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"Let me take a selfie": reviewing the implications of social media for public perceptions of wild animals

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Abstract: Social media has become a powerful tool for spreading information and awareness campaigns on environmental issues, especially as they pertain to the conservation of wild animals. It is a double-edged sword, however, since it also facilitates the legal and illegal trade of wild animal species as well as the propagation of 'wild animal selfies.' This review presents some key literature to date which concerns the impact of social media on public perceptions of animals (such as through 'viral' videos), changing trends in animal encounters at wildlife tourism destinations, and the wildlife trade as it is facilitated by social media. Finally, avenues for future research are suggested with urgency, since the impact of social media on the welfare and conservation of wild animal species is most likely underestimated yet bears serious consequences.

Keywords: social media; selfies; wild animals; wildlife tourism; wildlife trade

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Introduction: The era of the internet has ushered in more widespread, globalized engagement with the 'virtual' bodies of animals and environments (Bosslet, 2011), especially via the proliferation of 'wildlife selfies' through social media outlets such as *Instagram*, *Twitter*, and *Facebook*. This has both positive and negative implications for animal welfare and conservation (Nekaris et al., 2015).

It is our intention that this review of the literature on wildlife and social media presents various case studies which adds colour to issue of how social media is entangled with people's perception of wild animals, animal welfare, and pet trade. We also provide ideas for future research on this issue.

Wildlife & Social Media: Given that about half of the global population uses the Internet, it is a useful tool for studying people's perception of environmental contexts (Clarke et al., 2019). Schetz et al. showed that in the United States there is a positive correlation between online search engine results and the density of bird populations at a geographical level (2015). They note that one species of bird, which was present locally, correlated with more people looking for information on that particular species (*ibid*).

Social media and networks are successfully influence the choices, attitudes, and behavior of online users from different sectors (Diehl et al., 2016). It has been demonstrated that social networks have a certain influence on consumer habits (Goh et al., 2013) since what is said online has an impact on public opinion (Diehl et al., 2016).

In the context of animals and social media, every day thousands of images of wildlife are published –especially on *Facebook* and *Instagram*. Photos and videos of wild animals are selected by social media users and can contribute to an increase in one's popularity amongst other social media users. Thus, there is the possibility that the animals are portrayed social media images and videos in an anthropomorphized way (wearing human clothes, being infantilized, etc.) or in domestic settings as pets. The depiction of wild animals as tame, humanized, and 'part of the family' can make it increasingly desirable to keep wild animals as pets (Vail, 2018).

To demonstrate this claim of the influence of social media on the perception of wild animals (especially of endangered species) is the case of the slow loris (Nycticebus spp.). A video

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entitled “Tickling Slow Loris" went ‘viral’ on the internet, and Nekaris et al. (2013) monitored reactions to this video for a total of 33 months going to study the perception of users about this endangered species. It emerged that many commenters expressed the desire for a slow loris as a pet, without demonstrating awareness of the risks to slow loris well-being nor the illegal wildlife trade. Celebrities shared this video which directed many users to it and contributed to its ‘viral’ nature. Only in the last monitoring period of the study was an increase in people's awareness of the potential negative impacts of such a video detected (*ibid*).

Subsequently, the same authors decided to investigate this issue more broadly by examining online videos in which slow loris are represented (Nekaris et al., 2015). The authors considered five criteria which could impact a slow loris’ welfare: contact with humans, daylight, signs of stress, non-natural environment, and social isolation. They analyzed 100 videos on various social media platforms and found that each video contained at least one of the five outlined criteria. Furthermore, the conditions in 31.3% of the total videos suggested the slow lorises’ welfare would be compromised. The authors found that viewers tended to like videos in which the animal was in fact visually in a state of stress and malaise. We can surmise from these videos that presenting wild animals as "humanized" and in non-natural environments can cause stress to the animal, and viewers will not always perceive this negative state experienced by the animal (Nekaris et al., 2015).

