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Conservation inequality and the charismatic cat: Felis felicis

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A R T I C L E   I N F O

A B S T R A C T

Conservation resources are limited, making it impossible to invest equally in all threatened species. One way to maximise conservation gains is to focus upon those species with particular public appeal, using them to generate funding and support that could also benefit less charismatic species. Although this approach is already used by many conservation organisations, no reliable metrics currently exist to determine the likely charisma of a given species, and therefore identify the most appropriate targets for such campaigns. Here we use market research techniques on over 1500 people from five continents to assess the relative charisma of different mammals, which factors appear to drive it, and how these patterns vary between countries. Felids and primates emerged as highly favoured species for conservation, with the tiger (*Panthera tigris*) the top species by a wide margin. Using an information theoretic approach we develop models that successfully predict respondents' preferences across the entire sample, suggesting global commonalities in the attributes that people prefer for conservation. However, by analysing each country separately we are able to improve our models, thus highlighting the importance of identifying locally specific flagships for conservation. The most important attributes were body size and IUCN status, although the extent of baldness, whether the species was a potential threat to humans and whether the eyes were forward or side facing were also widely important. Several of the key attributes revealed in this study could be extrapolated to nearly all terrestrial mammals, paving the way for a standardised global identification of species likely to prove effective for future conservation campaigns. The public preferred species with which they had affinity and familiarity, and we discuss how these aspects could be increased to promote the under-achievers, whilst maximising the funding potential of the highly charismatic mammals. While the felids are widely regarded as a popular taxonomic group, the great extent to which they appealed to our respondents emphasises their potential as ambassadors for conservation. Indeed, the big cats were so highly rated that we might think of them as one, *Felis felicis:* a globally powerful flagship for conservation.

1. Introduction

While a sort of taxonomic egalitarianism might have it that all species are equal, it is clear that to most people some species are more equal than others. For example, while we might suspect that the man on the Clapham omnibus may value a

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gorilla (*Gorilla gorilla*) more highly than a house mouse (*Mus musculus*), it is less clear-cut, but still likely, that such differences are perceived even amongst closely related organisms, such as two species of felid. While such favouritism might be ethically inconsistent, it is likely to be highly relevant to practical conservation (Macdonald et al., 2006). This matters because, while Noah may have been determined to rescue at least one representative pair of everything, neither the public nor policy makers have the ability, let alone the inclination, to be so even handed. In order to raise funds, and to have the best chance of influencing political decision making, it is arguably important for conservationists and policy makers to understand which species are most valued by the public and why.

Conservation organisations have a long history of focusing their campaigns around single charismatic species, but it was not until the 1990s that the term 'flagships' for conservation began to attract interest in the conservation literature. Since then it has been much discussed and has undergone many reinterpretations (Caro and O'Doherty, 1999; Favreau et al., 2006; Heywood, 1995; Meffe and Carroll, 1997; Simberloff, 1998). A recent review of the concept defined flagship species as "*a species used as the focus of a broader conservation marketing campaign based on its possession of one or more traits that appeal to the target audience*" (Verissimo et al., 2011). The appropriateness and effectiveness of focusing conservation attention on a single species has been debated vigorously (Bowen-Jones and Entwistle, 2002; Caro, 2010; Favreau et al., 2006; Linnell et al., 2000; Small, 2012a,b). On the critical side, some authors have preferred an emphasis on ecosystem management (Simberloff, 1998), and others have illustrated the dangers of selecting a flagship species that is locally inappropriate (Linnell et al., 2000) or found that focusing on single species does not necessarily confer the best protection of other locally occurring species (Lindenmayer et al., 2014). On the positive side, others have found that the presence of a charismatic flagship species increases the public's engagement with conservation issues (Smith and Sutton, 2008) and their willingness to pay for conservation (Kontoleon and Swanson, 2003; White et al., 2001). Governments and NGOs have also repeatedly and successfully used flagship species as marketing tools for leveraging political influence and funds for wider conservation (e.g. Dietz et al., 1994, Loveridge, 2014 and Veríssimo et al., 2009). Much of the debate about flagship species stems from different interpretations of the term (Barua, 2011), so in their definition, Verissimo et al. (2011) deliberately focus on their use as marketing tools. They avoid using the term 'charisma' because perceptions of charisma are likely to differ between stakeholder groups and because it is potentially susceptible to manipulation by marketers. However, charisma and attractiveness have been widely cited as being key traits that might contribute to public perceptions of a species (Lorimer, 2007; Small, 2012a), and indeed Veríssimo et al. (2014) found 'attractiveness' to be a significant determinant in identifying flagship bird species in Brazil.

