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Increased conservation marketing effort has major fundraising benefits for even the least popular species

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ABSTRACT

Conservationists often complain that their study species are ignored by donors. However, marketing theory could help understand and increase the profile and fundraising potential of these neglected species. We used linear regression with multimodel inference to analyse data on online behaviour from the websites of the World Wildlife Fund-US (WWF-US) and the Zoological Society of London's EDGE of Existence programme (EDGE), in order to understand how species traits and marketing campaign characteristics influenced flagship-based fundraising efforts. Our analysis accounted for species traits through variables such as appeal and familiarity, and marketing campaign characteristics through measuring the order in which the species were presented and the amount of information provided. We found that species traits were key for the WWF-US website, with appealing and threatened non-mammal species the most popular with donors. This was probably because WWF-US used well-known flagship species and so marketing had little impact. The EDGE website used a wider variety of species and in this case both species traits and the marketing campaign characteristics were important, so that appealing species and well-promoted species did best. We then predicted outcomes for a hypothetical EDGE fundraising campaign with varying degrees of marketing effort. We showed that additional marketing can have a large impact on donor behaviour, potentially increasing the interest of potential donors towards unappealing species by up to 26 times. This increase would more than equal the amount raised by campaigns using appealing species without additional promotion. Our results show marketing can have a large impact on donor behaviour and suggest there is scope for successful marketing campaigns based on a much wider range of species.

1. Introduction

Patterns of conservation funding and research effort show strong biases towards some species (Bakker et al., 2010; Metrick and Weitzman, 1996). These biases are driven not only by the species traits but also by the nature of a species' interactions with people, the social and cultural context where these interactions take place and by the sensory nature of how humans perceive their surroundings (Lorimer, 2006; Lorimer, 2007). Marketing theory offers a new set of techniques that could help understand and increase the profile and fundraising potential of the neglected species (Jenks et al., 2010; Tisdell, 2006; Veríssimo et al., 2011). Despite this potential, we lack empirical evidence on whether conservation marketing can change people's behaviour or whether the characteristics of some species make them inherently ineffective for fundraising. Thus, there is a pressing need to measure the potential power of marketing in conservation, especially as reversing the current rate of biodiversity loss depends on raising funds and support for a wider range of species (Bennett et al., 2015; Butchart et al., 2010; McCarthy et al., 2012).

There is no doubt that some species are more popular with the public and these species, generally large mammals and birds, are frequently used as flagships in conservation marketing campaigns (Clucas et al., 2008; Entwistle, 2000; Leader-Williams and Dublin, 2000). Much has been written on the drivers of this preference but a

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central concept is animal charisma, which is divided into three key components when related to non-specialist audiences: detectability and distinctiveness; aesthetics; and functional value (Lorimer, 2006; Lorimer, 2007). The first, and perhaps most fundamental component, conditions how people perceive a species, most often through sight and hearing, and reflects their ability to distinguish it from other species (Lorimer, 2006). The second component relates to the aesthetic characteristics of a species, such as shape and colour, and is often influenced by human social norms (Lorimer, 2006; Lorimer, 2007). The third, and last dimension, refers to the current or historical functional values of different species so that, for example, agricultural pests are generally seen as uncharismatic (Lorimer, 2006).

Yet, despite this widespread reliance on so called charismatic megafauna, the majority of published evidence for their popularity with the public is based on attitudinal data derived from questionnaire surveys (Gunnthorsdottir, 2001; Knight, 2008; Tisdell et al., 2007). These studies provide useful information but we need behavioural data to truly understand the relative popularity of different species (Schultz, 2011; Veríssimo, 2013). Fortunately, the increase in online donations makes information on such "revealed preferences" more available, so here we use species-specific online fundraising data from two conservation organisations to explore how the public respond to different species.

