

1 **Evaluating the ethics of natural history film production and its potential**
2 **conservation impacts**

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14

15 **Abstract:**

- 16 1. Natural history documentary films have the potential to be a powerful tool for wildlife
17 conservation, providing an accessible means to increase public knowledge of the
18 natural world. Further, there has been an increasing focus in documentary films on the
19 threats to biodiversity in recent years that has positively aided conservation efforts.
- 20 2. However, potential negative impacts of natural history film making are often
21 overlooked. Here, we consider the design and impact of the narratives used and the
22 filming methods employed and their potential implications for conservation.

- 23 3. Although natural history films are often lauded for their cinematography, it is
24 important that the techniques used to achieve this satisfy high ethical standards.
25 Human presence around wild animal populations and the use of filming techniques
26 such as drones, must be carefully evaluated to determine the level of disturbance
27 caused and any associated negative behavioural and physiological impacts. Although
28 this can vary greatly between production companies, this evaluation must include the
29 impact of the filming on wildlife, as well as considering the potential for viewers to
30 replicate human-wildlife encounters they see on film.
- 31 4. Recent trends towards the use of dramatised storytelling, anthropomorphism and the
32 inclusion of inaccurate information should also be addressed. These factors may lead
33 to negative, or conflicting, narratives which may have conservation and management
34 implications for the ecosystems portrayed and potential socio-economic impacts for
35 the communities that may depend on them.
- 36 5. Natural history films are an important means of educating and enthusing people about
37 the natural world and its conservation; however, it is important that natural history
38 film making is done responsibly. To facilitate this discussion, we propose several
39 recommendations for natural history film makers to mitigate and avoid negative
40 impacts.

41

42 Keywords: anthropomorphism, conservation, disturbance, documentary, film making, natural
43 history films, welfare, wildlife

44

45 1. INTRODUCTION

46 Natural history film making is a popular staple of television broadcasting (Jepson et al., 2011,
47 Hofman and Hughes, 2018) and provides an accessible way for the public to engage with

48 nature and biodiversity. In recent years high profile ‘blue-chip’ series, such as *Blue Planet II*,
49 *Dynasties*, *Serengeti* (all BBC) and *Our Planet* (Netflix) have tried to film wildlife and
50 document the natural world in novel and engaging ways. These natural history films regularly
51 attract audiences of millions of people and are sold to be shown around the world. However,
52 natural history film productions have faced criticism for not addressing the substantial
53 conservation threats faced by many of the species and ecosystems they feature (Jepson et al.,
54 2011, Spector, 2012, Louson, 2018). In response to this criticism, and with audiences
55 increasingly aware of the threats to many species and ecosystems worldwide, more recent
56 natural history films, such as *Our Planet* and *Seven Worlds* (BBC), have increasingly
57 included conservation messaging at the forefront of their storytelling (Jones et al., 2019). The
58 positive impacts that these programmes can have on conservation is exemplified by the BBC
59 series *Blue Planet II*, which included footage of marine plastic pollution and is cited as an
60 important factor in raising public awareness of the issue and prompting increased regulation
61 of single use plastics (Schröder and Chillcott, 2019).

62

63 Although the positive effects of natural history film making have been covered in the
64 literature [see Jones et al., (2019) and Hofman and Hughes (2018)], there are potential
65 negative impacts to the conservation and welfare of wildlife that may be associated with
66 natural history film productions. Some programmes that fall under the banner of natural
67 history have been criticised for how they interact with wildlife and for taking a sensationalist
68 approach to conservation biology, such as *Crocodile Hunter* with Steve Irwin. These
69 products, and the resulting problems for animal conservation and welfare, have been
70 previously discussed in the literature (Bradshaw et al., 2007, Northfield and McMahon,
71 2010). In this paper, rather than attempting a full review of industry practices, we will discuss
72 some of the techniques employed in recent large-scale, ‘blue-chip’ natural history films, that

73 are produced by some of the most trusted sources for natural history production. These films
74 purportedly focus on capturing the natural behaviour of wildlife and are generally considered
75 to be the ‘gold standard’ for natural history film production. We focus on these ‘blue-chip’
76 productions as they reach exceptionally large audiences and have the capacity to set best
77 practice standards in the industry. We highlight the potential issues for conservation, from the
78 techniques used in film making, and suggest recommendations to mitigate potential negative
79 impacts.

