

‘Meet & Greet’ animal experiences in zoos: Are they sending the right message?

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ABSTRACT

It is common for zoos in the UK to offer opportunities for visitors to interact with animals in the form of ‘Meet & Greet’ experiences; which may include feeding, petting and posing for photographs. There is limited research investigating the impact of these experiences on the animals or people involved, particularly in terms of the messages they send to the public. This chapter reviews the existing literature on Meet & Greets in zoos to recommend priorities for future research. The authors suggest that UK zoos are given insufficient guidance on the messages that Meet & Greets should send to the public and how to achieve this. Five potential wrong messages that UK zoos could inadvertently be sending by advertising Meet & Greets, and the potential consequences of these messages are discussed. Future research should explore how the general public perceive Meet & Greets offered by zoos, depending on what the experiences involve and how they are advertised, so that zoos can make informed decisions to reduce the likelihood of sending the wrong message to the public.

Introduction

Zoos are one of the most popular forms of animal tourist attraction worldwide; with over 700 million people visiting zoos globally every year (Gusset and Dick, 2011). There is huge variation in zoos around the world, including their type, standards of animal welfare and reported mission (Nekolný and Fialová, 2018; Patrick et al., 2007; Safina, 2018). These differences make it difficult to generalise about zoos, and because of this we have chosen to focus specifically on UK zoos for this chapter, but we believe that the issues discussed are also relevant to the wider zoo and animal tourism industry.

Zoos in the UK are subject to the Zoo Licencing Act 1981, which requires the licencing and regular inspections of all zoos in Great Britain, according to the Secretary of State’s Standards of Modern Zoo Practice (DEFRA, 2012). Over 100 UK zoos are represented by the British and Irish Association of Zoos and Aquariums (BIAZA), which provides policies and guidelines to help its members achieve high standards of animal welfare, education, research and conservation work. Due to these requirements, we will continue under the assumption that BIAZA zoos can be considered as examples of ‘good’ zoos. The purpose of good zoos and their role in society is complex, but is often simplified into four main goals; conservation, education, research and recreation (Spooner et al., 2023). Ultimately, the overall mission of good zoos is biodiversity conservation, and all aspects of zoo operations should support this mission (Conway, 2003; Rabb, 1994). While we acknowledge that all forms of animal captivity and use of animals in tourism can be considered morally ambiguous (Browning and Veit, 2021; Fennell, 2013; Kline and Fischer, 2021) we believe that there is a need for research to scrutinise those zoos with the highest standards to challenge them to continuously improve and ensure that they have a positive impact for animals and society.

BIAZA zoos play a key role in the UK tourism industry. Four of the top ten most-visited paid tourist attractions in England in 2021 were zoos, with the most popular zoo in the UK, Chester Zoo, the second most-visited paid attraction after Kew Gardens (VisitBritain, 2021). BIAZA-member zoos attracted a total of 25.1 million visitors in 2021, and 35.7 million in 2019 before the coronavirus (COVID-19) pandemic (BIAZA, 2021). BIAZA zoos have great potential for contributing to species conservation, with a reported spend of £26.5 million by BIAZA zoos to directly support conservation projects in 2021 (BIAZA, 2021). However, to be able to donate directly to conservation, as well as uphold high animal welfare standards, conduct meaningful research and engage the public with conservation education, zoos must remain commercially viable tourist attractions (Catibog-sinha, 2008; Mason, 2000; Tribe and Booth, 2003).

One way that zoos can increase their income, either by boosting visitation or charging an additional fee on top of the entrance price, is by offering opportunities for animal-visitor interactions (AVIs), which are defined in Table 1. Such opportunities are extremely common; 75% of zoos globally offer AVIs (D’Cruze et al., 2019), but there is limited research into what AVIs zoos offer and the impact of these opportunities on the animals and people involved. The terminology used for AVIs is inconsistent between different zoos, zoo associations and the existing literature, which may hinder research developments. For example, BIAZA provides its members with a ‘close contact’ policy, where close contact can be considered a synonym for AVI, shown in Table 1. We have included Spooner et al.’s (2021) definition for ‘animal ambassador encounters’ (AAE) in Table 1, which could also be considered equivalent to the term AVI, as the authors describe animal ambassadors as ‘those used specifically in close-contact experiences with visitors’ (Spooner, Farnworth, et al., 2021, p. 42) and the authors cite D’Cruze et al. (2019) using ‘AAE’ in place of ‘AVI’. However, the study does not include walk-throughs or animal shows, so animal ambassador encounters may in fact be a subset of AVIs, but this is not addressed directly in the study itself.

