories and accounts of nature
292 as an obstacle that needed to be overcome or at least managed to make peatlands useful. In this
293 frame we included statements that implied a definition of useful from a strongly anthropocentric
294 perspective. The participants in the peat area also drew on the image of peatlands as bleak and
295 boring wastelands when talking about how they thought that outsiders viewed peatlands.

296 ## 5.4 Peatlands as cultural landscape

297 We found the frame of peatlands as a cared for, cultural landscape mainly amongst the participants
298 in the peat area who actively used peatlands for peat extraction and grazing. Under this frame we
299 included statements emphasising peatlands as resources for humans in the form of fuel (the peat)
300 and food (from grazing animals) and humans as stewards and care-takers of the land without whom
301 these areas would turn into useless wastelands. We also included statements which emphasised the
302 strong cultural significance of activities such as grazing and peat extraction as an integral part of a
303 unique sense of place, personal identity and community spirit related to peatland use[5]. Likewise, we
304 included statements about under-grazing and abandonment of peat extraction as threats to healthy
305 peatlands. Peatlands as cultural landscapes can be regarded as the flip-side of peatlands as
306 wastelands. Both frames emphasise the need for human management and intervention to transform

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[4] Small, biting flies of the genus *Culicoides*, prevalent in the Scottish highlands and islands.
[5] At the same time, participants acknowledged the declining economic and practical significance of these uses illustrating the difficulties inherent in the currently dominant classifications of ecosystem services where these would normally be considered provisioning services and their importance evaluated as such.

307 peatlands from (natural) wastelands into useful, cultural environments. Participants in the peat area
308 drew on both these frames to emphasise their own role as stewards of the land and to distinguish
309 their relationship with peatlands from that of outsiders (as in the statements about outsiders
310 regarding peatlands as bleak). This was in contrast to the way activities such as peat extraction were
311 described under the framing of peatlands as wonderful wilderness where they were seen as a threat.

312 5.5 Peatlands as degraded nature

313 Under the frame of peatlands as degraded nature we included statements about peatlands as
314 "damaged", "lifeless", "inhospitable", "useless", "infertile" and "bleak" places. While some of the
315 terms are the same as in the framing of peatlands as wastelands, the statements were here used in
316 the context of human use and degradation rather than about peatlands in their natural state. Under
317 this frame, we included statements where the focus was on the negative impact of human use, the
318 vulnerable nature of peatlands and balance out of kilter. This frame is hence related to the framing
319 of peatlands as wonderful wilderness. Both these frames are about peatlands as fragile and
320 threatened by humans, but where 'peatlands as wonderful wilderness' focuses on how peatlands
321 should be, 'peatlands as degraded nature' describes the negative outcomes of human exploitation.
322 We found this frame more prevalent amongst the participants in the non-peat area. However, we
323 also identified elements of it amongst the participants in the peat area where it surfaced in
324 comments such as that peatlands should be "allowed to rest" after having been used by humans. For
325 some the framing of peatlands as degraded nature thus also included notions of a natural balance
326 that needed to be restored as well as a sense of moral justice which included nature and humans.

327

328 6. Discussion

329 This study showed the existence of different framings of peatlands as well as ambivalence. Many of
330 the participants thus held apparently contradictory views at the same time. Archaeological and
331 historic sources indicate that ambivalence around peatlands is not new (Rotherham 2012; Van de
332 Noort and O'Sullivan 2007). In pre-history, peatlands in Europe were both sources of materials for
333 everyday life and places where material and human sacrifices took place and other-worldly powers
334 could be contacted through material and human sacrifices (Van de Noort and O'Sullivan 2007). They
335 were also places 'in between' which marked boundaries between different chiefdoms (McDermott
336 2007). In myths, folklore and literature, peatlands were usually depicted as places of danger where
337 evil creatures dwelled although in some stories these could also be the means by which wrongdoings
338 were punished (Meredith 2002; Rotherham 2012). Some of the present and historic ambivalence
339 may be linked to the ambivalent biophysical characteristics of the peatlands themselves as places
340 that are neither land nor water and hence do not fit into our "normal" categories. Now as in the
341 past, their characteristics influence the potential ways in which people can make use of and interact
342 with them. They offer resources of well as real dangers. Their featureless nature and high water
343 content mean that people can easily lose their way and get stuck, and 'peat eruptions' can have
344 devastating effects similar to landslides (Meredith 2002).