80

81 **2. DISTURBANCE**

82 A major draw for viewers of ‘blue-chip’ natural history series is their visual splendour, with
83 some film makers, such as the BBC Natural History Unit, becoming world-renowned for the
84 cinematography of their productions. Achieving these visual sequences is often a result of
85 film crews coming into close proximity with the wildlife they are filming, with the attendant
86 risk of disturbing the animals they are featuring. The presence of people within an animal’s
87 habitat is not neutral – human presence has been shown to be associated with increased
88 predation (Leblond et al., 2013), lost feeding opportunities (West et al., 2002, Christiansen et
89 al., 2013), temporal shifts in activity (Gaynor et al., 2018), changes in habitat use (Ngoprasert
90 et al., 2007), increased energy expenditure (Regel and Pütz, 1997) and decreased
91 reproductive output (Ellenberg et al., 2006, McHuron et al., 2018). Remote populations, that
92 are unfamiliar or naïve to the presence of humans, are particularly likely to be at risk (Ellis et
93 al., 1991, Forney et al., 2017, Shannon et al., 2017). However, people’s behaviour in the
94 vicinity of wildlife can make a substantial difference in how the wildlife are affected by their
95 presence (Ruhlen et al., 2003, Tablado and Jenni, 2017), and the careful behaviour of film
96 crews can mitigate deleterious effects. Many natural history films now include ‘life behind
97 the lens’ features, which provide insights into filming techniques, showing how the film was

98 made and how the film makers behaved around the wildlife featured. Natural history film
99 makers and production companies are recognised as trusted experts by the public; in the same
100 way that the main documentary can help educate people about conservation, these mini-
101 features also provide an opportunity to show viewers the best-practice ways of filming, and
102 behaving around, wild animals.

103

104 Recent advancements in camera technologies for filming wild animal populations (Mulero-
105 Pázmány et al., 2017) can play an important additional role in limiting human disturbance to
106 wildlife during filming (Mills, 2010). For example, the use of drones, unmanned aerial
107 vehicles (UAVs) and remote-controlled cameras for filming has developed rapidly in the past
108 ten years (Connolly, 2007, Ivošević et al., 2015, Mulero-Pázmány et al., 2017). These
109 cameras permit observation of wildlife behaviour that may not be possible using traditional
110 hide-and-observe methods (Kross and Nelson, 2011), as well as being more cost effective,
111 than direct observations (Cutler and Swann, 1999). Drones and UAVs have been used
112 extensively to film the behaviour and ecology of multiple species across terrestrial and
113 marine biomes (Christie et al., 2016). New techniques in film making can also have
114 additional benefits and aid scientific research for example by filming behaviours for the first
115 time, such as kea (*Nestor notabilis*) and orca (*Orcinus orca*) foraging behaviour (Nelson and
116 Fijn, 2013).

