

## Human–Wildlife Conflicts and the Need to Include Coexistence

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How societies view wildlife determines the outcome of human–wildlife interaction and, depending on the context, translates into a coexistence, neutral or conflict situation. Throughout history, the social meaning of wildlife has changed, shaping the role and the place wildlife hold in different societies, from beloved pets cherished at home (e.g. dogs) to despicable vermin to be eradicated from the wild (e.g. wolves). For example, white-tailed deer (*Odocoileus virginianus*) coexist and are often tolerated within urban human settlements in North America. Yet those species perceived as a threat (e.g. coyotes *Canis latrans*), or pest (e.g. raccoon *Procyon lotor*) or with deep-rooted social meaning, as in the case of the *big bad wolf* of Little Red Riding Hood fame in Western cultures, can be rejected by society, potentially turning an encounter with such species into a conflict situation (Varga 2009). Humans may accept, or not, a wildlife species depending on how that wildlife species is defined, and where a particular society draws the line between humans and wildlife spaces (Knight 2000; Philo & Wilbert 2000; Creager & Jordan 2002). In this chapter, we first describe the rise of physical and figurative boundaries between humans and wildlife, and how these have influenced the rise of human–wildlife conflict. Text Box 1.1 is included to provide a historical perspective of the changing relationship between humans and nature from an animal geography standpoint. This chapter also explores human–wildlife interactions and coexistence and introduces the conflict-to-coexistence continuum concept. The final section of this chapter focuses both on turning conflict into coexistence and on how the conflict-to-coexistence continuum concept can help researchers and practitioners better understand and address human–wildlife interactions.

### Text Box 1.1 A Changing Relationship between Humans and Nature

Animal geography, a subfield of human geography, studies human–animal relations in terms of space and place, and critically interrogates the relationship between humans and other species (Johnson 2008). It describes the ways individuals, social groups and societies organize, perceive, provide meanings for and communicate about nature and wildlife. Throughout history, as critically pinpointed in the animal geography literature, humans have used an anthropocentric perspective to separate themselves from nature and wildlife (Oliver & Johnston 2000). Early nomadic and hunting societies were an integral component of their environment until they gradually settled, embraced an agricultural lifestyle and domesticated wildlife (Oelschlaeger 1991; Ingold 1994; Manning & Serpell 1994; Emel et al. 2002; Kruuk 2002). During this agricultural transition humans started to selectively include certain wildlife species within their realm, converting them into pets (e.g. dogs, cats) or livestock (e.g. horses, cattle) (Leighly 1963), while excluding others either because they were unable to be domesticated (e.g. antelopes) or were competing predators (e.g. carnivores) (Lee-Thorp et al. 2000; Berger & McGraw 2007). The growing separation of humans from nature enabled humans, in several societies, to believe that they were the centre of the world, and all other species were re-organized by humans as domesticated animals and/or wildlife species (Evernden 1992; Tovey 2003).

Over the following centuries, the idea that modifying nature and taming wildlife was essential to satisfy human needs and to subdue the perceived dark, undesired side of wilderness was strengthened by Western religious dogmas (Cronon 1995; Wolch & Emel 1998; Nash 2001). The rise of scientific reasoning further shaped this anthropocentric perspective by separating humans from the subjects to be studied (the true shape of nature could only be understood through scientific approaches), with humans no longer being part of nature and becoming sovereign over nature and all other species (Oelschlaeger 1991; Evernden 1992; Manning & Serpell 1994). With the development of the Romantic movements, and the start of industrialization and urbanization, the human anthropocentric perspective of nature became twofold. On one side, nature turned into a source of salvation from human society and a respite from the pressure of modern life (Manning & Serpell 1994; Cronon 1995; Nash 2001). As advocated by Henry D. Thoreau and John Muir, nature needed to be preserved for its beauty, spiritual truth, innocence and purity (Oelschlaeger 1991; Manning & Serpell 1994; Nash 2001). On the other side, the rapid human population growth, industrialization and urbanization created pressures for the allocation and use of resources to increase human wealth and livelihoods. By advocating for the conservation of nature through planned use and renewal, Gifford Pinchot introduced the idea of the wise and economically efficient employment of resources, including wildlife (Rothman 2000; Nash 2001). As a result, a division between preserving and exploiting nature and wildlife took root – shaping the still ongoing

debate of nature and wildlife *as only for use* versus *to be cared for* (Evernden 1992; Rothman 2000; Nash 2001).