Recent research (Fidino et al., 2018) used content analysis on the online comments of *YouTube* users, a popular social media website for sharing videos, comparatively amongst various video contexts with three different animal species. The authors analyzed and categorized the comments in the ten most viewed videos for three animal species: the coyote (*Canis latrans*), Virginia opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*). Tracking the most frequently commented words, the authors extrapolated the valence of the comments into Kellert categories which described human attitudes towards animals. This included the following categories: naturalistic, ecologist scientific, humanistic, moralistic, dominionistic, and negativistic. Across all videos, comments categorized as naturalistic and scientific were the rarest. Opinions towards coyotes as ascertained from the comments were most commonly dominionistic, and least commonly humanistic. Interestingly, humanistic opinions frequented the most in videos of opossums and raccoons. Furthermore, humanistic,

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dominionistic, and negativistic opinions comprised 59% of analyzed comments. Most comments regarding opossums and racoons described these species as "furry" (47% and 34%, respectively). Since these three species are often involved in human-wildlife conflicts, and sometimes considered urban “pests”, these results follow logically.

Nghiem, Webb, and Carrasco consider how social media can “influence an immediate government response to a conservation crisis”. This was in relation to a case study of ‘viral’ photos circulated on *Facebook* which depicted a douc monkey “being tortured and slaughtered in the presence of Vietnamese soldiers” (Nghiem, Webb, & Carrasco, 2012; 192-3). Public outrage over the treatment of this endangered species caused the government to arrest the three soldiers featured in the video (*ibid*). The authors conclude that “social media offers a major tactical opportunity to hold public officials and citizens accountable, by galvanizing public opinion, applying public pressure, and therefore incentivizing improved conservation behavior” (*ibid*: 192). Therefore, while social media in previous examples presented a potential threat to conservation by influencing public opinion of wild animals as suitable pets, it can also function as a ‘watchdog’ and mobilizing platform to hold higher powers responsible in the absence of sufficient regulation, auditing, and treatment of wild animals.

Wildlife agencies in the United States of America aim to promote an understanding of wildlife and environmental management issues amongst the public. Therefore, the research we have discussed in this section demonstrate how online resources such as social media can be embraced by researchers to approximate the public’s opinion towards not only wildlife themselves, but also potential wildlife management options. Future research along these lines should strive for larger, more random samples of public opinion by requesting access to social media data, and by collecting more varied media content depicting wild animals.

‘Wild’ Selfies & Tourism: The line between the public and private sphere have become increasingly tenuous with the rise of social media which tracks, at least in the developed world, an increase in international tourism, urbanization, and subsequently decreasing ‘green spaces’. One product of the social media age is the proliferation of what *World Animal Protection* calls “wildlife selfies.” These are photographs taken by a tourist in close enough

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proximity to a wild animal that they both appear in frame. Certainly, this is not a historical anomaly since images of humans with wildlife range as far back as the invention of photography, but now it is easily facilitated through photo-sharing social media applications such as *Facebook, Instagram*, *Twitter*, and other various websites within the 'blogosphere'. *World Animal Protection* found "34 billion images posted by 700 million people on Instagram." This led to the creation of their "Wildlife Selfie Code" which encourages responsible 'ecotourists' to sign a pledge to abstain from wildlife selfies in which an animal is being baited with food, held, or restrained (https://www.worldanimalprotection.org/wildlife-selfie-code). Following suit, *Instagram* created a content advisory page to educate users on the welfare issues that may underlie a seemingly benign animal encounter (Daly, 2017). Is the 'pop-up' warning about the illegal wildlife trade, which appears on one's smartphone screen if using *Instagram*'s search feature for wildlife selfies, contributing to a change in not only public perceptions of ethical encounters, but also influencing market choice? Future research is needed surrounding tourist perceptions and learning in light of these new advisories.

In 2017 *TripAdvisor* stopped selling tickets to what may be deemed 'cruel' wildlife tourism, which includes circuses and entertainment-based attractions (Rushby, 2016). There is increasing pressure on travel organizations to match these strides towards a more ethical form of wildlife encounter. Tour companies such as *Intrepid* have committed to only including animal-based activities in their travel itinerary which meets the standards of acceptability, such as those set out by World Animal Protection and other bodies promoting responsible travel (*Intrepid*, n.d.). Since these changes in how social media promotes, or rather demotes, types of 'unacceptable' animal encounters are relatively recent, it is hard to be certain of its impact in shaping the values and choices of consumers and travelers.

