

***Ambio***

Electronic Supplementary Material

*This supplementary material has not been peer reviewed*

Title: **A scoping review into the impact of animal imagery on pro-environmental outcomes**

Laura Thomas-Walters, Claire McNulty, & Diogo Verissimo

## **Appendix S1: Full methodology**

### *Searches*

Search terms were tested for the extent to which they provided related and meaningful results in SciVerse's Scopus ([www.scopus.com](http://www.scopus.com)), Thomson Reuter's Web of Knowledge ([www.webofknowledge.com](http://www.webofknowledge.com)) and Google Scholar ([scholar.google.co.uk](http://scholar.google.co.uk)). The search strings are given in Table 1. Search strings included a combination of population synonyms (those relating to animals), intervention synonyms (those relating to images), effect synonyms (those relating to measurable changes), and discipline terms (those relating to conservation).

The following bibliographic databases were searched on 18/05/18 for publications: Scopus and Web of Knowledge. Both databases cover natural and social sciences, and Scopus is the largest abstract and citation database of peer-reviewed literature. Searches were only undertaken in English and were not restricted by publication date. The search strings were used to search titles, abstracts and keywords in Scopus, and to search the field code "Topic" which includes title, abstract and keywords in Web of Knowledge. The reference manager Mendeley was used to manage the full text documents (Elsevier 2016).

Bibliographic databases may not always have research published in the last 6 months and do not contain grey literature (research produced by organisations outside of the traditional academic publishing channels), so Google Scholar was also searched. Due to limitations of advanced searching on this platform, simple search strings such as 'animal photo behaviour OR behavior' had to be used. 'AND' operators were not necessary as Google Scholar applies them by default. The first 100 search results for each search were reviewed online. Only published reports and studies are indexed in the selected online databases, so any "inhouse" reports commissioned by non-governmental environmental were likely inaccessible. In addition, we sent

a callout to approximately 250 members of the Society for Conservation Biology Conservation Marketing and Engagement, and Social Science Working Groups via email, and 2685 followers on Twitter.

#### *Article screening*

Once the articles captured through the searches were compiled and duplicates removed, the titles and abstracts were screened and categorised according to the inclusion criteria (Table 3). Where there was doubt about whether or not an article met the inclusion criteria, it was retained for assessment during the full text screening. Screening was carried out using Abstrackr (<http://abstrackr.cebm.brown.edu>), an online screening program for systematic reviewers (Wallace *et al.*, 2012).

Once documents had been screened on the basis of their titles and abstracts, all reasonable efforts were made to obtain full text electronic or paper copies of the documents, including emailing corresponding authors. Articles which had passed the title and abstract screening but for which we were unable to obtain full text copies were excluded, although this was only one study from 1980 (Shuttleworth, 1980). We then used snowball sampling to identify further relevant studies in the bibliographies of the articles returned from our database search during the full-text screening.

## Appendix S2: Results of the literature search

### Category 1 – Empirical studies

Arendt, F., & Matthes, J. (2016). Nature documentaries, connectedness to nature, and pro-environmental behavior. *Environmental Communication, 10*(4), 453–472.

<http://doi.org/10.1080/17524032.2014.993415>

Barbas, T. A., Paraskevopoulos, S., & Stamou, A. G. (2009). The effect of nature documentaries on students' environmental sensitivity: A case study. *Learning, Media and Technology, 34*(1), 61–69. <http://doi.org/10.1080/17439880902759943>

Berenguer, J. (2007). The effect of empathy in pro-environmental attitudes and behaviors. *Environment and Behavior, 39*(2), 269–283.

Carter, A. (2011). *Attitude change regarding animal abuse in adults the effect of education and visual aids*. University of Central Florida.

Clark, F. J. (2006). *Effects of watching wildlife television on wildlife conservation behavior*. University of Washington.