Term	Definition	Examples	Reference
Animal-visitor interactions (AVI)	‘Categories of activities that provide visitors (i.e., untrained non-staff members of the public) with the opportunity to have indirect and direct contact with live captive wild animals (both inside and outside of their permanent enclosures).’	Feeding; petting; riding; walk or swim with; non-hand feeding; walk through or swim through; drive through or cage dive; show and performance.	(D’Cruze et al., 2019, p. 2)
Close contact experiences	‘The close proximity, with direct or indirect contact, of a member of the public to a live animal that is part of a collection, either in the absence of a safety barrier or through or over barriers.’	Feeding experiences; touch pools; walk-throughs; drive-throughs; displays and presentations; work-experience opportunities; diving and other experiences; education sessions; free roaming animals and outreach.	(BIAZA, 2019, p. 1)
Animal ambassador encounters (AAE)	‘Involve one-to-one interactions (also known as an encounter) between visitors and individual animals who are deemed to be acting as (animal) ambassadors for their species or a conservation cause.’	Behind the scenes – touch; behind the scenes – no contact; feeding experience; protected feeding; keeper for the day; touch pools/tanks; animal rides; educational handling; hands on	(Spooner, Farnworth, et al., 2021, p. 41)

		encounter; swim with animal; photography – no contact.	
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Table 1: Similar terms used for animal-visitor interactions that may be synonymous

As shown in Table 1, AVIs encompass a broad range of activities. D’Cruze et al. (2019) is currently the only study to categorise AVI types, where they found ‘petting’ to be the most commonly offered activity, advertised by 43% of zoos globally. However, Doodson et al. (2022) showed that over 60% of BIAZA zoos offer AVIs that are often simply called ‘experiences’ or ‘encounters’, that are advertised as an opportunity to ‘meet’ a specific animal species, which they refer to as ‘Meet & Greets’ (M&Gs). M&Gs are offered at an additional-cost to the zoo entrance fee, take place under staff supervision and may include feeding, physical contact or increased proximity to the animal, but zoos do not always specify exactly what the interaction involves (Doodson et al., 2022).

M&Gs may provide photo opportunities for participants, including the chance for animal selfies, that may be posted on social media. While it is possible to have animal selfie opportunities that do not compromise animal welfare, there are plenty of examples of harmful selfie opportunities in tourist settings where animals are used as photo props; in many cases these animals may have been removed from the wild and are subjected to cruelty, neglect and suffering for human entertainment (Lenzi et al., 2020; World Animal Protection, 2017). Even if animal welfare is not compromised by tourist selfie opportunities there is still an issue of exploiting animals for profit and use as status symbols (Belicia and Islam, 2018; Kline and Fischer, 2021) and good zoos should want to differentiate themselves from such exploitative animal tourism.

In November 2019, Hanwell Zoo in London released a statement on their Facebook page that they would no longer be offering M&Gs because “we felt these sessions portrayed the wrong message [...] how can we ask people not to ride or take selfies with wild animals when on holiday, but then offer a similar experience here? Even if we can ensure their welfare, the message gets lost.” (Hanwell Zoo, 2019).

There has been no published research into public perceptions of M&Gs, but Hanwell Zoo make a legitimate point about the danger of sending the ‘wrong message’ to the public which hasn’t been investigated. Due to the lack of research in this area we do not know whether other BIAZA zoos are likely to follow Hanwell Zoo’s lead, or indeed whether they should. There is limited research into the popularity of M&Gs and whether this is increasing or decreasing. It is therefore unclear what factors affect the popularity of M&Gs as there is no research into people’s preferences for different aspects of M&Gs, despite the variation in what they involve. Zoos need to consider that the animal interaction in M&Gs (such as physical contact or posed photo opportunities) and the way M&Gs are advertised or shared on social media (including the images and language used online) may affect people’s perceptions of M&Gs, the animals involved in M&Gs, and zoos offering M&Gs.