World Animal Protection's 2018 report on wildlife tourism recounted a survey of sixty-two travel trade associations, of which twenty-one had a webpage on sustainable tourism, three had animal welfare guidelines within their stated "sustainability programs", and only one monitored the welfare guidelines' implementations (World Animal Protection, 2018). They maintain that "sustaining demand [for wildlife entertainment] perpetuates a never-ending cycle of cruelty" (World Animal Protection, 2018:11). As well, travel trade associations have "a critical role" in reducing this demand by deeming "unacceptable" those attractions which

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seriously endanger welfare as a necessary step towards "recogni[zing] best practices" and a more "wildlife-friendly future" (i.e. ban 'tiger selfies,' 'elephant riding', etc.)

A study which considered the impact of 'priming' tourists to distinguish between *good* versus *bad* types of animal tourism and encounters found that educating tourists at the outset, before they purchase or engage in a particular encounter, does influence their decision to do so based on whether it is detrimental or not to the animals involved (Moorhouse, D'Cruze, & Macdonald, 2017a). Some scholars argue that in addressing the unethical use of wild animals in tourism, the heavy lifting must be done at the level of influencing and informing the consumer towards 'better choices' (D'Cruze et al., 2017; Moorhouse, D'Cruze, & Macdonald, 2017b; Moorhouse, et al., 2015).

At present most wildlife tourism is not sustainable because it exists within an anthropocentric, neoliberal capitalist paradigm (i.e., lack of regulation, 'greenwashing', endangerment of animal lives, etc.) (Duffy, 2014; Moorhouse et al., 2017). It may be considered a form of *market environmentalism,* a paradigm which has been criticized as commodifying animals in tourism and fueling their role as resources for entertainment and fiscal gain (Belicia & Islam, 2018). In contrast, ecotourism appears to be an imperfect, but 'better-than-the-alternative' solution for achieving sustainability. It can replace harmful, extractive resource use in natural areas such as mining, logging, and poaching with tourism attraction. This has the potential to benefit of the host community and wildlife – when it is properly managed, however, along the principles of non-consumption (i.e., no hunting, extraction of animals for photo props and entertainment, etc.).

Ecotourism which is irresponsibly managed may endanger the conservation of the wild population through removal of individuals, triggering a change in feeding and reproductive behaviour, causing stress or physiological illnesses, or increasing susceptibility to poaching (Ménard et al., 2014). Unfortunately, there is evidence of attractions operating under the guise of ecotourism which extract individual animals from the wild to facilitate wildlife selfies (Carder et al., 2018; D'Cruze et al., 2017). One technique which tourism operators use to facilitate 'touch encounters' and selfies with wildlife include baiting individuals with food (Bulbeck, 2005). More research is needed on the permissibility of food provisioning to facilitate wildlife encounters, and how to change demand for a 'touch' encounter between

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tourists and animals into a 'no touch' encounter (Belicia & Islam, 2018; D'Cruze et al., 2017; Moorhouse et al., 2017; Orams, 2000).

How do we move away from wildlife selfie tourism while still providing tourists an engaging and valued encounter with wildlife? A shift in focus away from tourism attractions offering a guaranteed physical interaction with individual animals towards a more responsible encounter is a possible solution to improve welfare and conservation of animals (Bulbeck, 2005). One example of this form of encounter include sanctuary or rescue centre tourism, which has been considered a paradigm shifter (Collard, 2014; Kontogeorgopoulos, 2009).

The demand for close encounters is not necessarily an inherent desire (Orams 2000; Belicia & Islam 2018), and many sanctuaries offer tourists the abilities to see animals while not allowing touch interactions or selfies. The rehabilitation and release of animals back into the wild at sanctuaries has been considered a process of "decommodification" (Collard, 2014). Collard writes that in order for a wild animal to be "encounterable" there must be "a series of severings" between the individual and its wild nature, including habituation and a loss of fear of humans, for it to be safely encountered by tourists (2014). Therefore, the rehabilitation process commits to "putting these animals back together" by undoing the processes that made it encounterable and re-instilling a fear of humans in the animal for it to be released. There is a "need to retain wild lives– that is, retain a sense of autonomy and alterity in and for nonhuman animals" (*ibid*: 162). Wildlife selfies challenge the ability to "retain wild lives" and thus contribute to the commodification of animals which can endanger their welfare and conservation.