In what some regard as the seminal paper on the subject, Lorimer (2007) identifies three facets of non-human charisma, namely ecological, aesthetic and corporeal charisma. Ecological charisma broadly relates to the 'detectability' of a species—in other words factors such as the size, circadian rhythm and elusiveness of species that are likely to bring it to the attention of humans. Aesthetic charisma refers to the aesthetic characteristics of a species' appearance or behaviour, and corporeal charisma relates to a deeper emotional attachment that can be understood in terms of epiphanies (such as a childhood encounter) or the accumulation of expert knowledge of a species. In line with these ecological and aesthetic facets of charisma there appear to be some commonalities amongst the species that people find attractive—for instance, species chosen as flagships are typically large, warm blooded, endangered and predatory with forward facing eyes (Caro and O'Doherty, 1999; Clucas et al., 2008; Courchamp et al., 2006; Dietz et al., 1994; Johnson et al., 2010; Smith et al., 2012). Further, zoological gardens trade on the ability of their collections to attract visitors, and consequently zoo species are likely to be large, attractive and even often of lower conservation priority than their close relatives not held in zoos (Frynta et al., 2013; Martin et al., 2014). However, despite the fact that there are obvious biases in people's attitudes, driven in part by the ecological and aesthetic components of charisma, there are currently no reliable metrics that objectively rate or predict which attributes might contribute to people's preferences. It is also important to note that a species' perceived attractiveness might also be affected, positively or negatively, by cultural or religious influences (Dunham, 2006; Gosler et al., 2013; Richards, 2000), or by positive or negative interactions with a species—one man's valued photo opportunity might just have eaten another man's livelihood.

Another key element of the flagship species debate is that any species selected as a flagship needs to be both relevant to the conservation issue and appropriate for to the intended recipients of the campaign (Bowen-Jones and Entwistle, 2002; Douglas and Veríssimo, 2013; Linnell et al., 2000). Nevertheless, many large international NGOs (WWF, RSPB, Greenpeace etc.) continue to invest substantial funds on broad based campaigns aimed at improving general attitudes towards environmental issues, as well as attracting funding and recruiting new members. These campaigns aim to reach as wide a selection of society as possible and can be seen in magazines, newspapers and on everything from the sides of buses to cans of cat food in cities around the world, and a single campaign can raise many hundreds of thousands of dollars (WWF, 2014).

To some extent marketing firms already know which species people like: Jaguar cars, Tusker beer, Lynx aftershave, Camel cigarettes and Puma sports clothing are all powerful commercial icons, and the giant panda (*Ailuropoda melanoleuca*), polar bear (*Ursus maritimus*), lion (*Panthera leo*) and tiger (*Panthera tigris*) are all frequent stars of conservation marketing campaigns. However determining differences in people's preferences towards different species is not always intuitive and there are over 5000 species of terrestrial mammal, with astonishing variations in morphology, from Kitti's hog-nosed bat (*Craseonycteris thonglongyai*), at 2 g to African elephants (*Loxodonta africana*) at 6000 kg, and from subterranean naked molerats (*Heterocephalus glaber*), to flying Malayan colugos (*Galeopterus variegatus*). Given that people's attitudes towards species are also likely to be heavily influenced by context and familiarity, we expect preferences to differ regionally and between people with different experiences of interacting with wildlife. These factors are likely to influence people's decision-making