117

118 Although drones and other technologies have the potential to cause lower levels of
119 observable disturbance compared to traditional filming methods (Weissensteiner et al., 2015,
120 Christie et al., 2016), the disturbance from drones on wildlife can be significant depending on
121 how they are used and which species is being filmed (Bevan et al., 2018, Weimerskirch et al.,
122 2018). For example, a review by Rebolo-Ifrán et al., (2019) found that species that utilise

123 terrestrial and aerial habitats are more likely to elicit behavioural responses to drones than
124 marine species. Additionally, behavioural response to drones is also dependent on flight
125 height but the height at which a response takes place is also species dependent (Rümmler et
126 al., 2016, Bevan et al., 2018, Weimerskirch et al., 2018, Brunton et al., 2019). Careful
127 consideration of how such technology is used, and whether it is appropriate, is therefore vital.
128 An additional consideration is that drones, and other remote filming technology, are
129 increasingly available to the wider public, and their inclusion in ‘life behind the lens’ features
130 have the potential to influence public use of these technologies around wildlife. Although
131 film crews cannot control the behaviour of their viewers, if the use of these technologies are
132 advertised, it is also important to make clear what are the guidelines for their use when
133 filming wildlife as well as any ethical concerns they may raise if used insensitively (Table 1,
134 Figure 1).



Figure 1. A cheetah cub being disturbed at a kill by an amateur photographer's use of a remote camera in a National Park in Tanzania.

135

136 3. HUMAN-WILDLIFE INTERACTIONS

137 Negative interactions between humans and wildlife are at the crux of many conservation
138 issues, with human-wildlife conflict recognised as a leading threat to terrestrial large
139 carnivores (Ripple et al., 2014). Careful consideration should be given before showing people
140 in close proximity to, or interacting with, wildlife. For example, in the BBC *Dynasties* series,
141 during the African wild dog (*Lycaon pictus*) episode (episode 4: Painted Wolves), the ‘life
142 behind the lens’ feature (in this case called ‘Dynasties: on location’) showed extensive
143 footage of film crews, presenters and interviewees on foot next to wild dog packs (Table 1).
144 When wildlife experience non-threatening human activities frequently enough, they become
145 habituated to human presence and are less likely to exhibit behaviours, such as flight
146 responses (Gunther et al., 2018). This is of significant conservation concern for species, such
147 as African wild dogs, for which human-wildlife conflict is a major threat (Gusset et al., 2009,
148 Fraser-Celin et al., 2018). If carnivores become habituated to seeing people on foot, it may
149 make it more difficult for herders from local communities to protect their livestock from
150 depredation; which can ultimately lead to decreased tolerance and retaliatory killings of
151 predators (McManus et al., 2015). Habituation of wild species can also lead to increased
152 wildlife presence in urban areas, and an increase in animal-vehicle collisions (Kloppers et al.,
153 2005). For those species that also pose a direct threat to human life, the risks of habituation
154 and decreasing animals’ wariness of people is an even greater ethical issue.

155

156 Although it could be argued that the behaviour of one film crew over a short period of time
157 may have limited impact on the wildlife featured, viewers seeing the behaviour of film crews
158 and copying them could have serious negative consequences for some species. Showing
159 footage of how film makers behave around wildlife gives an implicit endorsement of their
160 behaviour, which may influence the behaviour of viewers. Exposure to human-wildlife
161 interactions in the media is also linked to an increased desire to visit wildlife tourism

162 attractions which offer the opportunity to interact with wild animals (van der Meer et al.,
163 2019). These attractions are often detrimental to conservation and animal welfare
164 (Moorhouse et al., 2015), and may blur people’s perceptions of how dangerous wild animals
165 are (van der Meer et al., 2019). Increased human-wildlife interaction can also increase the
166 risk of the transmission of zoonotic disease (Albers et al., 2020, Santana, 2020), which in turn
167 can decrease tolerance to wildlife (Decker et al., 2010, Decker et al., 2011). It has also been
168 suggested, although not empirically tested, that exposure to images of human interactions
169 with wild animals can not only encourage these interactions in others, but increase risky
170 behaviour, such as taking selfies with wild animals, or trying to stroke wild animals on safari
171 (van der Meer et al., 2019). These risky behaviours are dangerous, not only to the people
172 participating in them, but may also lead to animals being labelled as “problem” or
173 “dangerous” individuals and removed from the wild population (Found et al., 2018, Gunther
174 et al., 2018). For example, concerns that imagery of human and primate interactions may lead
175 to adverse conservation impacts recently led the IUCN SSC Primate Specialist Group to issue
176 *Best Practice Guidelines for Responsible Images of Non-Human Primates* (Waters et al.,
177 2021). These guidelines list several problems with disseminating images of people close to
178 primates, including “Images of messengers with primates may make the general public want
179 to obtain their own images very close to primates”. In addition, an increased sharing of
180 wildlife interactions on social media has been shown to exacerbate problems in illegal pet
181 trade, particularly in endangered species (Nekaris et al., 2013). To avoid the trickle-down
182 effect of poor behaviours to the public and amateur wildlife photographers/film makers,
183 greater discussion during the ‘life behind the lens’ sections or disclaimers could be employed
184 to make the public aware of the potential negative impacts such behaviours could have on
185 wild animal conservation and welfare.