345 Views of peatlands also differ between people and change over time (Collier and Scott 2009;
346 Johnston and Soulsby 2000). In the UK in the medieval ages and up until the 18th century, local
347 people seem to have regarded peatlands mainly as valuable resources, while outsiders regarded
348 them as wastelands which could only be made useful through drainage and conversion into other,
349 cultivated and thereby cultural lands (Johnston and Soulsby 2000; Smout 1997; Van de Noort and
350 O'Sullivan 2007). Similarly, in our study the people in the peatland area more frequently drew on
351 notions of peatlands as cultural lands while people in the non-peat area drew more heavily on
352 concepts of wonderful wilderness and degraded nature although elements of all views cropped up in
353 both places. Different frames emphasised different uses and benefits (peat extraction, grazing,

354 community spirit and tradition vs. biodiversity, recreation, scenery, etc.) and included different
355 views on the role of people (stewards vs. threat) and the nature of peatlands (robust vs. fragile).

356 The multiple frames and ambivalent views of peatlands also seem to reflect more general
357 differences and ambivalences in people's conceptions of nature and the role of humans in
358 relationship to it. 'Nature' and 'wilderness' are thus in themselves ambivalent concepts. For some
359 'wilderness' denotes positive things such as wonderful wildlife and opportunities for adventure,
360 while for others it denotes danger and for many it can have aspects of both (Arts et al. 2009, 2016;
361 Habron 1998; Koole and Van den Berg 2005). This is also reflected in popular media in films such as
362 'Into the Wild' (2007) where both these aspects are brought into play.

363 In addition, people's perceptions and interactions with nature, wilderness and specific ecosystems
364 are influenced by personal experiences and preferences, as well as the cultural, social, political,
365 economic and historic context, amongst others (Bennett 2016; Cheng et al. 2003).The frame of
366 peatlands as 'wonderful wilderness' can hence be traced back to the romantic movement beginning
367 in the 18th century, when wilderness and nature in general came to be imbued with new, positive
368 meanings (Solnit 2000) while the history of the Highland Clearances and unequal land distribution
369 are also likely to influence people's present day interactions and views of peatlands in Scotland.
370 These influences surfaced in the large number of cultural ecosystem services that people mentioned
371 and the importance accorded to them, including cultural aspects of services that are normally
372 considered as provisioning services (i.e. the importance of peat extraction and grazing as tradition
373 and part of the local identity). Other studies have pointed out that relegating the cultural and social
374 to a separate category of 'immaterial' values and benefits ignores cultural and social aspects of other
375 ecosystem services and the does not do justice to the importance of cultural and social values as
376 processes that determine people's interactions with the environment and adds little to our
377 understanding of environmental values (e.g., Chan et al. 2012; Pröpper and Haupts 2014; Winthrop
378 2014).

379 The existence of different frames and ambivalence in relation to nature such as the ones we found
380 regarding peatlands need to be taken seriously if conservation is to succeed (Fischer and Marshall
381 2010; Groffman et al. 2010; Nisbet and Scheufele 2009). Conflicts around biodiversity and ecosystem
382 services are primarily conflicts amongst humans (White et al. 2009). While these conflicts can be
383 rooted in trade-offs between different groups and ecosystem services they are often also conflicts
384 about values, and need to be understood as part of wider conflicts in society (Fischer and Marshall
385 2010; Patterson et al. 2003). Such an understanding can help to predict how messages provided by
386 scientists are likely to be perceived and interpreted, and what conflicts may arise from this (Nisbet
387 and Scheufele 2009). In our study, for example, some of the participants in the peatland area saw
388 conservation as something imposed from the outside, defying local realities as well as values, and
389 part of a more general marginalisation of rural populations, identities and ways of life. Consequently,
390 they emphasised their unique rural values, way of life, expertise and the inclusion of local people in
391 decision making concerning conservation. Decisions about what to conserve and how to manage
392 different ecosystems and the services they provide is ultimately a normative question, and different
393 values need to be treated as equally legitimate (Robinson 2011). This includes not only local people
394 and conservationists, but also the wider public who can have emotional stakes in far-away places as
395 well as being called on to finance conservation (whether through taxes, donations or consumerism).
396 While local stakeholders and their values can be included directly for example through participatory
397 decision making or co-management approaches, the values of the wider public can be elicited
398 through a variety of means and included as 'extended facts' (Healy 2011) alongside information on
399 ecological status and economic costs.