The broader goal of this study is to understand the extent to which marketing can play a role in raising the profile of flagships with different levels of public awareness and appeal, and how that role compares to the influence of more widely studied species-specific traits (e.g., body size, taxonomic group). In particular, we test the following hypothesise (1) species-specific traits influence a species' fundraising performance, (2) the marketing context influences a species' fundraising performance, and (3) increasing the marketing effort for less appealing species would reduce the current disparity in fundraising performance when compared to the most appealing species. Thus, our study uses linear regression and multi-model inference to identify the species- and marketing-based factors that best determine donation behaviour for two international Non-Governmental Organisation flagship online campaigns.

2. Materials and methods

2.1. Data

The first organisation we focused on was the World Wildlife Fund-US (WWF-US). Its flagship campaigns are based on "adopting" a wide range of charismatic species, including mammals, birds, reptiles and fish. This approach seeks to maximise fundraising for global conservation efforts, including work on species conservation, habitat loss and climate change. The second organisation was the Zoological Society of London (ZSL) which, in contrast to WWF-US, raises funds directly for particular species through their EDGE (Evolutionarily Distinct, Globally Endangered) of Existence programme. There are EDGE campaigns for amphibians, birds and corals but our study focused on the mammal campaign, which has been running the longest. These EDGE flagship species are more varied in terms of appeal and familiarity because they include species such as rodents and bats, which are generally seen as less appealing (Knight, 2008).

The data on donation behaviour were obtained from the WWF-US and EDGE websites, both of which made it clear that any donations would be spent directly on conservation. Both websites also contained a web page describing each of their flagship species using a standard organisation-specific template, but they differed in how links to these pages were presented. WWF-US offered adoption packages for mammal, bird, reptile, amphibian, fish and invertebrate flagship species and these were all presented simultaneously on a specific webpage. A photo of each WWF flagship species labelled with its name is listed by default on this page based partly on previous popularity and novelty. In contrast, the top 100 EDGE mammal species were profiled ten per web page and the default order was fixed and depended on their EDGE score, which is based on their phylogenetic distinctiveness and conservation status (Isaac et al., 2007). Both of these ordering systems were designed to highlight the highest scoring species and so were also likely to influence donation levels (Buda and Zhang, 2000). Thus, we included variables related to this ordering in our models, "Alphabetic Order" for WWF-US and "Webpage Order" for EDGE, to ensure the influence of other factors was investigated effectively.

We used the available WWF-US data on the number of adoption packages for each of their 97 species, which covered the period of 2007 to 2011. These data were converted to ranks to preserve market sensitive information. For the EDGE data the available information was from 2008, and we used this proxy indicator to measure the ability of each of the top 100 EDGE mammals to elicit interest in donating, based on Google Analytics data on the number of clicks on the "Support EDGE" button on the online profile of each species. To understand the drivers of donations to WWF-US and EDGE we considered the characteristics of each marketing scheme, which we grouped into: (a) species traits, based on the species' biological traits that were identified as important in previous studies, and (b) marketing characteristics, based on how the species was presented on the website.

The species traits used for both WWF-US and EDGE were body mass, threat status, possession of forward-facing eyes, appeal and familiarity. We included body mass because previous research found that larger-bodied species are preferred in fundraising campaigns targeted at non-specialist audiences, by conservation Non-governmental Organisations (NGOs) when promoting their work and by politicians in the policy making process (Knegtering et al., 2011; Martin-Lopez et al., 2008; Smith et al., 2012). This is likely because these species are easier to detect and distinguish, making them more salient in human cultures (Lorimer, 2006). We included species conservation status because species seen at greater risk of extinction are commonly prioritized by non-specialist audiences and conservation NGOs, probably because their conservation is seen as more urgent (Bowen-Jones and Entwistle, 2002; Veríssimo et al., 2009). We included whether the species have forward-facing eyes because the importance of this trait has also been identified in previous studies (Smith et al., 2012), probably because it makes the species more anthropomorphic and species that resemble humans are often perceived as more charismatic and important (Lorimer, 2007; Root-Bernstein et al., 2013). We included species appeal as a proxy for the overall aesthetic attributes of a species, such as colour and shape, which are key elements of charisma (Lorimer, 2006). Aesthetics have been shown by previous research to drive human preferences, with appealing species receiving more attention (Knight, 2008; Stokes, 2007; Veríssimo et al., 2009). Lastly, we included a measure of species familiarity, as target audiences generally donate to species they already know (Frynta et al., 2013; Martín-López et al., 2007; Schlegel and Rupf, 2010). Based on similar cases in the marketing literature, this preference probably stems from familiarity being used as a choice heuristic, with consumers selecting a product simply because they already know it (Macdonald and Sharp, 2000). For WWF-US, we investigated the difference between mammals and other taxonomic groups. We used this typology because mammals are the taxa most commonly associated with human preference and flagship roles (Martin-Lopez et al., 2008).