Are Hanwell Zoo leading the way in responsible zoo experiences by discontinuing to offer M&Gs, or is this an unnecessary reaction based on assumptions rather than research, that could potentially be losing Hanwell Zoo a valuable source of income? We believe that there is a need for further research into M&Gs offered by BIAZA zoos and the message that they portray to the public. In this chapter, we will examine the messaging of M&Gs, highlight key gaps in the zoo AVI literature and discuss the

potential impact of M&Gs on public perceptions of zoo animals, and the implications this could have for zoos and the wider wildlife tourism industry.

Methods

To identify priorities for further research, we have reviewed the existing literature on zoo AVIs and the messages that they may send to the public. We will discuss who is impacted by M&Gs and why research into their impact on people, including the message they receive, is so important. We will look at the guidance provided by BIAZA on the 'right' message that M&Gs should send to the public and explore some of the possible 'wrong' messages that zoos may inadvertently be sending through the M&Gs they offer.

We propose that future research should explore the possibility of BIAZA zoos undermining their missions by sending the wrong messages to the public through the M&Gs they offer, and suggest the following as examples of those wrong messages that must be investigated further:

1. Zoos prioritise entertainment over education
2. M&Gs compromise animal welfare
3. All M&Gs are acceptable including unethical captive-animal tourism and photo prop opportunities
4. Animals involved in M&Gs would make good pets
5. Animals in M&Gs are not endangered

Who receives the message?

Research into the impact of M&Gs in zoos is extremely limited, but most existing studies have focussed on the impact of M&Gs on the welfare of the animals involved. Many of these studies have found no negative effects on a range of species, including studies on lemurs (Jones et al., 2016); penguins (Saiyed et al., 2019); giraffes (Orban et al., 2016); and elephants, tapirs and meerkats (Martin and Melfi, 2016). Further research into the welfare of animals used in M&Gs is undoubtedly necessary, however as highlighted by Hanwell Zoo's (2019) statement, zoos may be able to ensure the welfare of individual animals involved in M&Gs, but if those M&Gs send the wrong message to the public then there could be other negative repercussions that must be considered.

A few studies have looked at the impact of M&Gs on participants; generally looking for positive changes to zoo visitors' knowledge, attitudes or behaviour. For example, Clifford-Clarke et al. (2022) measured the educational value of penguin M&Gs at Twycross Zoo in the UK, but suggest that the M&G did not increase conservation knowledge or behavioural intentions in participants any more than viewing an exhibit did. Whitehouse-Tedd et al. (2021) measured knowledge change in visitors to a South African zoo and while they found cheetah M&G participants did have a small knowledge increase, this was significantly lower than for visitors who attended a guided tour instead. The problem with these studies is that the results are not necessarily generalisable, as there is variation between individual zoos in what they offer. De Mori et al. (2019) propose a protocol for assessing whether zoo AVIs can be considered ethical, which includes an animal welfare assessment and a human outcome assessment – consisting of a risk assessment and visitor experience survey. What is missing from this protocol, and from the M&G and zoo AVI literature in general, is consideration of the impact on non-visitors.

Zoos have a wider reach than just the people who visit the zoo in person. ‘Vicarious’ zoo visitors are those who may experience aspects of the zoo without physically being there, whether intentionally or not (Crilley, 2011). This may include accessing the zoo’s website, seeing photos or videos shared online, viewing advertisements or watching tv programmes. BIAZA zoos advertise M&Gs prominently on their websites (Doodson et al., 2022) and many are active on social media (Rose et al., 2018). The way zoos choose to present M&Gs to the public, including the images and language used to advertise them online, will affect who decides to participate, as well as affecting public perceptions of the M&Gs on offer, the zoo itself and the animals involved.

We suggest that the existing zoo AVI research neglects to consider the impact of M&Gs on the wider public, including non-participating observers and non-visitors, which we define below.

Participants: Zoo visitors who take part in a M&G.

Non-participating observers: Zoo visitors who may watch the M&G taking place from a public viewing area without taking part in the M&G.

Non-visitors: Members of the general public who may view photos or videos taken during a M&G that are shared online, without visiting the zoo.

M&Gs are staff-led experiences, so could provide an educational opportunity where staff can deliver an intended conservation message to participants. However, non-participating observers and non-visitors viewing images of M&Gs won’t get that intended message directly, so are therefore more likely to misinterpret or get the ‘wrong’ message from M&Gs offered by zoos.

