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1 **Tilting at wildlife – reconsidering Human-Wildlife Conflict**

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18 **Abstract**

19

20 Conflicts between people over wildlife are widespread and damaging to both the wildlife
21 and people involved. Such issues are often termed human-wildlife conflicts. We argue that
22 this term is misleading and may exacerbate the problems and hinder resolution. A review of
23 100 recent articles on human-wildlife conflicts reveals that 97% were between conservation
24 and other human activities, particularly those associated with livelihoods. We suggest that
25 we should distinguish between human-wildlife impacts and human-human conflicts and be
26 explicit about the different interests involved in conflict. Those representing conservation
27 interests should not only seek technical solutions to deal with the impacts but also consider
28 their role and objectives, and focus on strategies likely to deliver long-term solutions for the
29 benefit of biodiversity and the people involved.

30 INTRODUCTION

31 In a famous scene from Cervantes' (1605) novel *Don Quixote*, the eponymous hero
32 perceives a phalanx of windmills rising from the Spanish plains as "hulking giants", and he
33 charges off on his horse, intending to slay them. Needless to say, this doesn't go well.
34 Moreover, Quixote's inability to appropriately identify his adversaries is repeated
35 throughout the book, leading him into all sorts of difficult circumstances.

36

37 Just as Don Quixote misidentified his foe, we consider whether we misidentify the
38 antagonists in human-wildlife conflict and thereby limit the likelihood of finding effective
39 solutions. We consider the way human-wildlife conflict is defined and briefly explore the
40 literature to examine who these conflicts are between. We ask whether the term is
41 appropriate or whether it reduces our ability to find solutions to the problem of coexistence
42 with challenging species. These issues are of high relevance for policy in view of the fact that
43 increasing pressure on our natural systems is likely to increase the importance and
44 magnitude of such conflicts, with negative repercussions for biodiversity and human
45 livelihoods and well-being (Young et al., 2010).

46

47 DEFINING HUMAN-WILDLIFE CONFLICTS.

48 The term conflict is defined variously in the Oxford Concise Dictionary as "a state of
49 opposition or hostilities", "a fight or a struggle" and "a clashing of opposed principles". The
50 term therefore suggests action between two or more antagonists. Conflict is integral to
51 conservation; those who defend conservation objectives often find themselves in conflict
52 with those with other interests and objectives. Human-wildlife conflict in particular is

53 widespread and has been the subject of a large number of publications. Conover (2002)
54 defined these interactions as “situations occurring when an action by either humans or
55 wildlife has an adverse effect on the other”. This framing implies that species are in conflict
56 with people, such as in the case of “elephant-human conflicts” (e.g. Wilson et al. 2013). In
57 more extreme cases, we also see “orang-utan-palm oil conflicts” (Swarna Nantha & Tisdell
58 2009) and “protected area-community conflicts” (Liu et al. 2010).

59

60 This widely used framing of human-wildlife conflict has been criticized. Peterson et al.
61 (2010) pointed out that that the portrayal of animals as “conscious human antagonists” and
62 “combatants against people” is problematic as it masks the underlying human dimension
63 (see also Raik et al. 2008, Marshall et al. 2007, White et al. 2010, Young et al. 2010). Orang-
64 utans *Pongo pygmaeus* and palm oil *Elaeis guineensis* are not in conflict with each other.
65 Instead, these conflicts are between those who want to protect the orang-utan and those
66 wanting to promote palm oil plantations. Of course, palm oil plantations may have
67 damaging impacts on these great apes, but the conflict is between the conservationists and
68 developers. This confusion led Young et al. (2010) to suggest that human-wildlife conflicts
69 should be split into their two components: human-wildlife impacts, which focus on the
70 impacts of wildlife on humans and their activities, and the underlying human-human
71 conflicts between those defending pro-wildlife positions and those defending other
72 positions. An alternative definition of conflicts over biodiversity has therefore been
73 proposed as: situations that arise when two or more parties have strongly held views [over
74 biodiversity objectives] and one of those parties is attempting to assert its interests at the
75 expense of the other (See Bennett et al. 2001, Marshall et al. 2007, White et al. 2010, Young

76 et al. 2010, Redpath et al. 2013). Yet, despite these concerns and suggestions, it is clear that
77 the way in which these issues are framed in current literature remains broadly unchanged.

78

79 **HUMAN-WILDLIFE CONFLICT LITERATURE**

80 It is undoubtedly the case that many conflicts arise when humans and wildlife interact,
81 especially when the wildlife in question is a large charismatic species (Peterson et al. 2010).