Data on body mass in grams were collected from the PanTHERIA database (Jones et al., 2009), peer-reviewed literature (Briggs, 2008; Herman, 1988) and scientific online databases (Myers et al., 2013; Palomares and Pauly, 2013). For species with no available data ($n = 6$ for the WWF-US dataset; $n = 16$ for the EDGE dataset) we used the median for the genus or family (when the genus was monotypic). Following a previous study (Smith et al., 2012) the data were log transformed. We collected data on conservation status from the International Union for Conservation of Nature (IUCN) Red List (as of 2007) in the case of the EDGE dataset, and from the WWF-US website in

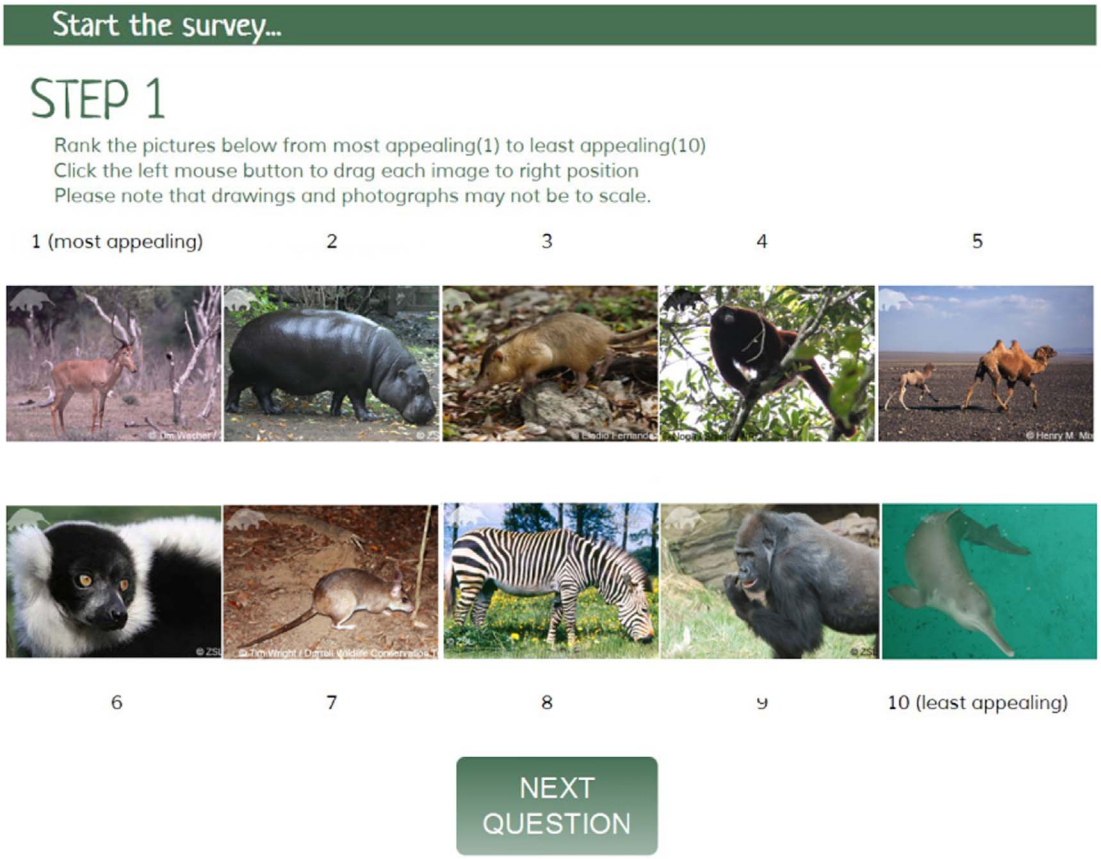

Fig. 1. Layout of the survey used to determine species appeal and familiarity. Each respondent was asked to order 10 species assigned randomly by dragging and dropping the photos in their corresponding places. Respondents were then asked to rate each species in the rank by indicating if they had seen it before either live or through documentaries, museums or books.

the case of the WWF-US dataset, reflecting the information available to the users of each website. This conservation status was coded based on the three groupings used on the two websites (WWF-US: 0 for Near Threatened and Least Concern, 1 for Vulnerable and Endangered, 2 for Critically Endangered and Extinct in the Wild; EDGE: 0 for Vulnerable, 1 for Endangered, 2 for Critically Endangered). Data on whether the species has forward facing-eyes were gathered by the authors through an online survey (n = 23) and complemented by the data collected in a previous study (Smith et al., 2012).

We collected data on species appeal and familiarity through an online survey (Fig. 1) that was posted by WWF International and EDGE on their Facebook pages (WWF-US n = 441; EDGE n = 445). In the survey we used the same photos displayed on the websites of the NGOs, so as to more closely resemble the experience of potential donors. To determine species appeal we asked each respondent to rank 10 randomly selected species from one of the datasets, according to appeal. Here we use appeal to encompass both aesthetic and socio-economic aspects of nonhuman charisma, which account for both the visual impact and affections triggered by an organism's appearance and the cultural biases that can develop throughout the