One such example of the latter is Carder et al.'s examination of the use of brown-throated three-toed sloths as 'photo props' at tourist locations in Brazil and Peru (2018). They found that nearly half of the time during which tourists were handling sloths during their photo opportunity was in a way which compromised the sloths' welfare through physically manipulating their body. Furthermore, tourists were often not supervised while holding them. Of the 25 tour operators surveyed during this research, 76% offered 'sloth selfies.' Behavioural observations found that sloths were most often held in a way which likely caused stress (unsupported limbs, etc.), and sloths spent most of their time interacting with tourists in surveillance of their surroundings and handlers. This is a vigilance behavior which suggests fear and anxiety since it is not performed in the wild nearly as often compared to this captive

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scenario, although the authors note that the behavior of sloths during handling has yet to be published on.

This study serves as a "potential baseline" for future research in this area, especially that which compares behavior of sloths during "periods of handling and non-handling" and those which feature a larger sample size with longer and more frequent focal observations (Carder et al., 2018). The authors consider that tourists may not be aware of the impact of handling on sloth welfare, and emphasize that more research on tourist attitudes and increased awareness of 'ecotourism' attractions which may actually endanger welfare.

Carder et al. (2018) observed during their study of sloth selfie tourism that other species were available as tourist photo props including "common caiman, green anaconda, and to touch free-ranging baited squirrel monkeys, various parrot species and toucans" (4). Primates especially are a major draw for wildlife selfies and encounters with tourists (McKinney, 2014; Negrín, Fuentes, Espinosa, & Dias, 2016; Webb & McCoy, 2014), and research around the impacts of tourists on macaques in both African and Asian contexts have uncovered the potential risks of zoonoses, increased aggression and poaching generated by such attractions (Brotcorne et al., 2017; Hsu, Kao, & Agoramoorthy, 2009; Maréchal, Semple, Majolo, & MacLarnon, 2016; Maréchal et al., 2011; Schmidt-Burbach, Ronfot, & Srisangiam, 2015; Stazaker & Mackinnon, 2018).

The "Disneyfication" of animals through commodified encounters which facilitate wildlife selfie opportunities was recently studied in the context of endangered Barbary Macaques used as photo props in Morocco (Brotcorne et al., 2017; Hsu, Kao, & Agoramoorthy, 2009; Maréchal, Semple, Majolo, & MacLarnon, 2016; Maréchal et al., 2011; Ménard et al., 2014; Stazaker & Mackinnon, 2018). The authors distributed surveys to tourists in an area which offered 'macaque selfies' and they found that most tourists (88%) did not intend to participate. Feedback from tourists who did not participate cited the monkeys' treatment, captivity, exploitation, safety of encounter and "trader harassment" as reasons (*ibid*: 761). Those who did participate cited the "novelty and contact with the animal" but half of the tourists recognized that it was a negative experience which included mistreatment of the animals (*ibid:* 761). Stazaker and Mackinnon note that macaque photo props challenge conservation goals and, while it is an illegal practice, 80% of tourists surveyed were unaware of the legislation surrounding it. They conclude that the monkeys "overall detract from the

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visitor experience" and emphasize that the desire for a close encounter with a wild animal may be "easily outweighed by pity for the animals' plight and disapproval of their conditions" (*ibid:* 773).

This study can be interpreted with optimism, since the majority of tourists were not interested in a macaque selfie and cited issues of animal welfare in part as justification. Perhaps the proliferation of social media campaigns and increasing accountability amongst tourism stakeholders is effectively promoting ethical animal encounters and demoting those which endanger welfare and conservation is starting to take hold and leads to some tourists being primed to distinguish the 'good from the bad' animal tourism. There are still great strides to be taken, however, in undermining the appeal of wildlife selfies both in and out of tourism contexts, which may involve a paradigmatic shift towards a 'respect for nature' ethos (Taylor, 1981) or an ecofeminist 'ethic of care', which attends to an animal's communicated interests (Yudina & Fennell, 2013; 2016). Yudina and Grimwood write that presenting the wild animal as a "performing spectacle" endorses consumptive tourism (even in an ecotourism context) and ignores the animals' interests, which ultimately "[portrays them] as agents of their own exploitation" (2016: 726). This ecofeminist analysis certainly has relevance to selfies with wild animal and their circulation and representation on social media.