Over the last centuries, nature and wildlife have become commodities scarce consumption goods and objects with a market value advertised by media commercials, sold as gadgets in malls, consumed in park resorts and commercialized through many other venues (Price 2000; Polanyi 2001). The definition of nature as a commodity, however, conflicts with the idea of nature as pristine and untouched, worth protecting and an emblem of environmental movements. The contradictions inherent in rationalizing nature and wildlife from an anthropomorphized perspective as goods to be consumed and as valuable for their own sake have played, and still play, a fundamental role in shaping societal values, beliefs and attitudes towards nature, and determine whether a human–wildlife interaction is perceived as a coexistence, neutral or conflict experience.

### 1.1 BOUNDARIES BETWEEN HUMANS AND WILDLIFE

Human–wildlife interactions, either conflict or coexistence, are driven by the separation between *us* – the humans – and *them* – the non-human species. This separation often represents the root cause of human–wildlife conflicts through the creation of exclusive places – either for humans (e.g. cities) or for wildlife (e.g. protected areas). Indeed, humans have increasingly drawn boundaries to keep wildlife outside the human space. Those boundaries are sometimes physical, such as fences and walls around communities, but also figurative as expressed by the concept of wilderness and protected areas, which represent places where wildlife should live (Knight 2000; Creager & Jordan 2002). Boundaries are territories of separation, as much as contact; they influence the physical and ecological features present in a place while shaping participants' values, attitudes and behaviours towards wildlife (Frank & Bath 2012). The meaning we confer to nature and the way we relate to other species will ultimately affect whether human–wildlife interactions turn into a conflict or coexistence situation.

Through the creation of boundaries, human society has further distanced itself from nature, adding complexity to the society–nature relationship and laying the groundwork for conflict with and over wildlife. Boundaries influence the relationship between humans and wildlife and add a further layer of complexity to human–wildlife interactions (Ripple et al. 2014; Liordos et al. 2017). Yet the separation through boundaries between humans and wildlife is not as clear as one might think. Indeed, boundaries become blurry in countries where people and

wildlife have shared the same landscape for millennia, and where protected areas were established within human territories (e.g. Southern Europe, India) in contrast with places where natural parks have been established in remote areas or by relocating people (e.g. North America, Africa) (Woodroffe 2000; Jenkins & Keal 2004; Woodroffe et al. 2005). The expansion of human settlement near wildlife, and the arrival of species such as deer and foxes in urban places, have made it even more challenging to distinguish between human and wildlife spaces. It has become an everyday occurrence for humans and wildlife to cross boundaries and enter into each other's space, leading to increased human–wildlife interactions, and resulting in controversies among various social groups, institutions and ideologies over wildlife, their meaning and belonging.

#### 1.1.1 The Rise of Human–Wildlife Conflicts

In the traditional anthropocentric definition of human–wildlife conflict (HWC), the human role is absent from the conflict analysis and solutions are developed by only focusing on wildlife. Indeed, HWC has been addressed by definitions centred on the competition of humans and wildlife over space, resources and livelihood (Knight 2000). Often the focus is on wildlife threatening human interests, safety and well-being (White & Ward 2010). More recently, authors have included the human dimensions in the HWC equation by adding the negative effects/actions of humans and/or wildlife on the needs of each other (Conover 2002; Madden 2004a, 2004b; Woodroffe et al. 2005; Nyhus 2016).

As initially pointed out by Peterson et al. (2010), conceptualizing HWC as direct oppositions between humans and wild animals implies that wildlife are not acting opportunistically but consciously against humans. However, in recorded history, only humans have been known to consciously target and kill non-human animals not for subsistence or survival reasons. The perception of wildlife impairing human interests, by damaging crops, livestock predation and threatening human safety, frequently motivates responses such as retaliatory killing of individual animals or persecution of entire wildlife populations (Woodroffe et al. 2005; Madden 2008; Hazzah et al. 2014; Nyhus 2016; Ravenelle & Nyhus 2017; Gebresenbet et al. 2018). With a steady growth of human populations and the connected needs for space and resources, the picture of HWC has become even more complex as humans and wildlife are forced to live in closer proximity and cross each other's boundaries

constantly (Blackwell et al. 2017; Senthilkumar et al. 2017; Songhurst 2017), pushing human–wildlife interactions towards conflict.