186 Table 1. Select examples of potential negative impacts resulting from the footage shown, and the narratives used, in some natural history films.

187 Series/films are only included once, even where there were multiple examples of potential negative impacts within episodes/series.

188

Programme (episode)	Example	Potential negative impact
Shark week	Sharks portrayed as violent killers	May create a false perception of the level of danger these species pose, which can lead to changes in management policy.
Bears (Maneaters)	Portrayal of bears as substantial threat to human life	May create a false perception of the level of danger these species pose, which can lead to changes in management policy.
Penguins - Spy in the Huddle	Male penguin described as having “cheated” on female penguin with the remote-controlled camera	Highly anthropomorphised interpretation of animal behaviour, which can lead to false and negative perceptions of species ecology.
Blue Planet Live Revisited (1)	Programme contributors shown touching and feeding wild sharks	Unnecessary behaviour which is likely to disturb the sharks and affect their foraging behaviour. Viewers may see this behaviour and believe it is acceptable and safe to approach wild sharks, leading to harassment and/or injuries to both people and sharks.
Dynasties (4)	Film crew, presenters and contributors shown on foot next to a pack of African wild dogs	Wild dog packs may become further habituated to seeing humans on foot as non-threatening which may lead to conflict with local communities if it affects the ability of herders to prevent depredation of livestock. Viewers may see this behaviour and believe it is acceptable and safe to approach wild large carnivores leading to harassment and/or injuries.
Serengeti (1, 2)	Animals shown hissing and snarling at the camera (including in episode 1: lions at time points 05:06 & 16:33; episode 2: cheetahs at time points 04:54 & 51:49)	To get these images of the animals, which include both adults and young cubs, the camera must have been put extremely close them and, based on the reactions filmed, appear to have caused them distress.

189

190

191 **4. MISINFORMATION**

192 Studies have long shown the ability of the media to influence popular opinion, social attitudes
193 and wildlife and conservation policy (Lassiter et al., 1997, Muter et al., 2013).

194 Misinformation shared via respected broadcasters can influence public perception of science
195 (Thaler and Shiffman, 2015). Bad science, pseudoscience and fake science [defined by Thaler
196 and Schiffman (2015) as “unsound conclusions drawn from valid premises; sound
197 conclusions drawn from invalid premises; and unsound conclusions drawn from invalid
198 premises respectively”] can be pervasive and spread effectively, so that misinformation may
199 remain as ‘fact’ within the public domain, despite being debunked by modern science
200 (Flaherty, 2011, Godlee et al., 2011, Thaler and Shiffman, 2015). For example, the persistent
201 myth of lemming suicide originated in a Disney natural history documentary film *White*
202 *Wilderness* from 1958 (Bousé, 1998, Louson, 2018). Following the release of the Animal
203 Planet ‘documentary’, *Mermaids: The Body Found*, the National Oceanic and Atmospheric
204 Administration (NOAA) had to release a statement in 2012 reminding people that mermaids
205 are not real, after they were inundated with calls asking for the truth about mermaids
206 (National Oceanic and Atmospheric Administration, 2012, Spector, 2012, Thaler and
207 Shiffman, 2015). Reducing dissemination of inaccurate information is important as public
208 perception of wildlife can play a significant role in setting public policy (McCombs and
209 Shaw, 1972, Otten, 1992, Muter et al., 2013).