Social Media & Wild Pets: The keeping of wild animals as pets is a phenomenon that is growing alarmingly. The implications of the wild animal pet trade on an economic and social level have not been fully examined. Furthermore, a certainly underestimated component is that which concerns the welfare of these wild, undomesticated species as 'domestic' pets (Baker et al., 2013).

Studies have shown that people with certain personality profiles have a greater tendency than others to keep traditional 'domesticated' pets (Bagley & Gonsman, 2015) and non-traditional 'wild' pets (d'Ovidio & Pirrone, 2018). Volk and colleagues found that even the "dark" sides of personality can differentiate people on attachment to different types of pets (Volk et al., 2016). Furthermore, experimental evidence has shown there may be an association between some invasive species populations and the international pet trade (Russello et al., 2008).

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One of the most threatened groups of animals by the wildlife trade globally are parrots. A recent study found that between 2014 and 2017, at least seventy percent of 259 identified posts on social media advertising the sale of African Grey Parrots likely violated national laws, CITES regulations, and basic welfare standards (Martin et al., 2018). The largest number of exports were from the Democratic Republic of Congo, with most importers based in western and southern Asia. The authors suggest "an urgent need for targeted actions by airlines and enforcement agencies" in order to disrupt the illegal wildlife trade as it is facilitated by social media (ibid). The level of animal welfare consideration provided to the parrots for sale in the posts can be determined to be poor based on images of many individuals housed in single compartments, with no perches were visible, failing International Air Transport Association (IATA) regulations (*ibid*). It is also predictable that food and water were not always sufficiently provisioned, and that both holding and transport conditions endangered welfare. This indicates an area of future study since welfare conditions are not only challenging to document but also relatively under-researched which has led to stakeholders discounting this important issue.

In that study, Martin, Senni, and D'Cruze note that large-scale monitoring of social media is difficult, emphasized by the openness with which wildlife traders shared information publicly and boldly, suggesting there is little fear of enforcement. A limitation to investigating the wildlife trade through social media, however, include how many transactions take place over private communication (i.e. inter-website messaging) and not publicly in the comment section of posts. This makes it difficult to ascertain when a purchase has been made. There may also be scam-traders who do not have actual wildlife for sale but are posting regardless. Therefore, the authors conclude that to meet the sampling standards of this study, that the posts analyzed represent a small part of a much larger trade through the focus (unnamed) social media platform. Since African Grey parrots are threatened due to overexploitation for the pet trade, this is an issue growing in urgency and requiring heightened monitoring and regulation.

What is the impact of social media on the promotion of inappropriate behavior with respect to wild animals and the wild pet trade? Clarke et al., (2019) analyzed data collected opportunistically via Twitter surrounding a 'viral video' of a pet ring-tailed lemur in 2016. They surveyed thousands of 'tweets' and found 613 tweets in which the author indicating desiring a lemur as a pet, and found that the popularization of the video on Twitter tracked the

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proliferation of tweets about desiring a pet lemur. The authors conclude that, within the confines of this study, there is likely little threat to wild lemur conservation since pet lemurs in the United States and United Kingdom are captive bred and not traded out of Madagascar (*ibid*). They caution, however, that such videos of seemingly 'tamed' or habituated wild animals "could reinforce misconceptions" and influence their desirability as a pet (*ibid*: 11). Clarke et al. provide examples of this phenomenon by way of the increased interest in the focal animals of popular films such as *101 Dalmatians, Jurassic Park, Harry Potter,* and *Finding Nemo* as pets, but that this link is still contested (citing Christy, 2008; Herzog, Bentley, & Hahn, 2004; Megias, et al., 2017; Militz & Foale, 2017; Nijman & Nekaris, 2017). There is a need for more research on the subject of public perception of 'viral' videos featuring wild animals.