interaction of humans with a given species (Lorimer, 2007) . These partial rankings were then reduced to paired comparisons and used to produce an overall ranking based on a standard Bradley-Terry model for paired comparisons fitted to the data using the R package BradleyTerry2 (Turner and Firth, 2010). To determine species familiarity we then asked if they had seen any of the 10 previously assigned species, either live, in a documentary or a book. The percentage of respondents that claimed to have seen each species was then calculated. For the species without a photo, or where the photo represented only a part of the animal, we used the median appeal and familiarity value for the species of the same family. Lastly, for WWF-US we investigated the difference between mammals and other taxonomic groups by using the IUCN Red List taxonomy to code 0 for non-mammal and 1 for mammal.

In terms of marketing characteristics, the WWF-US and EDGE flagship campaigns shared two aspects: distinctiveness and online information. We measured distinctiveness because marketing theory suggests campaigns based on similar species may target similar audience groups and thus compete for public attention (see Weinberg and Ritchie, 1999). We measured this as the number of species in the same taxonomic Family for a given flagship based on the taxonomic standards used by the IUCN Red List. We measured the amount of online information about each species because this could influence the preferences of donors visiting the website, although previous work has shown that donors respond more to visual cues than written content (Perrine and Heather, 2000). This online information, other than that found on the standardised flagship pages, was located on different pages throughout the WWF-US and EDGE websites and we were unable to measure whether each donor had found each of the relevant pages. Instead, we measured the number of pages on the NGOs' websites mentioning the species name, using this as a proxy for the probability of a donor reading the relevant information. For the EDGE dataset, we conducted Google searches for the species common name while restricting the search to the EDGE Internet domain and to 2008. For the WWF-US dataset, we conducted Google searches for the species common name while restricting the search to the WWF-US Internet domain and to the period 2007 to 2011.