M&Gs are often advertised on zoo websites using photos showing animals and participants in close proximity or physical contact (Doodson et al., 2022). However, previous research has shown that viewing images of animals in close proximity to humans can affect people’s perceptions of those animals, including increasing the desire for pet ownership and decreasing conservation concern (Leighty et al., 2015; Ross et al., 2011; Shaw et al., 2022), and viewing videos of animals being handled has also been shown to decrease people’s perceptions of animal welfare (Minarchek et al., 2021). Zoos need to consider not only the education message to deliver to M&G participants, but also the message that may be interpreted by seeing M&Gs out of context.

What is the right message?

The Secretary of State’s Standards of Modern Zoo Practice (DEFRA, 2012) provide guidance on ‘animal contact areas’ (another synonym for AVI), which includes ensuring animal welfare and public safety is prioritised during AVIs. Some of the benefits of AVIs described are ‘the public may gain a better understanding and awareness of the species by being in closer contact [...] As a result, the public’s appreciation of the zoo and its educational value may be enhanced; controlled handling of suitable animals can be an important learning experience’ (DEFRA, 2012, p. 38).

Although this suggests that AVIs can be learning opportunities for participants, there is no legal requirement for them to be educational, or any guidance provided on the messaging accompanying AVIs. The BIAZA Close Contact Policy does discuss the message of AVIs, and states that they must be educational; ‘in providing close contact experiences BIAZA member institutions [...] MUST ensure that the message of each close contact situation is linked to education and public engagement and is not purely for entertainment/income generation’ (BIAZA, 2019, p. 2). However, this is the extent of

their guidance on messaging and the policy does not include more specific recommendations on what the message should be.

The summary of the BIAZA Close Contact Policy is included in Figure 1, which states that AVIs should support the zoo's mission and be tailored to education. However, this is open to interpretation and subject to individual zoo expertise. There is no advice provided on what AVIs, including M&Gs, should or shouldn't involve, or how they should be advertised.

Summary

Engaging the public with interactive animal experiences can be invaluable in achieving an institution's mission. In providing these experiences it is critical that these three aspects are addressed:

1. **Animal Welfare:** ensuring that the close contact experience does not impede on the general welfare of the animal.
2. **Staff and Public Safety:** ensuring that staff and public safety is considered and reasonable precautions are taken.
3. **Ethical Considerations:** ensuring that the close contact experience achieves clear outcomes for the organisation's mission and vision and manages public perceptions; i.e. is tailored to education.

Figure 1: BIAZA Close Contact Policy Summary (BIAZA, 2019, p. 1)

At the time of publication, the BIAZA Close Contact Policy is being updated, as well as a new Conservation Education Policy being launched. By the end of 2023 both of these should be available at: <https://biaza.org.uk/policies-guidelines>

While these updated policies may provide better guidance for UK zoos, the lack of research on AVIs means there is limited knowledge to base these guidelines on. We suggest that UK zoos are given insufficient direction on the messages that AVIs, including M&Gs, should send to the public and how to achieve this, and that research is needed to rectify this. Simply stating that M&Gs should be educational isn't enough, and there is a need for research that doesn't just measure the learning outcomes of M&Gs, but is open to uncovering unexpected and negative findings (Moss and Esson, 2013).

What is the wrong message?

The BIAZA guidelines assert that M&Gs should have an educational message, but educational messages may not be received by visitors in the way intended by the zoo, and information may be ignored or misinterpreted. Examples of zoo visitors 'getting the wrong message' include a study by Heinrich and Birney (1992), who found that around a quarter of the audience at a zoo demonstration thought that the monkey featured in the show would make a good pet, despite the narrator stating that monkeys should never be kept as pets. Spooner, Jensen et al. (2021) showed that sea lions performing tricks in a show caused misconceptions about natural behaviours among zoo visitors; and Bettinger et al. (2010) found that children visiting a chimpanzee sanctuary misunderstood the intended message of images of chimpanzees being exploited by humans in

educational graphics, because they were not reading or understanding the accompanying text explaining the context of the pictures.