When the balance is tipped towards conflict, species can be banned from the human realm, seen as negatively interfering with *our* material properties (e.g. causing damage to pets, livestock and crops), and/or *our* psycho-sociological well-being (e.g. fear of being attacked and reduced health) no matter what they do (Barua et al. 2013). For example, negative experiences with wildlife (Kansky et al. 2016), concerns about safety (Sponarski et al. 2015), economic costs of living with wildlife (Treves & Bruskotter 2014) and labour and opportunity costs (Dickman 2010) are some of the factors, among many others, that can lead to HWC (Woodroffe et al. 2005; Dickman 2010; Frank 2016). These conflicts may go beyond evident physical impacts, as they can trigger social and psychological backlash to those who experience them (e.g. poor attendance or performance in schools, decrease in well-being, loss of sleep for guarding crops and food insecurity) (Ogra 2008; Barua et al. 2013; Kansky et al. 2016; Nyhus 2016; Yurco et al. 2017). Such hidden impacts are difficult to measure and can be magnified by human–human conflict (HHC) over what reactions towards wildlife are acceptable under different circumstances (i.e. poaching, killing, negatively affecting species and wildlife habitats). A sense of impotence about governing systems decisions over wildlife conservation and power imbalance with other stakeholders, may result in those feeling that they bear all the cost of conservation redirecting their anger to wild species rather than addressing the power issues with other players in the decision-making process (Barua et al. 2013; Nyhus 2016). Power dynamics between humans can thus exacerbate conflict over wildlife, and turn human–wildlife conflicts into human rights and environmental justice issues. So, is it really a human–wildlife conflict, and for whom? In the next section we address this key question to portray the multiple dimensions and the challenges behind the concept of human–wildlife conflicts, thus allowing us to move from focusing on conflict to looking at interactions between humans and wildlife.

#### 1.1.2 Is It Really a Conflict, and for Whom?

The term HWC, with its multiple implications, has commonly been used in the conservation literature (Hill 2017), but to whom does it really refer? People engaged in wildlife conservation and/or management use this concept as an operative tool that helps define when a

human–wildlife interaction turns into a negative situation/experience. Yet the definition of HWC often does not fully consider the psychological dispositions of those living and sharing the landscape with wildlife. Indeed, HWC definitions used in conservation do not really take into account the following questions: How do local people perceive wildlife? Is a certain species problematic for them? Are these perceptions mutually exclusive? Is the killing the main problem, and is it caused by deep-rooted conflicts? As defined by Madden and McQuinn (2014), deep-rooted conflicts are pre-existing and often non-negotiable disagreements between different stakeholders, which can arise from contentious history between and among groups, power imbalance, opposing values and different groups' identities. Because of deep-rooted conflicts, any interaction among such groups can add meaning and emotion to each new dispute, making any type of conflict an unsolvable problem. Many other questions that include local perspective can be added to the above list. With this list of questions, we aim at making the point – is it a conflict? If so, for whom – the conservationist, the local people or for others?

It is also important to bear in mind that a *conflict* in one specific situation may not be perceived as such in another similar one due to culture, location, severity and time, among other factors. Indeed, some perceived conflicts are more about social and cultural values than about actual impacts (McIntyre et al. 2008; Soulsbury & White 2015). For example, in some societies the killing of wildlife is cultural or commercial-related, and has nothing to do with the visible material impacts and conflict we hear and/or read about in the media or in peer review articles (Hazzah et al. 2014; Dayer et al. 2017). This is the case of killing lions in Maasai culture (see Chapter 17), or of the notorious Cecil – the lion that nowadays symbolizes trophy hunting. Neither of these examples has anything to do with the traditional definition of HWC (Nelson et al. 2016).

To overcome the *for whom* challenge, recent literature has shifted towards recognizing how, in many cases, the HWC framework hides a human–human component; a friction between different stakeholders over different interests, including how to protect and conserve wildlife (Manfredo & Dayer 2004; Peterson et al. 2010; Redpath et al. 2015; Bhatia et al. 2017; Madden & McQuinn 2017). To distinguish explicitly the different factors of HWC, Young et al. (2010) suggested extracting and separating the two components of HWC: (1) the impacts caused by wildlife on humans, and (2) the HHC between those defending

pro-wildlife positions and those defending other positions. Because of the conservation-oriented perspective of HWC, the traditional approach to solve conflicts has focused on the first component by reducing the tangible side of impacts caused by wildlife through bio-physical and economic solutions (Madden 2008; Pooley et al. 2017). Examples of interventions to mitigate conflict include lethal and non-lethal wildlife management measures, technical fixes for preventing damage such as building fences, as well as financial instruments to offset the direct impact of wildlife on human belongings (for reviews see Eklund et al. 2017; van Eeden et al. 2018). However, these wildlife management efforts have, in some instances, failed to reduce HWC as they have fallen short of considering the second component of HWC, the social drivers and root causes of HHC (Dickman 2010; Young et al. 2010; Draheim et al. 2015).