Furthermore, we considered four campaign-specific marketing characteristics on the different websites. For the WWF-US dataset site there was alphabetic order, as people could order the species by their common name and might be more likely to look at species at the top of the page (Colléony et al., 2017; Huck and Rasul, 2007). This information was obtained from the WWF-US website. For the EDGE dataset

Table 1
Model-averaged estimates for coefficients (β) and standard errors (SE) for WWF-US online species adoptions. Variables are ranked by the sum of Akaike weights (Wi) of all the candidate models containing that variable.

Variable	β	SE	Lower 95% CI	Upper 95% CI	Akaike weight
Appeal	0.679	0.162	0.361	0.997	1
Mammal	− 0.531	0.217	− 0.957	− 0.106	1
Threat status	0.374	0.134	0.112	0.637	1
Information	0.274	0.231	− 0.179	0.726	0.33
Alphabetic order	− 0.053	0.088	− 0.224	0.119	0.19

there were three campaign characteristics: webpage order, as people were more likely to look at species that were higher up on the page (Huck and Rasul, 2007); focal species, as these species were often featured separately on the EDGE website and received more press coverage; and conservation attention, as the public might be more interested in supporting the conservation of neglected species (Sitas et al., 2009). Webpage order was based on EDGE score, which is partly based on conservation status, but there was no correlation between species conservation status and order on the webpage, so we decided to use both in the analysis. Thus, for webpage order we recorded the position of each species on the EDGE website. For EDGE Focal species we identified the 10 species that were selected by the EDGE programme staff at project inception and were used in 2008. Conservation attention was based on the information given on the EDGE website about whether the species was the target of existing conservation efforts, which was coded as 0 for "None", 1 for "Limited" and 2 for "Active").

2.2. Statistical analysis

For the WWF-US data, the number of species available for adoption increased over the study period, from 80 in 2007/08 to 102 in 2010/11, so we standardised the yearly rank of each species, calculated their mean average rank and inverted the values to make interpretation of the results more intuitive. For the EDGE data, we applied a square root to the variable describing the number of clicks of the "Support EDGE" button on the online profile of different species to normalise variance. The Blunt-eared Bat *Tomopeas ravus* was excluded due to lack of data on its appearance and natural history, which were needed in later analysis.

We analysed the WWF-US and EDGE data separately. All variables were initially checked graphically for heterogeneity of variance, residual normality and influential data points. We then used the R packages *AED* and *car* to assess, respectively, collinearity and the impact of potential outliers (Zuur et al., 2010). We found that collinearity between variables was negligible, with all variable inflation factors being smaller than 4. We found that individually excluding the outlier points considered to be statistically influential did not change the interpretation of the results.

We used the R package MuMIn to model the probability of a species eliciting a donation using linear regression with multimodel inference (Burnham and Anderson, 2002). We considered candidate models comprising of all subsets of variables and ranked these by Akaike's information criterion corrected for small sample size (AICc) (Burnham and Anderson, 2002). We then selected models within 2 AICc units of the lowest AICc value and calculated model-averaged parameter estimates (Burnham and Anderson, 2002). We also calculated the overall measures of fit and the relative importance of each variable within the averaged model by summing Akaike weights (w_i) of those models within 2 AICc units of the lowest AICc value. We identified those variables for which the model-averaged 95% confidence intervals did not include zero and which had an Akaike weight of at least 0.7 as being "strongly" supported by the model (Gray et al., 2009).

Lastly, we used the R package MuMIn to predict, based on the averaged EDGE model (Table 2), the impact of improving marketing effort for the 10 EDGE species with the highest and the lowest appeal scores, which we obtained through the online survey conducted to measure species appeal and familiarity. We did this in stages by modelling the likelihood of each species in the highest and lowest appeal groups eliciting support from donors based on: (i) "No Marketing", where the species was not given any additional marketing boost; (ii) "Focus", where the species was featured as an EDGE Focus species; (iii) "Focus + Order", where the species was featured as an EDGE Focus species and also shown on the first webpage.