400 In situations characterised by different perceptions, values and ambiguities it is neither always
401 possible nor always necessary to arrive at shared understandings of the problem (Brugnach and

402 Ingram 2012). Nevertheless, it may still be possible to arrive at solutions which are acceptable to all
403 stakeholders (Brugnach and Ingram 2012). Identifying the (underlying) factors at play in a conflict
404 (e.g. rural marginalisation) is essential to finding these solutions (White et al. 2009), as is the
405 transparent acknowledgement of trade-offs between different ecosystem services and people (Daw
406 et al. 2015; McShane et al. 2011). In Scotland, peatland restoration is by some seen to compete with
407 efforts to recreate what is seen as 'the ancient Caledonian forest' and the services and cultural
408 values they entail. The participants in our study actively discussed such trade-offs in relation to use
409 and restoration of peatlands. In the peat area, where some participants were farmers and others
410 were recreational users, nearly all expressed the wish to balance different uses and states of
411 peatlands, similar to what has been shown elsewhere (Fischer and Marshall 2010). Such points of
412 convergence may form the basis for finding solutions that are acceptable to different stakeholders.
413 Other studies have emphasised the importance of the process of decision making for the long-term
414 sustainability of environmental management and conservation projects studies (Drazkiewicz et al.
415 2015). This concurs well with the emphasis participants in the peat area placed on the inclusion of
416 local communities in questions of conservation.

417

418   7. Conclusion

419 Peatlands in Scotland are ambivalent places that are viewed as 'good, bad and ugly' (metaphorically
420 speaking) all at the same time. The multiple and ambivalent views of wild landscapes seem not stem
421 necessarily from lack of knowledge, as often assumed by experts, but rather to be due to their
422 biophysical characteristics, history, trade-offs between different uses and differences in personal
423 relationships with nature. To ensure the long-term success of conservation in situations such as
424 these, it is necessary to include local people as well as the wider public and their perceptions and
425 concerns in the discussion and decision making process. This can help conservation practitioners and
426 policy-makers identify underlying causes of conflict, find common ground where possible, improve
427 communication and address trade-offs linked to conservation in a transparent manner. New
428 approaches to conservation involving stakeholders and local communities are emerging (for
429 example, joint purchase of land by conservation groups and/or public authorities and local
430 communities). For these novel approaches to become more widespread, it is vital to understand and
431 manage the different and ambivalent views about and attitudes towards landscape of a greater or
432 lesser degree of wilderness, held by those people who are most affected and those parts of society
433 which directly (via donations) or indirectly (via taxes) support conservation initiatives. This goes
434 beyond a basic understanding that different groups hold different and often contrasting opinions.
435 Ambivalence is inherent to human's perception of nature and wilderness. Therefore, it needs to be
436 incorporated and managed in conservation practice in much the same way as many practitioners
437 have now come to accept and manage the fact that there is uncertainty in relation to the outcomes
438 of the biophysical processes underpinning ecosystem restoration. Ambivalence that is ignored may
439 undermine conservation efforts, but ambivalence can also be used to find common ground amongst
440 different stakeholders if it is acknowledged and worked with. Finding mechanisms for dealing with
441 human ambivalence should be one of the new pillars of conservation practice.

442

443   8. Acknowledgements

449 this article, and Ximena Maier for illustrations. We owe the inspiration for the title of this paper to
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451

452   9.   Role of the funding source

456

457

458   10. Literature

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590

Table 1. Uses, services and benefits of peatlands perceived in the two study areas.