Often HHC has been completely overlooked as conservationists, managers and decision-makers position themselves as neutral subjects in the HWC. Such a perspective fails to recognize that: (1) researchers, conservationists and other decision-makers hold value-laden and socially constructed perspectives about nature, and (2) local people are the ones bearing the consequences of living with wildlife; they are the ones sharing the landscapes and often coexisting with the species the conservationists want to protect. This separation between conservationists' perspective/strategies and the *other* stakeholders has been documented in the literature through various case studies (e.g. Logsdon et al. 2015; van Heel et al. 2017). A typical example of management efforts that have failed to reduce HWC is around large carnivores, in Scandinavian countries (Skogen & Krangle 2003; Bisi et al. 2010) and in North America (Lute & Gore 2014; Browne-Nuñez et al. 2015) where people perceived the presence of wolves as imposed by the authorities, or in Tanzania, where tribes believe lions are sent by their rivals to jeopardize their communities' safety and well-being (Dickman & Hazzah 2016). The separation and divergence in views on how to manage natural resources can hinder support for conservation (Hill 2017; Madden & McQuinn 2017). Opposition towards conservation can indeed become even more severe when local communities perceive that their own needs are being subordinated to those of wildlife (Madden 2008; Songhurst 2017). As a result, conservation interventions find local resistance or fail, as they do not build trust and transparency between groups interested in the human–wildlife interaction, hence addressing the deep-rooted reasons behind HWC (Madden & McQuinn 2014, 2017; Dayer et al. 2017; Hill 2017).

## 1.2 RECONCILIATION AND COEXISTENCE WITH WILDLIFE

Through their pioneering research, Madden (2004a, 2004b) and Woodroffe et al. (2005) have initiated a shift in wildlife conservation and management perspectives, by including tolerance and coexistence in HWC and by recognizing that humans are not only part of the problem, but also part of the solution. The integration of tolerance and coexistence into the HWC discourse has contributed to the alleviation of the immediate feeling and perceived perspective of antagonism and separation between humans and wildlife (Peterson et al. 2010; Frank 2016; Hill 2017). Accordingly, an increased importance has been given to the concepts of tolerance and coexistence, and their use and role in reframing conservation challenges and opportunities (Frank 2016; Pooley et al. 2017). The inclusion of tolerance and coexistence in HWC is helping conservationists to recognize that wildlife can thrive in human landscapes, and that most of the time people do live with wildlife and experience impacts or compete for space without calling such interactions conflicts. For example, some people will tolerate losing part of their crop or some livestock to wildlife as part of the risks of farming and cultural benefits perceived from wildlife (Goodale et al. 2015). Thus, tolerance and coexistence are more than the ability of human and wildlife to co-occur in the same place, often at the same time. Tolerance and coexistence are about the ability of humans and wildlife to interact, and through those interactions build a community that is integrated, and can cope with moderate and manageable competition (López-Bao et al. 2015; Soulsbury & White 2015; Carter & Linnell 2016; Chapron & López-Bao 2016). For example, in Romania, as well as in other European countries (e.g. Croatia, Italy), where brown bears have successfully co-inhabited the landscape with humans, learning through positive experience plays an important role for coexistence (Majić et al. 2011; Glikman et al. 2012; Dorresteijn et al. 2016).