3. Results

3.1. Donations to WWF-US

The three most commonly adopted species were the polar bear (*Ursus maritimus*), tiger (*Panthera tigris*) and grey wolf (*Canis lupus*), while the three least adopted species were the mandrill (*Mandrillus sphinx*), pileated woodpecker (*Dryocopus pileatus*) and bighorned sheep (*Ovis canadensis*). Donation rank for each species was best explained by species appeal, whether a species was a mammal or not, and conservation status, with appealing, threatened non-mammals receiving the most donations (Table 1). The model had moderate explanatory power ($R^2 = 0.28$).

3.2. Donations to EDGE

The three species that received the most interest from potential donors were the baiji (*Lipotes vexillifer*), long-eared jerboa (*Euchoreutes naso*) and red slender loris (*Loris tardigradus*), while there were twelve species that received no interest, all of which were rodents, insectivores and bats. Interest was best explained by species appeal, the order in which the species appeared on the webpage and whether it was an EDGE focal species: with greater interest in appealing and EDGE focal species that appeared on the initial web pages (Table 2). The model had strong explanatory power ($R^2 = 0.64$).

In terms of understanding the impact of marketing, the EDGE model predicted that increased marketing effort had a positive impact on interest received by both the most and the least appealing species. Although the most appealing species were always expected to have more potential donors than their least appealing counterparts under the same marketing conditions, unappealing species could attract on average 60% more potential donors than an appealing species if supported by a greater marketing effort (Fig. 2). This increase would be achieved by turning the least appealing species into focal species, which we estimate would increase the number of potential donors to those species by a factor of 15, and by also placing them on the first web page, would increase the same number nearly 26 times.

Table 2
Model-averaged estimates variables of coefficients (β) and standard errors (SE) for species traits eliciting online donations to the EDGE of Existence programme. Variables are ranked by the sum of Akaike weights (Wi) of all the candidate models containing that variable.

Variable	β	SE	Lower 95% CI	Upper 95% CI	Akaike weight
Appeal	0.842	0.188	0.474	1.21	1
Focal	2.605	0.376	1.87	3.343	1
Webpage order	− 0.016	0.004	− 0.024	− 0.008	1
Familiarity	− 0.921	0.575	− 2.048	0.206	0.6
Distinctiveness	− 0.079	0.07	− 0.217	0.059	0.26
Threat status	− 0.169	0.19	− 0.541	0.202	0.21
Conservation attention	0.165	0.189	− 0.206	0.536	0.11

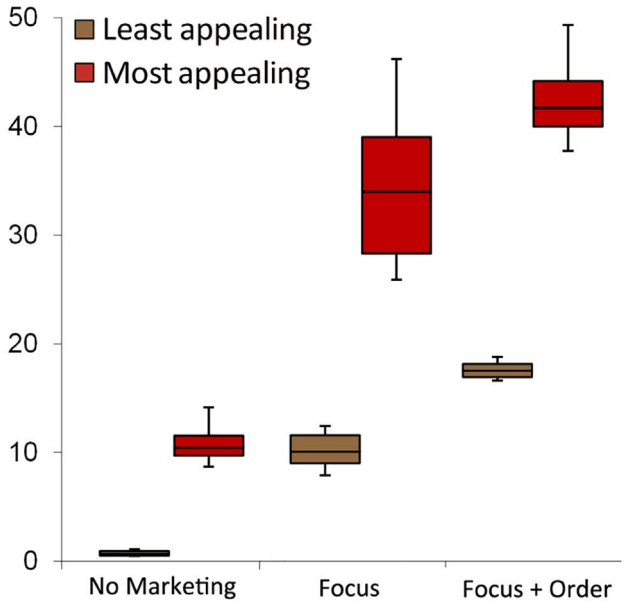

Fig. 2. Boxplots of the modelled impact of improving different aspects of a species marketing strategy on the likelihood of eliciting a donation. The solid line inside the box represents the median of the data for the 10 most and least appealing species, the bottom and top of the box represent, respectively, the 1st quartile and 3rd quartile of the data, and the individuals error bars are the minimum and maximum. Interest in donating was measured by the number of clicks of the "Support EDGE" button on the online profile of different species in the EDGE of existence programme Top 100 mammals.