The 'virtual' wild animal market on the internet and social media is a rather complex phenomenon. The online pet trade allows for relatively low risk of reprimand to both sellers and buyers as monitoring and tracking is complicated for regulatory authorities. In particular, the illegal wildlife trade that develops on the "dark web" (Harrison et al., 2016; Roberts & Hernandez-Castro, 2017) is understudied despite being a major illegal industry. In recent years, however, due to the development of new technologies and artificial intelligence, there have been attempts to use machine learning to examine the online pet trade (Di Minin et al., 2018; Di Minin et al., 2019). Most scholarship to date, however, usually refer to the legal wild animal market and rarely is a complete understanding of its illegal counterpart offered (Lavorgna, 2015). A preliminary study which attempted to analyze the illegal animal trade, used the website www.healthmap.org/wildlifetrade which is freely accessible by all and reports on interceptions of the illegal trade of wildlife and wildlife parts. The countries which appear the most in these reports include the United States, South Africa, China, and Vietnam. The most frequently traded and poached species reported re elephants, rhinos, tigers, leopards, and pangolins. One of the critical issues put forth by the authors of this study is that the search terms for this website are currently only in English, which therefore may lead to an underestimation of the size of the illegal wildlife trade (Sonricker Hansens et al., 2012).

In this way, Internet can be a powerful tool for researchers to identify the illegal wildlife trade as it is propagated on sites (Lavorgna, 2014), also in social networks such as *Facebook.* Eid and Handal (2018) examined seven *Facebook* groups for hunters and discovered photographs

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documenting the killing of thousands of native animals, representing diverse species, many of which were under special protection. The authors point to an "alarming picture of overhunting of threatened species and ineffective enforcement of hunting laws" as revealed by their use of social media to detect illegal hunting activity (*ibid*: 730).

Research by Hinsley and colleagues (2016) considered the online market for orchid trading as it is facilitated through online groups and forums, suggesting it may be a model for further research on other wildlife trades such as ivory. The results showed that despite a relatively low total percentage of plant advertisements (around 9% of over 55,000 posts analyzed), 22-46% of these advertisements were for wild-collected orchids. Thus, there is a need for more careful monitoring of the wildlife trade as it occurs on social media (Hinsley et al., 2016).

Social media can also be used positively to impact the illegal wildlife market. For example, it can be used to pressure governments for regulatory and monitoring reform (Nghiem et al., 2012) or to design action plans (Siriwat & Nijman, 2018). According to one study, it emerged that awareness campaigns carried out through a Facebook page have led to an increase in the awareness of Facebook users on the issue of the illegal macaque (*Macaca sylvanus*) market in Morocco (Waters & El-Harrad, 2013).

In conclusion, when it concerns the conservation and welfare of wild animals, social media can be a double-edged sword (Radjawali, 2011). It is a means which allows us to intercept markets for trading illegal wildlife or increase public awareness of such issues impacting animal conservation and welfare. Conversely, it is precisely through these virtual interfaces on different social media websites that the illegal trade of wildlife occurs.

Further research: It is the aim of this article to review the current research on how social media influences public perceptions of wild animals with regards to wildlife 'selfies' and the wildlife trade. It is apparent after reviewing the scholarship that this topic is in its infancy, and that it is necessary to design future research which deepens our understanding of how social media can be harnessed as a tool by researchers to study public perceptions of animals, conservation decisions, and to monitor the movement of animals' bodies through online trade. In particular, we call for more studies on whether awareness campaigns surrounding the (ill-)suitability of wild animals as pets and 'selfie' attractions. Do campaigns such as *World*

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Animal Protection's "wildlife selfie pledge" have a positive effect on changing consumer perceptions of what comprises an ethical animal encounter or relationship?

Although this review has discussed scientific evidence pertaining to this topic, there are still relatively few studies in the literature regarding the harmful effect of wildlife selfies and direct touch encounters. We advise more comprehensive research on the negative impact of these practices on both the conservation and welfare of involved species.

Lastly, we call for more research into how wild animals are represented across multiple media formats, but especially social media networks which facilitate the sharing of photos and 'viral' in the context of the wildlife trade. This is an issue which we consider understudied and not fully understood.

Conclusions: Given the speed with which new technologies are developing, and the increasing use globally of the internet or use social media, it is necessary to reflect on the consequences for animal welfare and conservation. In the animal scholarship, research has shown that the virtual world of the internet can have serious impacts on public perception of wildlife and consumer markets, which directly influence the occurrence of animal abuse and wild animal trading.

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