The terms coexistence and tolerance are becoming increasingly popular in human–wildlife interaction literature (Nyhus 2016; Hill 2017). Yet the meanings of tolerance and especially of coexistence are generally used implicitly, and therefore are not defined in conservation literature (e.g. Karanth & Chellam 2009; Ripple et al. 2014). Indeed, the meanings of tolerance and coexistence remain unclear, especially as they are used to describe attitudes and behaviours across social and natural science perspectives (Treves & Bruskotter 2014; Carter & Linnell 2016; Inskip et al. 2016). In recent articles, coexistence has been

conceptualized and operationalized for research and conservation use. According to Frank (2016) ‘coexistence takes place when the interests of humans and wildlife are both satisfied, or when a compromise is negotiated to allow the existence of both humans and wildlife together’ (Frank 2016, p. 739). Chapron and López-Bao (2016) describe the term of coexistence from an ecological community perspective, using as an example large carnivore populations roaming free in the human-made European landscape. They argue that coexistence happens when species have different ecological niches and do moderately compete for the same resources. These authors question the feasibility of coexistence by wondering if *super predators* like humans who alter ecological and evolutionary processes globally (Darimont et al. 2015) have the ability to become less competitive and differentiate their niche to avoid conflict with other species, especially other carnivores, which share our same need for space and resources. Carter and Linnell (2016) further advance the definition to a broader landscape level by stating that coexistence arises in dynamic and sustainable socio-ecological systems where humans and wildlife are integrated and co-adapt to living together in space and over time. From this point of view humans and wildlife are mutually adaptable – they co-adapt – when they ‘are able to change their behaviour, learn from experience, and pursue their own interests with respect to each other’ (Carter & Linnell 2016, p. 577). Morehouse and Boyce (2017) offer another interpretation of coexistence, which occurs when wildlife share the same landscape with humans without impacting human safety, property or rights. Within shared landscapes, effective institutions ensure the presence of wildlife in the long term while fostering social legitimacy through dialogue with and between groups, and by pursuing a tolerable level of wildlife-related risks. These definitions look at coexistence at different scales, yet unify multidisciplinary perspectives and consider human–wildlife and human–human interactions.

Interestingly, there is more conceptual variation in the conservation literature around tolerance than coexistence. Indeed, depending on the context, tolerance is being defined either as a behaviour or behavioural intention (e.g. Hazzah et al. 2009; Marchini & Macdonald 2012; Bruskotter et al. 2015; Gebresenbet et al. 2018) or as an attitude (e.g. Manfredi & Dayer 2004; Zimmermann et al. 2005; Treves 2012; Lindsey et al. 2013; Harvey et al. 2017). Adopting the definition of tolerance as an attitude or mindset that signals an intention, coexistence is then referred to as a state or an array of behaviours (Treves 2012; Frank 2016; Harvey

et al. 2017). As stressed by Treves (2012) tolerance may not translate in behaviours. Indeed, even when wildlife causes impacts, humans can still tolerate them if they perceive some sort of benefit (e.g. spiritual, economic) (Madden 2004a, 2008; Goodale et al. 2015). Hence, tolerance is described as the passive acceptance of a wildlife population (Treves & Bruskotter 2014), which depends upon the risk–benefit beliefs people have towards a species and the related perceptions of control over hazard, social trust, conflicts among groups and the effect such species generates (Bruskotter & Wilson 2014; Inskip et al. 2016; see Chapter 5). Based on this, some researchers use the terms *acceptance* and *tolerance* synonymously (Bruskotter & Fulton 2012; Inskip et al. 2016). Recent research further indicates that outer variables (i.e. experience) and inner variables (i.e. value orientations, empathy, taxonomic bias, personal norms, emotions) drive perceptions of the costs–benefits of living with wildlife (see Chapters 2 and 4). Such description of tolerance acknowledges that people sharing the landscape with wildlife will bear added costs – physical as much as psychological – of living with wild species and yet still be willing to have wildlife in their proximity (Kansky et al. 2016). Tolerance is about people not interfering with or harming species, and bearing the costs/risks of sharing the landscape with wild animals, as much as it is about accepting feelings, habits, beliefs or behaviours differing from, or conflicting with, one’s own. Even when wildlife cause conflicts, people can be tolerant towards them if the species are perceived as beneficial to the personal, spiritual, cultural, economic, social or political well-being of society. ‘Tolerance can also be the result of adjustment, for instance, when local residents would be willing to accept damage caused by wildlife up to a certain threshold’ (Frank 2016, p. 740).

### 1.3 THE CONFLICT-TO-COEXISTENCE CONTINUUM

For some, the discussion around conflict or coexistence may be a matter of semantics. However, while working towards conservation solutions, focusing on mechanisms of coexistence represents a more positive approach than simply mitigating conflicts. As stressed by Peterson et al. (2010) the words we use while describing human–wildlife interactions matter, as defining an interaction through a positive label may help focus on affinity and empathy between human and wildlife while still acknowledging that such species compete over space and limited resources. However, shifting from labelling human–wildlife conflict to