4. Discussion

The number of people donating to charity via the Internet is increasing rapidly (Hart, 2002; Waters, 2007). This has implications for how conservation marketing campaigns are conducted but also creates new research opportunities, by providing inexpensive and accessible data. In particular, it can provide data on donation behaviour, which can differ considerably from the donor attitudes measured in previous studies (Martin-Lopez et al., 2008) and thus allow for a more effective tailoring of fundraising appeals (Sargeant, 1999; Wenham et al., 2003). In this study, we pioneer the use of behavioural data to understand the factors influencing flagship species campaign success and then model the potential impacts of increasing marketing effort on interest from potential donors. Such an approach brings challenges, as the data were collected to fulfil the needs of the respective NGOs rather than for our later analysis, but it also helped ensure the relevance of the research. Developing such campaigns will always be organisation and context specific, but our results provide general insights on the important factors that drive donor behaviour.

Understanding the importance of the different species traits involves recognizing that the two campaigns use flagships in different ways: WWF-US uses flagship species as the recognisable face for a broad range of conservation projects, while EDGE raises money specifically for each flagship species. This probably explains why only one trait was shared by the two models and this was species appeal, which is well known for driving donor preferences (Martin-Lopez et al., 2008; Veríssimo et al., 2014; Veríssimo et al., 2009). Conservation status was only important for predicting WWF-US donation behaviour, and this may be because their flagships have a range of threat statuses. In contrast, all the EDGE species are classified as threatened in the IUCN Red List and donors did not seem to distinguish between whether they were Vulnerable, Endangered or Critically Endangered (Smith et al., 2012). The WWF-US flagships also came from a wider range of taxonomic groups, which allowed us to investigate the importance of that trait. We found taxonomic group was important but the pattern was the opposite of what we expected from the literature (Martin-Lopez et al., 2008), with the 23% of non-mammal flagship species being more popular with donors. This was despite some mammals ranking amongst the species that received the most donations and may have been partly because of the type of non-mammal used, which included charismatic species such as marine turtles, whale sharks and hummingbirds. This suggests that choice of broad taxonomic group (e.g., at the class level) is less important, as long as the traits of the species are appealing to potential donors. We thus find support for our first hypothesis, that species-specific traits have impact in a species fundraising performance.

Potentially more surprising was the two factors that were not important for explaining donation behaviour in either campaign. The first of these was familiarity, which is in contrast to marketing studies that show that consumers generally prefer well-known brands (Hoyer and Brown, 1990; Macdonald and Sharp, 2000). This difference might be because marketing studies generally focus on scenarios where consumers must choose between similar products with little additional information provided (Hoyer and Brown, 1990; Macdonald and Sharp, 2000). In contrast, both WWF-US and EDGE provide standardised information about the behaviour, conservation and ecology of each species as part of the flagship campaign, although the fact that information about each species on the website was also not important for explaining donation behaviour suggests it is not sufficient to provide such details elsewhere on the website. In addition, for the EDGE campaign which includes less well-known species, it could be that donors trusted the NGO to only highlight important species and so were willing to fund species they had not encountered before (Smith et al., 2010).

The second unimportant factor was body mass, which contradicts findings from previous studies (Clucas et al., 2008; Smith et al., 2012). For the WWF-US campaign, this was possibly because the flagship species are generally large and so the variation of body mass values was too narrow to identify significant differences. For the EDGE species it might be the nature of the campaign that was important, as it was framed around the "weirdness" of each flagship and this might have attracted donors who were less interested in traditional larger-bodied flagship species.

None of the marketing characteristics were important for explaining the WWF-US donation behaviour. This was probably because many of these species are used in a number of other NGO campaigns, making it difficult to detect the influence of the WWF-US marketing effort. In contrast, marketing characteristics were crucial in the EDGE results, and the most important factor was whether a flagship was one of their ten focal species. The order of the species on the EDGE website was also important, as visitors browsing through the ten webpages containing the species profiles would commonly encounter those species on page one first. This result is supported by the literature on charity fund raising which shows that the first options presented are commonly preferred (Buda and Zhang, 2000). We thus find support for our second hypothesis that the marketing context has impact in a species fundraising performance, only for EDGE.