	Non-peat area	Peat area
Productive activities and uses	• Farming • Peat extraction (for fuel, compost and for making degradable pots) • Whisky making • Sheep and deer grazing • Wind farms • Feeding salmon hatcheries (rivers) • Advertising (for tourism)	• Grazing. Historically moorland used all year- grazing, peats etc. Now just grazing sheep, no cattle allowed on peatland • Peat cutting • Heather rope – heavy twine thatching • Heather bunches – chimney cleaning • Renewable energy • Economic use • Ages ago, peat used as walls/boundaries • Dying wool • Water mills • Sheilings
Cultural and recreational activities and uses	• Walking • Grouse and duck shooting • Conservation • Bird watching • Water conservation • Study the past/archaeology • Study biology/scientific research • Orienteering • Old battles (in history) • Roman causeways (Romans used to get lost in peatlands) • Education, research and study • Chilling out (because they are remote and rural) • Photography • Therapeutic use (relaxation and medicinal plants *Sphagnum*, bog myrtle and maybe more that we just don't know about yet) • Exploration and discovery, recreational assault courses • Bog snorkelling	• Walking/ relaxing/ space all round • Quad biking [not a popular suggestion with the rest of the group] • Sporting – deer, grouse, black cock - For tourism and locals • Photography/Shooting with a camera - For tourism and locals • Stalking red deer (no roe on Lewis) • Camping • Archaeology: preserved villages, animals, pottery, etc. • Fishing (brown trout) • Walking – leisure. Mainly tourists, some locals. Funeral roads to burial grounds • Tourism
Provisioning services	• Food source for humans (fish, berries and plants) • Fossil fuel (peat burning and conversion into coal) • Animal grazing (deer, livestock) • Whisky • Therapeutic products (e.g. *Sphagnum* is antiseptic and the bog myrtle is an insect repellent) • Provision of space for productive activities: grazing, wind farming and forest planting (linked to employment opportunities).	• Domestic heat • Grazing • Compost
Regulating services	• Clean air • Flood prevention • Water filtering • Carbon sink (inhibiting climate change)	• Insects – bird food (mentioned under uses) • Flowers – for bees (mentioned under uses) • Food chain for animals • Habitat • Reduced carbon footprint through using local peat as fuel source
Cultural services	• Country side nostalgia/good feeling of being in the country side/wilderness • Archive of plant history	• Health benefit – clean air (mentioned under uses), mental and physical • Therapeutic effect

	• Archive of society and civilization history • Leisure activities and tourism opportunities (e.g. grouse shooting) • Natural heritage (associated with 'the whole thing') • Views • Open space (and sense of), sense of fresh air • Landscape variety (colours) • Scotland's identity • Artistic inspiration (literature, photograph, etc.). • Health and well-being associated with recreational activities (fishing/walking) • Education and research • Potential therapeutic benefits by being there	• Heather tasting lamb (mentioned under uses) • Space • Wildlife • Historic record • Landscape itself, ambience • Preservation • Social aspects: community life • Walking, peace and solitude • Recreational value • The smell of peat fire • Not commercial, domestic • Peat is free • Inspiration for artists and literature • Intergeneration exchange and support, e.g. help elderly people • Culture and language • Storytelling

592   The distinction between uses and activities and benefits reflects the way in which the discussion was

593   facilitated for the focus group participants. The categorization of different types of ecosystem services is

594   applied for readability purposes. While we acknowledge the academic discussion in relation to the definition

595   and classification of different types of ecosystem services (Martin-Ortega et al. 2015; Ojea et al. 2012), this is

596   not intended to take position within that debate.