Learmonth (2020) discusses the risk of unintended consequences of AVIs in zoos; including normalising interactions with animals in other settings, such as harassing wildlife or encouraging unethical, poorly-regulated captive-animal tourist opportunities with low welfare standards, or even increasing people's desire for exotic pet ownership. People's perceptions of viewing images of M&Gs out of context could affect their opinions and support for zoos and conservation, but this has not been fully explored. We currently do not know what messages zoo visitors receive from M&Gs or how M&G images are interpreted by people exposed to them. There is a need to explore the risks and potential consequences of the public getting the wrong message about M&Gs in good zoos. In the following sections we discuss examples of the wrong messages that zoos may inadvertently be sending by offering M&Gs.

Potential wrong message 1: Zoos prioritise entertainment over education

Consequence: M&Gs could decrease support for good zoos

The primary benefit of offering M&Gs for zoos is income; they are money making experiences offered at an additional cost to the zoo entrance fee. Doodson et al. (2022) found that the average price of a M&G offered by BIAZA zoos was £71.40 per person, up to a maximum of £600 for a polar bear M&G at Yorkshire Wildlife Park. To successfully attract visitors and make a profit M&Gs must be entertaining. However, there is a risk that if M&Gs are marketed as primarily entertainment opportunities then this could reinforce an idea that all zoos are solely entertainment attractions, and that the animals are exploited for human entertainment. This means that good zoos could lose credibility as conservation organisations and lose public support (Carr and Broom, 2018).

The BIAZA Close Contact Policy (2019) specifies that M&Gs must be educational and not purely offered for entertainment, however this requirement is vague and subjective, and there is a risk that individual zoos may not fully adhere to these guidelines. We also need to consider how zoos advertise M&Gs to the public. Do people perceive M&Gs to be educational experiences or purely offered for entertainment? There is currently no existing research on the general public's perceptions of zoos offering M&G experiences, but Carr and Cohen (2011) found that zoos primarily present themselves with a focus on entertainment on their websites. There is a need for further research into how zoos advertise and promote M&Gs, to ensure that conservation education messages are not lost.

Potential wrong message 2: M&Gs compromise animal welfare

Consequence: M&Gs could decrease support for good zoos

One of the most important aspects of public perceptions of M&Gs is the animals' welfare. If visitors perceive welfare issues with animals in M&Gs it could reduce their support for zoos and negatively impact zoo missions. Unfortunately for good zoos, this is not as straightforward as ensuring the animals' wellbeing, they must also consider the public's interpretation of the animals' wellbeing. Most people are not qualified to make accurate assessments of animal welfare and are likely to

make unscientific judgements based on limited knowledge and flawed emotional responses, influenced by social and cultural values (Carr and Broom, 2018; Moorhouse et al., 2017). Because of this it is important to understand how people rate zoo animal welfare and how their judgements may be influenced (Chiew et al., 2021; Ward and Sherwen, 2019).

Research has shown that factors affecting people's perceptions of animal welfare include exhibit type (naturalistic enclosures are perceived to be better) and observed behaviour (such as pacing) (Godinez et al., 2013; McPhee and Carlstead, 2010; Melfi et al., 2004). Miller (2012) found that viewing a video of a tiger pacing (compared to resting) decreased zoo visitors' perception of the animals' level of care and decreased their interest in supporting or visiting zoos in the future. The author suggests that zoos use staff presence at the enclosures of animals prone to pacing behaviour, to discuss the behaviour and ensure a positive experience for visitors. In the case of M&Gs, as they are staff-led AVIs, staff may explain measures that are in place to maintain animal welfare to participants, but the wider public may miss this message. Chiapero et al. (2021) found that while information provided through a talk did influence visitor opinions on lesser anteater welfare, observing the animals' behaviour made more difference to visitor perceptions, suggesting that providing information may not be enough to ensure people interpret animal behaviour correctly.

Emotional connections with zoo animals and visit satisfaction have also been shown to affect people's perceptions of animal welfare, which may be increased by interactions with animals (Miller et al., 2018; Packer et al., 2018; Woods, 2002). However, a study by Minarczek et al. (2021) found that zoo visitors had higher empathy and positive perceptions of welfare of armadillos when not handled compared with viewing videos of armadillos being handled. The implication for M&Gs is that the public may have more positive perceptions of 'hands-off' M&Gs than viewing ones that allow physical contact with animals, but Doodson et al. (2022) found that only 5% of BIAZA zoos specify that no physical contact is allowed with animals in M&Gs. Research is needed to compare people's perceptions of M&Gs involving physical contact with those that do not allow participants to touch the animals.

