Journal of Threatened Taxa

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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

Peer Commentary

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26 July 2018 | Vol. 10 | No. 8 | Pages: 12082–12085
10.11609/jott.4319.10.8.12082-12085

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Journal of Threatened Taxa | www.threatenedtaxa.org | 26 July 2018 | 10(8): 12082–12085

The term human-wildlife conflict creates more problems than it resolves: better labels should be considered

Priya Davidar

Sigur Nature Trust, Chadapatti, Mavinhalla P.O., Nilgiris, Tamil Nadu 643223, India
pdavidar@gmail.com

ISSN 0974-7907 (Online)
ISSN 0974-7893 (Print)

OPEN ACCESS

Abstract: A critique of the extensive use of the term human-wildlife conflict to describe a variety of situations involving wildlife.

Keywords: Anthropocene, forest fringes, human-wildlife conflict, species extinction, terminology.

DOI: http://doi.org/10.11609/jott.4319.10.8.12082-12085

Editor: Mewa Singh, University of Mysore, Mysuru, India.

Date of publication: 26 July 2018 (online & print)

Manuscript details: Ms # 4319 | Received 07 June 2018 | Finally accepted 22 June 2018

Citation: Davidar, P. (2018). The term human-wildlife conflict creates more problems than it resolves: better labels should be considered. *Journal of Threatened Taxa* 10(8): 12082–12085; http://doi.org/10.11609/jott.4319.10.8.12082-12085

Funding: None.

Competing interests: The author declares no competing interests.

Author Details: Priya Davidar is a conservation biologist working on forest ecology, pollination biology and endangered species conservation. She retired as a Professor at the Department of Ecology and Environmental Sciences , Pondicherry University. Her current project is analysing tree distributions at the biogeographical scale, and the conservation genetics of endangered species such as the Asian Elephant and Nilgiri Tahr

Acknowledgements: I thank Dr. Jean-Philippe Puyravaud for insights into this debate.

Humans have had an uneasy relationship with wild animals since the dawn of human evolution as they preyed upon, were prey, and competed with wild animals (Knight 2013). As human populations dispersed across the globe during the Late Quaternary they were the main driver of the extinction of large mammalian fauna (Bartlett et al. 2016). For example, human dispersal into North America during the Pleistocene probably caused the extinction of 35 genera of mammals (Faith & Surovell 2009). Sites with mass killing of megafauna by Palaeolithic hunters have been documented across continents (Barnosky et al. 2004).

The remnants of this rivalry can be perceived in cultural practices of traditional societies, and cultural beliefs involving dangerous animals such as werewolves, vampires and others which are a metaphor of the pervasive human belief of the 'beast within', 'bestial', etc. Violent killing by humans is denounced in the idiom of natural predation where criminals and enemies are termed 'jackals', 'wolves', etc. (Knight 2013).

This rivalry is closely inter-twined with human expansion into wilderness habitats (Knight 2013). Even today, this continues, and tends to be the most intense in settlements at the forest edge, in many cases due to colonization of forests by frontier populations (Rudel & Roper 1997).

The modern depiction of this rivalry is termed human-wildlife conflict (HWC), defined by the IUCN World Parks Congress (Madden 2004) as "…when the needs and behavior of wildlife impact negatively on the goals of humans or when the goals of humans negatively impact the needs of wildlife. These conflicts may result when wildlife damage crops, injure or kill domestic animals, threaten or kill people".

In terms of usage, a conflict is typically defined as 'an active disagreement between people with opposing opinions or principles; or fighting between two or more groups of people or countries' (https://dictionary.cambridge.org/dictionary/english/conflict, viewed 08–04–2018).

Therefore, HWC suggests 'conscious antagonism between wildlife and humans' and implies that wildlife act consciously and often places wildlife entities on an equal footing with people in the role of combatants, even though they cannot represent themselves in the political sphere against people (Raik et al. 2008; Peterson et al. 2010). The use of this term in which wildlife are blamed for every encounter or incident places culpability entirely on the wildlife side of the equation, suggesting that wildlife assert their interests to undermine human goals (Woodroffe et al. 2005). This promotes antagonism towards wildlife that can exacerbate the problem, hinder resolution and can result in people directing their anger, frustration on wildlife with potentially adverse conservation outcomes for endangered species (Peterson et al. 2002; Brook et al. 2003; Redpath et al. 2015). Besides the HWC approach is often ineffective because it has led to purely technical solutions being proposed that may have worked in particular circumstances but have not addressed the underlying issues (Redpath et al. 2015). For example translocating wildlife to resolve 'conflicts' has often failed to achieve its objectives due to lack of understanding of the species' behaviour and/or the underlying issues (Athreya et al. 2011). Often the increasing human population densities and expansion into forest areas that result in such incidents (Newmark et al. 1994) are not addressed.

To the best of my knowledge, the earliest reference to 'conflict' between wild animals and humans was in the early 1990s (Sukumar 1991; Newmark et al. 1994). Before the term 'conflict' became popular, more precise terms such as crop raiding and livestock depredation were used to describe incidents involving wildlife (Jhala 1993; Oli et al. 1994). The use of this term has increased over time: Treves (2009) carried out a Google search based on the keywords "human AND wildlife AND conflict OR depredation OR damage", and Google Scholar returned 3140 hits between 1992–1999, and 8060 between 2000 and 2007.