597

598

599   Table 2. Dis-benefits and conflicts connected to peatlands.

	Non-peat area	Peat area
Dis-benefits associated with peatlands themselves	• Midges • Falling into them, getting lost and stuck • Smell (sulphur) • Boring for some to walk over • Bleak-open space without shelter in bad weather/ empty/ difficult to navigate (gullies) • Dead bodies (but can be positive if archaeological)	• Cattle (or sheep) bogged down • Tractors bogged down • Poor grazing • Hard to walk on – spongy. Walking on it is tiring. • Difficult and even dangerous to cross (may get stuck) • Midges – 'clouds in your face' • Open expanse and barrier-free – sheep may roam and get lost • Orientation difficult especially in misty weather – no landmark etc. that can be used for orientation • Large amounts of geese nest in peatlands – deprive the land of its feeding potential
Conflicts and problems occurring in peatlands or in relation to peatlands	• Can't not use land easily (wasted space, sheep struggle, restricting property and transport development • Wasteful destruction of ancient resource/ irreversible loss of unique habitat and species (due to drainage and peat extraction) • Extraction, development, forest use, industrial wind farming versus conservation • Pollution/greenhouse gases emission/ brown water associated with extraction and burning of peat and in general with disturbed peatlands (including long term impacts) • May be used as dumping site • Lack of information/ awareness/ understanding • Negative conservation effects on certain species. • Ivy-like destructive plant can affect adjacent property	• Laws and regulations driven by environmentalists (->Conflicts) cause under-grazing which is more detrimental than overgrazing • Reportedly depressed people would walk in it, may get stuck or lost and die • Lack of use • Loss of community spirit due to lack of use (e.g. joint activities etc.) • Conflicts: Misuse of land e.g. for wind farms and commercial developments • Conflicts: cutting into someone else's peat bank

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603   Table 3. Perceptions of uses and characteristics of peatlands in different ecological states, and
604   consequences of peatland degradation.

	Non-peat area	Peat area
Good ecological status	High in biodiversity Nice scenery Unspoilt, healthy & fertile	High in biodiversity Peatlands allowed to rest/recover after having been used
Intermediate ecological status	Grazing and hunting Easier walking Less wildlife More boring Could be degrading or improving	Most useable Natural state for the area
Degraded ecological status	Bleak, boring and inhospitable Result of peat cutting/human use/ overgrazing Difficult to traverse Useless Few plants & animals Maybe refuge for wildlife (no disturbance) Infertile	Unavoidable Can be reversed Easier to traverse

605

606   Table 4. Criteria used by participants in the selection of potential restoration areas

Non-peat area	Peat area
• Remote areas where peatlands would remain undisturbed after restoration	• Sparsely populated areas where restoration wouldn't conflict with people's uses of peatlands.
• Close to cities so people can go and visit them	• Areas that need preservation either to prevent further degradation, or following the development of wind farms or the removal of large commercial forests where peatland are likely to be severely degraded
• Areas of current natural interest, so wildlife and other environmental features and habitats would be enhanced or improved	• Community agreement (not linked to particular locations but important selection criterion)
• Areas of recreational interest (e.g. national park) so people can enjoy them and they can work as tourist attractions	
• Areas where there is currently more peatland ('the heart of it')	
• Areas where there is not much peat left,	

18

preserve what is left	
• Areas currently more damaged	
• Areas where local people could benefit from restoration, although there was no consensus about this one, since it was not clear that in some cases this would mean less possible activities for local people.	

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Wonderful Wilderness

Uses, services & benefits
- CO2
- Water
- Beauty
- Space
- Adventure
- Wellbeing
- Tourism
- Sense of place/ Scottish identity
- Biodiversity & habitat
- Environmental History

Attributes
- Humans as threat
- Nature as fragile

Cultural landscape

Uses, services & benefits
- Way of life
- Beauty
- Wellbeing
- Space
- Tourism
- Tradition
- History
- Fuel & food
- Sense of community
- Identity (crofters, islanders)

Attributes
- Humans as stewards
- Nature as robust

Wasteland

Dis-benefits
- Bleak
- Smelly
- Wet
- Midgy
- Dangerous
- Wasted & useless
- Impassable

Attributes
- Humans as stewards
- Nature as robust

Degraded nature

Dis-benefits
- Species loss
- CO2 emissions
- Flooding
- Bad water quality
- Bleak & boring