Given all the above, EDGE and WWF-US could maximise the fundraising potential of their online campaigns by adopting some new strategies. WWF-US would probably attract more donors by increasing the number of appealing and threatened non-mammal species, while removing mammal species that are attracting few donations, such as big-horned sheep. EDGE could probably increase their fundraising revenue by redesigning their website so that it was easier to see more species on each page and by increasing the number of appealing species in their focal list. However, the increase in species number may lead to a decrease in the attention received by each, unless the additional species were able to attract new audience groups. These trade-offs should be considered in the context of the organisations' conservation goals, which need to balance conservation priorities with fundraising potential (Veríssimo et al., 2011).

Producing the EDGE model also let us investigate how changing the marketing effort for EDGE species might impact donation behaviour.

We found that if EDGE selected their ten most appealing species as focal species then this could more than triple the number of people willing to donate to those species, while also placing the most appealing species on the first web page would quadruple this number. We found a similar pattern with the ten least appealing species, although the change was even more pronounced. Thus, making them focal species and also placing them on the first web page would increase the number of people willing to donate to those species by nearly 26 times. However, achieving these large relative increases in one group would require the recruitment of new donors, as previous studies on online charitable giving show there is a somewhat fixed pool of resources to be allocated by donors (Meer, 2014). This expansion of the donor pool could be achieved by increasing the overall marketing effort or by focusing on less mainstream species with the potential to attract new donors. These donor groups are likely to be comparatively small but as they remain largely untapped by conservation NGOs, donations could be larger.

There are two key results to stress from this model. The first is that the most appealing species are always more popular with donors when marketing effort is similar, which justifies traditional approaches for selecting flagships to raise funds for broad conservation projects. The second is that marketing could make a large difference to donation behaviour, for both the most and least appealing species, although this effect is more pronounced for the least appealing species. Thus, a least appealing species that is marketed in the two ways could substantially outperform an appealing species without these marketing boosts in terms of number of donors attracted. Thus, we find partial support for our third hypothesis on the ability of least appealing species to rival more appealing species through improved marketing, as this is only true when the gap in marketing effort between the two groups is very substantial.

Scientists working with species other than large mammals and birds often blame donors' obsession with charismatic megafauna for the lack of funding for their study subjects. Similarly, these groups of people traditionally view marketing as undesirable or overly expensive (Andreasen and Kotler, 2003; Kotler, 1979; Wenham et al., 2003). However, our results show marketing can have an important impact on fundraising potential and suggests there is much scope for raising funds and support for currently neglected species. This would give NGOs the flexibility to allocate funding based on criteria such as threat and cost-effectiveness, rather than on aesthetic factors, thus increasing investment in the species that would benefit most (Metrick and Weitzman, 1996; Richardson and Loomis, 2009). This would directly help campaigns that fundraise for specific species, which are the most common campaign type used by international conservation NGOs (Smith et al., 2010).

This increased focus on marketing is particularly important at a time when biodiversity conservation efforts continue to be underfunded (Hein et al., 2013; McNeely and Weatherly, 1996; Waldron et al., 2013) and conservation needs to expand its donor base beyond the traditional western target audiences to the newly emerging economies (McNeely and Weatherly, 1996). This increase in marketing effort will require more investment in research, so conservationists can better understand the values, preferences and social norms of new audiences, a key process for implementing marketing efforts. Conservation scientists and ecologists could play a major role in the development of this biodiversity marketing, as conservation NGOs are understandably reluctant to publish research that forms part of their marketing strategy. Thus, by conducting research on marketing and making their findings publicly available, scientists could help broaden support for biodiversity and help practitioners improve the effectiveness of their conservation marketing campaigns (Bennett et al., 2015).

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