82 In April 2013 we used ISI Web of Knowledge to locate 100 recent case studies, published
83 since 2010, on human-wildlife conflict, aiming for a broad overview of the subject. We
84 searched for articles containing the phrases “human-wildlife conflict” or “human-animal
85 conflict”. The databases included in the search were Science Citation Index-Expanded, Social
86 Sciences Citation Index, Arts and Humanities Citation Index, Conference Proceedings
87 Citation Index-Science, Conference Proceedings Citation Index- Social Science & Humanities.
88 For multiple papers on the same study system, we took the most recent one. We excluded
89 reviews or discussion articles.

90

91 For each case study, SB identified whether the species in question was of conservation
92 interest (i.e. on the IUCN Red List, IUCN, 2014) and the broad objectives underlying either
93 side of the conflict, which were categorized them based on the abstract and title (Table 1).
94 Although the articles were primarily coded by SB, the typology was developed by all three
95 authors and in rare cases of uncertainty the article was coded by mutual agreement.

96

97 Of the 100 articles, 97 involved species of conservation interest. Most of the species
98 involved were predators (54%) or large herbivores (42%). We identified the underlying
99 conflicts as primarily being between conservation objectives and either livelihood (65%) or

100 human safety and health objectives (15%). Others involved conservation and recreation
101 (8%), development and infrastructure (4%), animal welfare (3%) and human wellbeing (2%).
102 In other words, almost all human-wildlife conflicts were between those who sought to
103 defend conservation objectives and those defending other, mainly livelihood, objectives.

104

105 **DOES LANGUAGE MATTER?**

106 Does it really matter if we continue to frame these issues as human-wildlife conflicts?
107 Peterson et al. (2010) argue that it does because it perpetuates the problem and reduces
108 options for solutions. Using the human-wildlife conflict frame may label nature as
109 threatening, leading to misunderstanding and ultimately negative consequences for nature
110 (McComas 2006). This is similar to the problem identified in studies of invasive species,
111 where it has been argued that militaristic metaphors are problematic because they give an
112 inaccurate perception of the species involved and contribute to misunderstanding (Larson
113 2005). We also know that the way problems are framed has repercussions. For example, the
114 way that the news is framed by the media is believed to influence the political agenda as
115 well as prime the readers to think in a certain way (McCombs and Shaw 1972, Scheufele
116 1999). So we may hypothesise that presenting wildlife as antagonistic may alter the way
117 people perceive those species.

118

119 Furthermore, if we continue to view these conflicts as being between humans and wildlife
120 then the approach taken to tackle conflicts will naturally be on technical solutions rather
121 than the underlying conflict. Technical solutions, aimed at reducing the impact of wildlife on
122 humans may be successful (e.g. Woodroffe et al 2005). For example, technical solutions
123 such as tripwires or community-based guarding, or chilli deterrents in farms to minimise

124 damage from elephants may be successful (Hedges & Gunaryadi, 2010). However, because
125 conflicts are fundamentally between people, technical solutions are unlikely to focus on the
126 underlying problem unless both parties support their use. So just because a particular
127 technical solution may be effective at reducing impacts does not mean that conflicts
128 between conservation and livelihood objectives are addressed.

129

130 **A WAY FORWARD?**

131 Peterson et al. (2010) suggest, like Madden (2004) before them, that instead of using the
132 term human-wildlife conflict we should use human-wildlife coexistence as a more
133 constructive way of framing the issue. However, we contend that we need to do more than
134 this. We need to be explicit about the underlying human-human dimension. Transparency
135 about the nature of these conflicts is urgently needed before we can identify effective
136 means of dealing with them (Linnell et al. 2010, Young et al., 2013). This partly involves
137 distinguishing between human-wildlife impacts and human-human conflicts (Young et al.
138 2010). It also means being unambiguous about the specific interests involved. In the
139 majority of cases, human-wildlife conflicts are between conservation and other human
140 interests. In these cases, we suggest it may be more productive to stop hiding behind the
141 wildlife and be clear that those who are defending the conservation objectives are the
142 antagonists.

143

144 This distinction is important because the focus will inevitably move from a focus on impact
145 and technical solutions to consideration of how to negotiate solutions between these
146 competing interests. Although technical approaches are likely to be an important part of the
147 solution, we suggest that the main thrust should be a policy context that encourages

148 dialogue between the interest groups to understand goals, explore the evidence and
149 negotiate ways forward (Redpath et al. 2013).