210

211 The general public assume wildlife documentaries are a reliable source of information about
212 the natural world (Pollo et al., 2009), especially when narrated by a trusted presenter or
213 celebrity. Although storytelling and emotion can play important roles in audience
214 engagement with wildlife documentaries (Chan, 2012, Tam et al., 2013), producers and film
215 makers have a responsibility to ensure viewers are not misled by any information presented

216 as part of the film (Dingwall and Aldridge, 2006, Pollo et al., 2009). This is of particular
217 relevance for TV channels such as PBS, National Geographic, ZDF, and the BBC Natural
218 History Unit, who all have reputations for producing high quality, factual content; as such,
219 material shown by those channels is particularly likely to be interpreted as factual and truthful
220 information (Nichols, 2017).

221

222 Innovation in natural history film making is important in order to keep engaging the public
223 and ultimately to ensure that production companies achieve a financial return on their
224 products. In recent years, starting with *Big Cat Diary* in 1996, there has been an increase in
225 the use of increasingly dramatised, fabricated story lines and constructed narratives in natural
226 history film making (Richards, 2014). Sir David Attenborough has been quoted saying that
227 series such as *Dynasties* were “not ecological programmes.... but a new form of wildlife
228 filmmaking” (Jones and Davies, 2019). This argument was particularly prominent in the
229 response to the *Serengeti* series, shown on BBC One, where highly dramatised stories were
230 shown and compositing techniques were used to modify footage¹ (Jones and Davies, 2019).
231 In reply to criticisms, the BBC responded by saying *Serengeti* was a dramatisation, not a
232 documentary (Jones and Davies, 2019). However, despite these assertions in the press, and
233 the inclusion of a brief disclaimer at the beginning of the programmes, *Serengeti* and other
234 heightened natural history programmes are advertised as, and categorised under, “Factual”
235 and “Documentaries” on the broadcasters’ websites² and press releases (British Broadcasting
236 Corporation, 2019a).

237

¹ https://www.youtube.com/watch?v=q_xY-aloS4k

² <https://www.bbc.co.uk/programmes/m0006hmc>

238 The use of story and narratives in natural history film making can increase audience
239 engagement, in turn offering an opportunity to increase knowledge of the environment.
240 However, attempts to increase engagement must not be at the expense of including inaccurate
241 information, as this could decrease public knowledge and negatively impact conservation
242 efforts (Hight, 2017).

243

244 **5. ANTHROPOMORPHISM**

245 A narrative device that is incorporated in many natural history films is anthropomorphism,
246 where human emotions, traits or behaviours are attributed to animals to promote empathy
247 towards featured animals (Chan, 2012, Tam et al., 2013, Hight, 2017). Increasing empathy
248 through anthropomorphism has the potential to increase conservation efforts (Chan, 2012).
249 When animals are humanised, people find it easier to connect to these species and their
250 environment, meaning they may be more likely to receive conservation support ahead of
251 other species (Macdonald et al., 2015, Hausmann et al., 2017).

252

253 However, adverse anthropogenic portrayals of some species may distort public perception,
254 creating misconceptions and negative sentiments towards the species (Bousé, 2003, Hight,
255 2017, van der Meer et al., 2019). Natural history films which use dramatised characters and
256 storylines (Richards, 2014), in which certain species are portrayed as heroes and villains,
257 present inaccurate information about species' behaviour and the reasons behind it. For
258 example, *March of the Penguins* was one of the first documentaries to use highly
259 sentimentalised anthropomorphic techniques (Adcroft, 2011). Although it was successful at
260 public engagement, by using themes of anthropomorphic heroism, family and love, the film
261 was heavily criticised for not portraying penguin behaviour accurately. This arguably led
262 audiences to assume penguins are motivated by an anthropogenic perception of love rather

263 than survival instincts, and therefore believe false information about the motivations and
264 behaviours of this species (Adcroft, 2011, Hight, 2017). In this way, anthropomorphism can
265 actually reduce peoples understanding of the natural world (Henderson and Anderson, 2005,
266 Pollo et al., 2009, Hight, 2017).