Good zoos should want the public to be aware of welfare issues and not support bad zoos or other captive-animal tourist attractions with poor welfare standards. Research by Sampaio et al. (2021) suggests that good zoos can 'anchor' public perceptions of bad zoos by setting an example for animal welfare, which could decrease support for bad zoos. This makes it even more important that good zoos offer responsible M&Gs to send the right message to the public about animal welfare.

Potential wrong message 3: All M&Gs are acceptable including unethical captive-animal tourism and photo prop opportunities

Consequence: M&Gs could encourage support for bad zoos

There may be debate over whether M&Gs and other zoo AVIs can be ethical (Kline and Fischer, 2021), but there is no question that unethical captive-animal tourism exists. Unethical animal tourism, such as unregulated 'roadside zoos' and animal photo prop opportunities, has negative impacts on welfare and species conservation (Moorhouse et al., 2015). Animals are often not only kept under poor welfare conditions, but are frequently taken from the wild, abused and exploited for human entertainment (Belicia and Islam, 2018; von Essen et al., 2020). So how do the general public perceive good zoos offering M&Gs in comparison with exploitative and unethical captive-animal tourism opportunities?

As Hanwell Zoo's (2019) statement highlights, there is a danger that good zoos may be giving mixed messages to their visitors by offering M&Gs involving physical contact with animals but attempting to discourage visitors from interacting with wild or captive animals in other settings. In fact, many zoos may also be giving mixed messages to their staff; the European Association of Zoos and Aquaria's 'Social Media Toolkit', intended to advise zoo staff on the use of promoting their work on social media, states:

'Seeing people on social media up close and personal with wild animals make more people wish to do the same. This can promote illegal or dangerous animal/tourist experiences, which undermine the anti-poaching and conservation messages pivotal to zoos/aquariums. Despite the engagement brought by a selfie with an adorable animal, it's important to consider the messages you promote.' (Kristiansen & Camus, 2021, p.12).

This seems contradictory when so many zoos offer M&Gs that may involve selfie opportunities for visitors. The toolkit suggests that providing captions with context to images shared online can 'help signify that this behaviour is only appropriate when done by animal professionals' (Kristiansen & Camus, 2021, p.12), but as previously discussed, providing information does not mean that the public will receive or understand the intended message.

Research by van der Meer et al. (2019) found that photos of people interacting with wild cats encouraged members of the public to want to interact with wild cats themselves. Seeing images of M&Gs in good zoos could make unethical animal interactions seem more acceptable, and it may not be obvious to the public if there is a difference between a good or bad AVI.

Potential wrong message 4: Animals involved in M&Gs would make good pets

Consequence: M&Gs could encourage the exotic pet trade

Viewing images or videos of M&Gs, either participant photos shared on social media or zoos advertisements M&Gs, could impact people's perceptions of the animals' pet suitability, as research has shown that viewing pictures of an animal with a person can increase the opinion that the species make good pets (Leighty et al., 2015; Ross et al., 2011; Shaw et al., 2022). Watching chimpanzees in entertainment commercials has also been shown to reduce understanding that chimpanzees do not make good pets (Schroepfer et al., 2011), and comments on viral videos of primates suggest that viewing these videos increases the desirability of those animals as pets (Clarke et al., 2019; Nekaris et al., 2013).

Conversely however, some similar studies have not found the same result with images of pythons, sloths or wild cats with humans (Cronin et al., 2022; van der Meer et al., 2019), and Spooner and Stride (2021) suggest that images of zookeepers interacting with animals do not increase zoo visitors' desire for pet ownership. Cronin et al. (2022) found that people's generation, gender and the animal species affect ownership desire; that younger generations are more interested than older generations in exotic pets, and that male survey participants were more interested in python ownership than female participants. There is a need for more research on the factors affecting public desire for pet ownership to explore whether, and in what contexts, images of M&Gs may encourage inappropriate interpretations of the animals involved.