150

151 We illustrate these points with an example one of us (SR) has worked on. In the UK, hen
152 harriers *Circus cyaneus* have an impact on red grouse *Lagopus l. scoticus* populations in the
153 UK, and there is a conflict between those interested in harrier conservation and those
154 interested in grouse shooting (Thirgood & Redpath 2008). At the outset this was typically
155 considered as a human-wildlife conflict and a number of technical solutions were proposed
156 (Thirgood et al. 2000). One technical solution that was subsequently tested and found to be
157 highly effective at reducing impact was the use of diversionary feeding (Redpath et al.
158 2001). Yet, despite its effectiveness, the solution has not been taken up by grouse managers
159 and the conflict continues, because the technique was aimed at reducing impact rather than
160 addressing the underlying conflict (Thirgood & Redpath 2008). We suggest that should a
161 shared solution be sought, then a more productive approach will be to address the
162 underlying conflict by building trust and understanding between the groups. Being explicit
163 about the human antagonists will help open up the space and expertise to search for
164 sustainable solutions.

165

166 **THE ROLE OF CONSERVATION**

167 This reframing of many human-wildlife conflicts as being between conservation and other
168 human activities highlights another potential problem. Given the urgency that is integral to
169 conservation, it is unsurprising that in many cases conservation biologists are dealing with
170 the conflict. It may be problematic to have one party who is an antagonist in the conflict
171 leading the search for solutions as they clearly will not be an independent arbiter in the

172 conflict. Conservation biologists may focus on top-down approaches, such as enforcing
173 legislation on unwilling stakeholders or tokenistic participatory approaches in which false
174 expectations are raised within a legislative context which cannot be changed. In addition
175 conservation biologists are naturally going to focus on delivering conservation outcomes,
176 such as an increase in species number, rather than striving for outcomes that seek to benefit
177 both parties. The concern here is that this biased focus may exacerbate the conflict by
178 antagonising the other party rather than resolving it. Care is required when thinking about
179 what role individuals and organisations should play in these issues, what outcomes are
180 sought by those involved, what processes will enable negotiation of alternative solutions,
181 and from a conservation perspective which approach will lead to more effective long-term
182 conservation outcomes (Redpath et al. 2013).

183

184 **DISCUSSION**

185 Within this field of conservation conflicts, we suggest that in many cases researchers,
186 planners and practitioners are still attempting, like *Don Quixote*, to slay falsely identified
187 conflicts, with the consequent difficulties. There is a need to consider carefully the way we
188 use the term human-wildlife conflict and to clearly distinguish between human-wildlife
189 impacts, and the underlying human-human conflicts between conservation and other
190 human interests. These distinctions are important as they highlight that many of the
191 underlying arguments are between conservation and other human activities over how to
192 manage a large predator or herbivore, rather than between humans and the species
193 involved, where the species act as a surrogate for conservation interests.

194

195 To date, human-wildlife conflicts have proven extremely challenging to manage, in part, we
196 contend, because in the majority of cases they are researched by conservation biologists
197 working to understand and mitigate ecological impact rather than the social dimensions
198 (Knight et al. 2006). We suspect that it will be more productive to tackle the underlying
199 human dimensions by working with affected communities (Gregory 2000; Knight et al. 2006)
200 and with those skilled in negotiation to openly and transparently explore the options with
201 conservationist biologists, recognising that they are only one of the parties involved in that
202 negotiation (e.g. Biggs et al., 2011). This will require the role of conservation in these
203 conflicts to be acknowledged explicitly, the goals to be articulated and some will to
204 negotiate solutions within the existing legal and political context. Although policy makers
205 and conservation biologists are increasingly recognising the need for such an approach in
206 conservation generally, these issues are pressing within conflict situations where there is an
207 urgent need to tackle effectively and sustainably the serious problems that threaten the
208 conservation of biodiversity and other human activities.

209

210

211

212 **Table 1. Descriptions of competing objectives identified in papers on human-wildlife**
 213 **conflict.**
 214

Objectives	Description
Conservation	Emphasis on the need to defend conservation objectives: eg Protecting threatened species listed by IUCN, or upholding conservation legislation
Livelihood	Emphasis on livelihood impact of the conflict e.g. impact on farming, fishing, etc.
Animal Welfare	Emphasis on ethics and moral responsibility towards the species in conflict, especially in human-dominated landscapes e.g. urban wildlife management
Human safety & health	Emphasis on public health and safety concerns arising out of conflict
Recreation	Emphasis on human recreation e.g. tourism or trophy hunting
Development & Infrastructure	Emphasis on the impact of infrastructure activities on conservation of the species in conflict e.g. road construction
Human wellbeing	Emphasis on psychological or spiritual wellbeing of people, including perceptions of risk, or spiritual/ religious connection of people with the species

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