267

268 Certain groups of species are at particular risk of negative portrayals, despite being threatened
269 species themselves and in need of conservation support. For example, shark species on
270 documentaries are often portrayed with ominous background music which has been shown to
271 increase negative attitudes towards sharks by the public (Nosal et al., 2016). They are also
272 regularly portrayed as violent killers, such as during The Discovery Channel's *Shark Week*
273 programming (Evans, 2015). Although The Discovery Channel's Shark Week may help
274 increase conservation knowledge (O'Bryhim and Parsons, 2015), the emphasis on violence
275 rather than conservation issues, can lead to a skewed perception of risks, and increased fear,
276 of shark attacks (Myrick and Evans, 2014) which can drive public policy (McCagh et al.,
277 2015).

278

279 **6. RECOMMENDATIONS**

280 There are numerous actions which would enable natural history film makers to address the
281 issues raised above. Here, we discuss some of these approaches, the implementation of which
282 would signal the commitment of film makers to ensuring high standards of behaviour and
283 messaging around wildlife and conservation. Some of our recommendations may already be
284 implemented by individual organisations and film makers or by following regulations
285 specified by local filming permits. However, to our knowledge, there are no standardised
286 industry guidelines, and as permitting regulations may vary between countries, we suggest
287 these recommendations should become industry wide standard practice. This should ensure

288 general adherence to high ethical standards across production companies and filming
289 localities.

290

291 **Codes of Conduct**

292 Codes of conduct have been shown to be useful and effective as a method of establishing
293 socially responsible behaviour within organisations (Erwin, 2011). They can outline the legal
294 requirements, professional behaviour and conduct expected by the profession (Cowin et al.,
295 2019), be set as a reference document to promote more ethical practices (Bennett et al., 2017)
296 and reduce negative practices under taken (Adam and Rachman-Moore, 2004, Erwin, 2011).
297 Codes of conduct have previously been suggested for those working with wildlife such as in
298 camera trapping (Sharma et al., 2020) and ecotourism (Gjerdalen and Williams, 2000, Öqvist
299 et al., 2018) and have been shown to help minimise disturbance to wildlife (Quiros, 2007).
300 Codes of conduct can be expansive in their remit and could cover both how series are filmed
301 and how the narratives within them are portrayed.

302

303 Although some production companies, such as the BBC Natural History Unit, already have
304 institutional guidelines for recording the natural world (British Broadcasting Corporation,
305 2019b), to our knowledge, this is neither standardised nor mandatory practice. Guidelines
306 should apply to all productions, not only ones made entirely in-house (e.g., *Serengeti*
307 appeared to contravene aspects of the BBC guidelines, but was shown on BBC One). As
308 such, we recommend a code of conduct be established for natural history film makers in order
309 to ensure compliance to appropriate filming practices.

310

311 **Independent Ethical Review**

312 Codes of conduct are valuable tools providing guidelines about acceptable behaviour.
313 However, they are often reliant on individuals making judgements about how acceptable their
314 proposed actions are. Within most scientific research institutions, in order to avoid such
315 subjective decision making, research involving procedures and interactions with animals in
316 the wild must first gain the approval of an independent ethics review committee before the
317 work can be undertaken (E. Dyson and C. Calver, 2003). We argue that a similar process,
318 which should include an independent panel of researchers, film makers and local
319 stakeholders, exploring the filming techniques planned, would be beneficial for natural
320 history film makers to incorporate into their pre-production planning. This would help to
321 prevent potential negative impacts to target species.