Its popularity stems from its simplicity and ease of usage to describe a diversity of situations involving wildlife. Thereby it has become a buzz word used to amplify conservation initiatives, create funding opportunities, increase research productivity and create a sense of urgency that limits the array of potential solutions that may arise when the situation is more accurately described (Peterson et al. 2010). In many cases the damage or threat is exaggerated for gains, for example, in Japan the scale of concern over bears greatly exceeds the actual damage done by the animals (Knight 2013).

To understand in what context this term human-wildlife conflict is used in conservation literature, Peterson et al. (2010) carried out a meta-analysis of 422 case studies of HWC and found that over 95% of the 422 cases referred to animal damage in some form to (i) resources such as food, (ii) property, or (iii) attacks on people. Only one case represented a typical example of 'conflict' where there was human retaliation against Magpies (*Cracticus tibicen*) that repeatedly attacked specific humans that they considered threats (Warne & Jones 2003). Less than 4% related to human-

Human-wildlife conflict is described as "when the needs and behavior of wildlife impact negatively on the goals of humans or when the goals of humans negatively impact the needs of wildlife. These conflicts may result when wildlife damage crops, injure or kill domestic animals, threaten or kill people" (Madden 2004). However, presenting wildlife in an antagonistic, anthropocentric and indiscriminate manner harms conservation of these species (Redpath et al. 2013). The usage of the term 'conflict' should be minimized and replaced with accurate terms instead. We propose an example of non-exhaustive list of terms, listed alphabetically that can be expended and refined.

Adequate terms	Indicating
Conservation welfare	Emphasis on ethics and moral responsibility towards species and populations
Animal welfare	Emphasis on ethics and moral responsibility towards individuals
Forestry damage	Damages to tree plantations
Crop damage	Damages to agriculture or horticulture crops by invertebrates
Crop raiding	Damages to agriculture or horticulture crop by wild vertebrates
Property damage	Damages to houses, fences, walls, pipes and electrical lines
Livestock predation	Predation of livestock by carnivores
Snake bite	Bites by venomous snakes
Animal attack	Accidental or deliberate attack on people, excluding man-eating incidents
Human predation	Documented man-eating by carnivores
Human-wildlife coexistence	Promotion of wildlife conservation and human needs by terminology that is less antagonistic
Human-wildlife commensalism	Wildlife such as snakes that are of indirect benefit to humans by controlling pests
Human-wildlife competition	How humans and wildlife compete for resources
Human-wildlife tolerance	How humans and wildlife avoid competition
Human attack	Deliberate attack on animals by humans
Dispute over protection	Conflict over protected area management and people – instead of human-state conflict
Stakeholders dispute	Disputes between stakeholders on how to manage wildlife, social issues – instead of human-human conflict

human conflict such as those between conservationists and other parties on how wildlife should be managed (Peterson et al. 2010).

Thus human conflicts are often projected onto wildlife (Knight 2013), and may in fact be a symbolic vehicle for expression of social conflict between people at the local, national and international levels, such as between conservation movements and developers or between people and protected area management termed 'human-state conflict' (Knight 2013). In Japan, widespread concern about the bear is balanced by local support for the bear, based on the premise that given the extent of human colonisation into bear territory, it is humans that are problematic with regard to the bear and not vice versa (Knight 2013). These human-human conflicts need to be distinguished from human-wildlife impacts.

Therefore, more precise description of the issue at hand may lead to better solutions. For instance crop raiding is a widespread problem in forest fringe areas where the cultivation of edible crops attracts wild herbivores. When crop raiding is described as crop raiding instead of as 'conflict' then better solutions may emerge depending on the location, the crops cultivated and the herbivores in question. Whereas the conflict terminology is provocative and emotional which could create more problem than it solves, particularly if sensationalised by the media (Bhatia et al. 2013; Redpath et al. 2013). In many cases rodents and monkeys cause more economic loss to people than large mammals such as bears, elephants and the great apes which take a disproportionate amount of the blame (Knight 2013).

Therefore in the Anthropocene, where the rate of species extinction is accelerating (Sanderson et al. 2002; Barnosky et al. 2011) there is a growing realization that humans need to move beyond their past history which has framed the narrative regarding wildlife. Finding ways to increase tolerance and coexistence with wildlife (Madden 2004) is needed to slow down the population declines of iconic megafauna. If not, future generations will no longer have the privilege of sharing their world with large charismatic animals. There are many examples of human tolerance to wildlife and acceptance of certain levels of loss of crops and livestock (Knight 2013). To protect human interests, however, innovative solutions need to be explored in forest fringe areas to ameliorate the situation.

This term which is problematic, semantically incorrect and which masks the underlying complexities of particular situations, needs to be avoided. It is well

known that language is a powerful tool that can intensify biases towards ethnic groups, genders or minorities (Keeley 2011). Therefore the terminology that we apply will make a difference to whether a species survives or disappears forever.

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Journal of Threatened Taxa

www.threatenedtaxa.org

OPEN ACCESS

ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

July 2018 | Vol. 10 | No. 8 | Pages: 11999–12146
Date of Publication: 26 July 2018 (Online & Print)
DOI: 10.11609/jott.2018.10.8.11999-12146