Curtin, P., & Papworth, S. (2018). Increased information and marketing to specific individuals could shift conservation support to less popular species. *Marine Policy, 88*(November 2017), 101–107. <http://doi.org/10.1016/j.marpol.2017.11.006>

Draheim, M. M., Rockwood, L. L., Guagnano, G., & Parsons, E. C. M. (2011). The impact of information on students' beliefs and attitudes toward coyotes. *Human Dimensions of Wildlife, 16*(1), 67–72. <http://doi.org/10.1080/10871209.2011.536911>

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<http://doi.org/10.1080/00958969909601882>
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<http://doi.org/10.3389/fcomm.2018.00003>
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<http://doi.org/10.1207/s15506878jobem4702>
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- Kalof, L., Zammit-Lucia, J., Bell, J., & Granter, G. (2016). Fostering kinship with animals: animal portraiture in humane education. *Environmental Education Research, 22*(2), 203–228. <http://doi.org/10.1080/13504622.2014.999226>

- Kalof, L., Zammit-Lucia, J., & Kelly, J. R. (2011). The meaning of animal portraiture in a museum setting: Implications for conservation. *Organization and Environment*, 24, 150–174. <http://doi.org/10.1177/1086026611412081>
- Labao, R., Francisco, H., Harder, D., & Santos, F. I. (2008). Do colored photographs affect willingness to pay responses for endangered species conservation? *Environmental and Resource Economics*, 40, 251–264. <http://doi.org/10.1007/s10640-007-9151-2>
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<http://search.ebscohost.com/login.aspx?direct=true&db=psych&AN=2001-00027-003&site=ehost-live&scope=site>

Megias, D. A., Anderson, S. C., Smith, R. J., & Veríssimo, D. (2017). Investigating the impact of media on demand for wildlife: A case study of Harry Potter and the UK trade in owls. *PLoS ONE*, 12(10), 1–13. <http://doi.org/10.1371/journal.pone.0182368>

Militz, T. A., & Foale, S. (2017). The “Nemo Effect”: Perception and reality of Finding Nemo’s impact on marine aquarium fisheries. *Fish and Fisheries*, 1–11.  
<http://doi.org/10.1111/faf.12202>

Nekaris, B. K. A. I., Campbell, N., Coggins, T. G., Rode, E. J., & Nijman, V. (2013). Tickled to death: Analysing public perceptions of “cute” videos of threatened species (slow lorises - *Nycticebus* spp.) on Web 2.0 Sites. *PLoS ONE*, 8(7), e69215.  
<http://doi.org/10.1371/journal.pone.0069215>

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Osinski, B. (2017). *What’s the Draw: Illustrating the Impacts of Cartoons Versus Photographs on Attitudes and Behavioral Intentions for Wildlife Conservation*. PhD Thesis. Purdue University.

Papworth, S. K., Nghiem, T. P. L., Chimalakonda, D., Posa, M. R. C., Wijedasa, L. S., Bickford, D., & Carrasco, L. R. (2015). Quantifying the role of online news in linking conservation research to Facebook and Twitter. *Conservation Biology*, 29(3), 825–833. <http://doi.org/10.1111/cobi.12455>

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#### Category 2 – Aesthetic preferences

Angulo, E., & Courchamp, F. (2009). Rare species are valued big time. *PLoS ONE*, 4(4), e5215. <http://doi.org/10.1371/journal.pone.0005215>

Batt, S. (2009). Human attitudes towards animals in relation to species similarity to humans: A multivariate approach. *Bioscience Horizons*, 2(2), 180–190.

<http://doi.org/10.1093/biohorizons/hzp021>

Borgi, M., & Cirulli, F. (2015). Attitudes toward animals among kindergarten children: Species preferences. *Anthrozoos*, 28(1), 45–59.

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<http://doi.org/10.1553/eco.mont-7-1s5>

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Knegterin, E., Van Der Windt, H. J., & Schoot Uiterkamp, A. J. M. (2010). Public decisions on animal species: Does body size matter? *Environmental Conservation*, 38(1), 28–36. <http://doi.org/10.1017/S0376892910000755>

Knight, A. J. (2008). “Bats, snakes and spiders, Oh my!” How aesthetic and negativistic attitudes, and other concepts predict support for species protection. *Journal of Environmental Psychology*, 28(1), 94–103. <http://doi.org/10.1016/j.jenvp.2007.10.001>

Lišková, S., & Frynta, D. (2013). What determines bird beauty in human eyes? *Anthrozoos*, 26(1), 27–41. <http://doi.org/10.2752/175303713X13534238631399>

Excluded due to lack of access:

Shuttleworth, S. (1980). The use of photographs as an environmental presentation medium in landscape studies. *Journal of Environmental Management*, 11, 61-76.