It should also be considered that while there is a danger that M&Gs could potentially increase the exotic pet trade, desire for pets may not actually translate to an increase in pet ownership. There is a

need for further research into both public perceptions of exotic pet suitability and the effect on the actual pet trade, considering species, geographic and cultural differences, as M&Gs may not increase the demand for certain exotic pets in some countries or cultures but may have a greater effect in others.

Potential wrong message 5: Animals in M&Gs are not endangered

Consequence: M&Gs could decrease conservation concern

There is some evidence that M&Gs may increase conservation outcomes in participants, as studies on zoo visitors' opportunistic interactions with animals at exhibits have shown increases in positive emotional responses and concern for conservation (Hacker and Miller, 2016; Luebke et al., 2016; Miller et al., 2018). Increased concern for conservation could then translate into increased donations; as Tisdell and Wilson (2005) found that visitors to a sea turtle ecotourism experience who touched live turtles were willing to pay more for marine turtle conservation than visitors who did not see turtles during their visit.

However, while M&G participants may gain conservation awareness, non-participants' perceptions of M&Gs may undermine conservation objectives. Both Ross et al. (2011) and Leighty et al. (2015) found that people viewing images of primates in the presence of a human were less likely to think the animal was endangered compared with viewing an image of the animal alone. This suggests that there is a real danger that viewing photos of M&Gs, depicting people interacting with animals, could decrease people's concern about the conservation status of the animals involved (Ward and Sherwen, 2019).

Schroepfer et al. (2011) also found that people who watched videos of 'entertainment' chimpanzee commercials were less likely to donate to conservation than a control group who watched a video of wild chimpanzees. Although images and videos of M&Gs in zoos may not show such extreme unnatural behaviour or human-animal interaction as the commercials included in the study, it is worth investigating further the types of images and videos that may affect people's willingness to donate to conservation.

In contrast, Spooner and Stride (2021) found that zoo visitors had a higher willingness to donate to conservation (based on amount and likelihood of donation) when viewing images of zoo animals with a person compared with images of the animal alone. However, this study was conducted only on zoo visitors so it is unclear whether non-zoo visitors would have the same responses. While there are only a few existing studies suggesting that M&Gs could have a potentially negative impact on the public's conservation concern, this is an important aspect for further research since increasing conservation awareness is essential to zoo missions and zoos should avoid offering M&Gs if they could undermine that mission.

Conclusion

M&Gs are a popular form of AVI in BIAZA zoos and they have the potential to have a positive impact for conservation; they can increase zoo income to help further improve animal welfare and exhibits, as well as contributing to conservation and research projects, and M&Gs also provide an education opportunity for participants that could increase pro-conservation attitudes and behaviours.

However, zoos need to ensure that the M&Gs they offer do in fact support their conservation mission and send the right message to the public. Unfortunately, because of the lack of research into M&Gs, BIAZA zoos do not currently have enough information or guidance to be able to ensure this. If M&Gs do not send the right message to the public then there is the potential that offering M&Gs could undermine zoos' conservation missions; by decreasing support for good zoos; by encouraging support for bad zoos; by encouraging the exotic pet trade; and/or by limiting peoples' understanding of species conservation.

While an increase in research into the impact of M&Gs on animal welfare and on participant outcomes is needed, we believe that the priority for research in this area should be to explore the messages that M&Gs send to the general public. There is a need to investigate how BIAZA zoos advertise M&Gs to the public, including the types of images and language used online. Research is needed to explore public perceptions of M&G adverts and images, to see whether the way M&Gs are advertised and the type of interaction they involve affects people's attitudes and opinions. Research should focus on the five potential wrong messages proposed in this chapter but should also be open to other, both positive and negative, findings.

Further research into public perceptions of M&Gs can help provide BIAZA zoos with the knowledge necessary to develop and advertise M&Gs that do not send the wrong message to the public. Hanwell Zoo have taken the safest option to avoid sending the wrong message to the public by discontinuing M&Gs completely. For zoos that choose to continue to offer them, we suggest responsible M&Gs should avoid physical contact with animals, and that zoos should not promote M&Gs using images showing physical contact, at least until further research can show whether or not such images do in fact send the wrong message to the public. Good zoos must ensure not only that participants get the right message from M&Gs, but also that the M&Gs they offer do not inadvertently send the wrong message to the wider public.

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