Attributes
- Humans as threat
- Nature as fragile
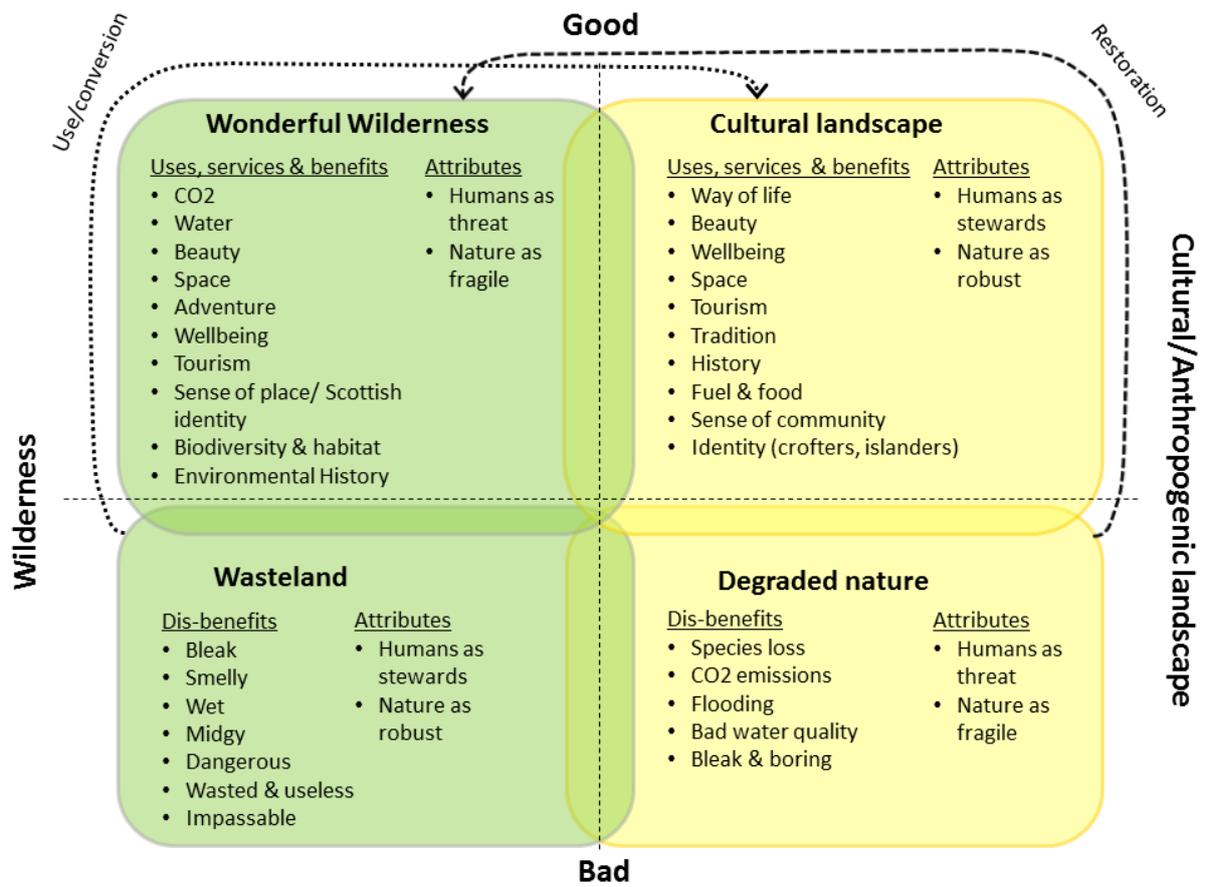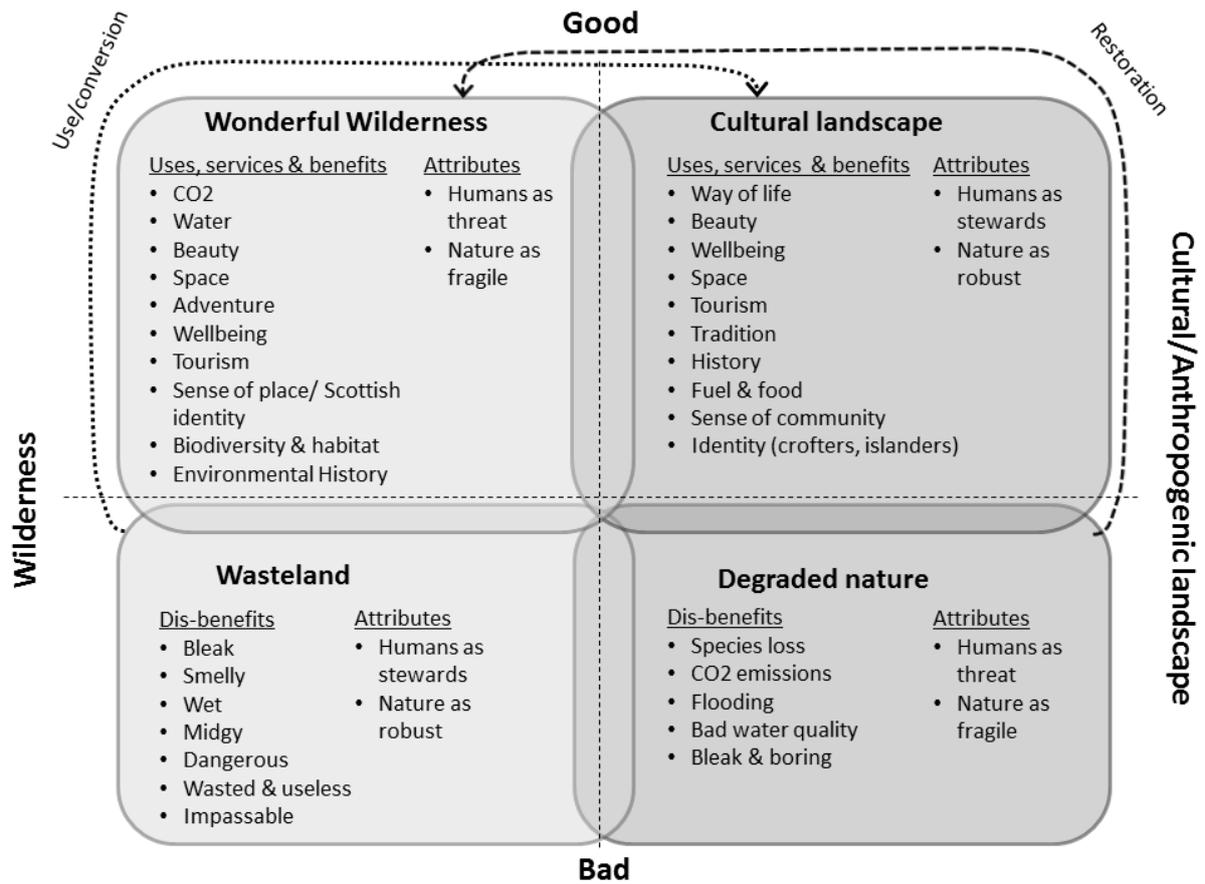
612