322

323 **Limiting and Monitoring Disturbance**

324 The level of disturbance experienced by wildlife in response to filming techniques is often
325 species specific. We suggest that, where available, assessments of species behavioural and
326 physiological reactions from the literature should be carried out prior to filming, ideally as
327 part of the pre-production ethical review, in order to ensure that only techniques and
328 technologies that limit or minimise disturbance are employed. In addition, any disturbance
329 behaviours that may occur from film making should be recorded and reported, in an open
330 access database, reviewed by the independent ethics committee and mitigation measures put
331 in place ahead of future film making projects. Where the use of filming techniques and
332 technologies that have the potential to cause disturbance are featured in ‘life behind the lens’
333 documentaries, they should be accompanied with information on how the techniques were
334 used and the associated ethical considerations

335

336 **Transparency**

337 Film makers have limited control of how a film is interpreted by the viewing audience.
338 However, they are responsible for structuring programmes and developing their narratives.
339 When producers decide that a more dramatised approach is required for a particular film, then
340 these programmes should be advertised in a way that reflect this and enables viewers the best
341 chances of assessing whether the information they are given is likely to be accurate. As such,
342 we recommend that disclaimers before such shows and, where relevant, further detail in the
343 ‘life behind the lens’ sections is included to increase transparency. These sections would also
344 be a useful platform for filmmakers, should they decide the show filming techniques that
345 could have impacts to wild animal populations, to discuss the ethical and conservation
346 implications of those filmmaking techniques.

347

348 **Accreditation**

349 Accreditation establishes quality standards and verifies the status of service providers and
350 their compliance with accepted standards at both national and international scales (Tabrizi et
351 al., 2011, Ulker and Bakioglu, 2019). We propose that formal third-party accreditation,
352 covering all aspects of natural history film making would be a valuable addition to natural
353 history film production. Within other sections of the media, animal welfare accreditation is
354 industry standard through the “No Animals Were Harmed” program of the American
355 Humane Society. A similar third-party accreditation would signal to viewers that filming was
356 conducted to high ethical standards which minimised disturbance and negative impacts to
357 wildlife and conservation

358

359 **7. CONCLUSIONS**

360 Natural history film making can play an important role in educating the public and in the
361 conservation of wildlife. Natural history film making has substantial scope for influencing

362 public opinion and behaviour which can be used to increase conservation awareness
363 (Schröder and Chillcott, 2019). However, natural history film making also has the potential to
364 negatively impact wildlife and conservation, through disturbance and poor practice during
365 filming and by incorporating misleading information and excessive anthropomorphism in the
366 final production. Although individual production companies may have ethical guidelines
367 (Richards, 2014), these may vary from company to company, and there is little information
368 for specific filming practices to be assessed, or for documentaries to be accredited as
369 following best practice.

370

371 Human-wildlife interactions, and increased disturbance from human presence or filming
372 technologies, can have a negative impact on wild populations, and compound conservation
373 issues. Anthropomorphism and misinformation may lead to dissemination of incorrect
374 conservation information which has the potential to cause issues with funding and
375 conservation policy. However, through conscientious pre-production planning, and increasing
376 transparency around dramatised storytelling, negative impacts from natural history film
377 making can be limited, and natural history film making can continue to be an effective tool
378 for increasing public understanding as well as aiding conservation efforts for a multitude of
379 threatened species and ecosystems.

380

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386

387 **CONFLICT OF INTEREST**

388 The authors declare no conflicts of interest.

389

390 **AUTHORS' CONTRIBUTIONS**

391 MJW and HMKO conceived and formulated the perspective and led the writing of the
392 manuscript. DJC, DMPJ and SMD aided formulating the perspective, and reviewed and
393 edited the manuscript.

394

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