613 Figure 1. A schematic illustration of the different narratives encountered amongst the participants.
614 These are ideal type narratives meaning that often people would not consistently fall within any of
615 these but use elements from several of these, depending on the context of the discussion.

616

Good

Use/conversion

Restoration

Wonderful Wilderness

Uses, services & benefits
- CO2
- Water
- Beauty
- Space
- Adventure
- Wellbeing
- Tourism
- Sense of place/ Scottish identity
- Biodiversity & habitat
- Environmental History

Attributes
- Humans as threat
- Nature as fragile

Cultural landscape

Uses, services & benefits
- Way of life
- Beauty
- Wellbeing
- Space
- Tourism
- Tradition
- History
- Fuel & food
- Sense of community
- Identity (crofters, islanders)

Attributes
- Humans as stewards
- Nature as robust

Wilderness

Cultural/Anthropogenic landscape

Wasteland

Dis-benefits
- Bleak
- Smelly
- Wet
- Midgy
- Dangerous
- Wasted & useless
- Impassable

Attributes
- Humans as stewards
- Nature as robust

Degraded nature

Dis-benefits
- Species loss
- CO2 emissions
- Flooding
- Bad water quality
- Bleak & boring

Attributes
- Humans as threat
- Nature as fragile

Bad

617

618   [Black and white version of Figure 1]