





REVIEW

A scoping review of celebrity endorsement in environmental campaigns and evidence for its effectiveness

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Abstract

The use of celebrities in marketing campaigns is widespread globally, including in environmental conservation. Celebrity endorsements are pervasive, but there is limited evidence of their effectiveness. We conducted a review of celebrity-endorsed environmental campaigns. We report on the extent to which celebrities have been used in these campaigns, whether evaluation of the endorsement has been conducted, and assess whether there is evidence that the celebrities achieved the objectives they set out to accomplish through their engagement. We searched the peer-reviewed and grey literature in six languages from July 2018 to January 2019 and found 79 campaigns implemented in nine countries from 1976 to 2018. Two thirds of campaigns were implemented in China and reported in Chinese. Only four campaigns were evaluated, but none of the evaluations provided evidence of the effectiveness of celebrity endorsement. Evaluation focused instead on overall campaign outputs and outcomes. Claims of effectiveness were made, but the lack of measurable objectives, theory of change, outcome indicators, and critical evaluation renders it impossible to determine whether the outcomes achieved by the campaigns can be attributed to celebrity endorsement. It thus remains unclear whether celebrity endorsement can contribute to conservation efforts. It is essential for environmental practitioners and researchers to report the outcomes and lessons learned from celebrity endorsements to ensure that their future use in conservation marketing campaigns is evidence-based, thereby improving conservation practice.

KEYWORDS

celebrity selection, conservation messages, design, evaluation, target audience, theory of change

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1 | INTRODUCTION

The use of celebrities has become a mainstream marketing strategy (Tanaka, Nguyen, & Romaniuk, 2015). Celebrities are individuals who are identifiable and well known to a specific audience, and whose activities are more prominent and agency more amplified (in the sense of possessing more ability or resources to influence the course of events) than the average individual within that audience (adapted from Boykoff & Goodman, 2009). Celebrities are highly prevalent in advertising globally (Aririguzoh, Mogaji, & Odiboh, 2019; Erdogan, Baker, & Tagg, 2001; Mchiza, Temple, Steyn, Abrahams, & Clayford, 2013; Muda, Musa, & Putit, 2012). They have endorsed a vast array of products such as food, make-up, carbonated drinks, clothes, and sports brands (Englund, Zhou, Hedrick, & Kraak, 2020; Erdogan et al., 2001). Three main theoretical models have been advanced to explain the effectiveness of celebrity endorsement across different products and brands. The source credibility model proposes a celebrity's credibility, expertise on the product being endorsed, and trustworthiness influences the effectiveness of an advertisement (Friedman, Termini, & Washington, 1976; Ohanian, 1991; Park, 2016). The source attractiveness model contends attractiveness of a celebrity, which includes physical appearance, familiarity, similarity, and likability affect endorsement effectiveness (McGuire, 1969, 1985). Finally, the "match-up" hypothesis explores whether the match between celebrity, brand, product, and audience is appropriate (Miciak & Shanklin, 1994; Park, 2016).

Celebrity endorsements are one way for brands and products to be conspicuous in a competitive marketing environment, as celebrities can increase message persuasiveness, impact message recall, attitude toward a specific advertisement and the brand in general, brand recognition and purchase intention, thus improving advertisement effectiveness (Muda et al., 2012; Agnihotri & Bhattacharya, 2016; Park, 2016). There is also evidence that a celebrity's profession affects the effectiveness of the endorsement. Individuals who are famous because of their performances or talent, such as athletes, may be perceived as more authentic than those who have "glamorous" professions (e.g., acting; Roy & Mishra, 2018).

There are also recognized challenges to celebrity endorsement. Enlisting famous individuals as endorsers requires investment, for example time and effort needed to manage the relationship, and the cost of employing liaison officers (Brockington, 2016). Celebrities may not be the most effective messengers for complex topics (Bradshaw, Brook, & McMahon, 2007; Jeffreys, 2016) and might be perceived as insincere by the public (de los Salmones & Dominguez, 2016). There are also potential

risks for businesses, organizations, and investors associated with a lack of control over celebrities' personal lives and controversies they may be involved in, which can damage the image of a product or brand being endorsed (Ford, 2018; Tanaka et al., 2015) or result in substantial market-value declines (Ilicic, Kulczynski, & Baster, 2016).

Evidence for the effectiveness of celebrity endorsement positively affecting brands and influencing purchasing behavior is therefore mixed (Wang & Scheinbaum, 2018). Thus, there is a need to test the prevailing assumption that such endorsement is effective (Ford, 2018; Tanaka et al., 2015). While most research on celebrities in advertising has taken place in the United States, using student participants (Brockington, 2015), it is necessary to explore responses to endorsements in diverse audiences across social and cultural contexts (Bergkvist & Zhou, 2016; Choi, Lee, & Kim, 2005).

1.1 | Celebrity endorsement in environmental conservation

Since the 1990s, the use of celebrity endorsement in environmental conservation has increased (Doyle, Farrell, & Goodman, 2017). Celebrity involvement has ranged from endorsing non-governmental organizations' (NGOs') messages (e.g., Jackie Chan endorsing WildAid's messages; WildAid, 2018), to celebrities creating their own institutions built around their profile and brand (e.g., the Jane Goodall Institute), and participating in high-level political forums (e.g., Leonardo DiCaprio speaking at UN climate change summit in 2014) (Doyle et al., 2017). This is reflected in the recent creation of celebrity liaison officer positions in prominent environmental NGOs, and the involvement of Hollywood talent management companies in the management of celebrities' charitable interests (Brockington, 2016).

More broadly, celebrities have played a range of roles, promoting myriad topics and messages. One is climate change, leading to the labeling of particular celebrities as the "charismatic megafauna" of the climate change movement (Boykoff, Goodman, & Littler, 2010). As in product advertising, the marketplace for environmental causes is cluttered and celebrities are seen as a tool to help break through noise and reach the intended audiences (Boykoff et al., 2010). They can be powerful messengers by making distant issues seem relevant in people's everyday lives (Anderson, 2013) and presenting complicated topics in a more appealing and emotional manner, which frames how the public should feel about issues they may not otherwise pay attention to (Doyle et al., 2017; Jeffreys, 2016). Brockington (2008) argues that alienation from nature as a result of modern urban

lifestyles creates yet another commodity celebrities can sell to the public; a first-hand experience of closeness to nature. Famous individuals involved in conservation have the ability to mobilize support to conserve wildlife (Brockington, 2008). Due to their elite status, celebrities may also have access to key individuals and organizations, acting as strategic assets for NGOs (Turner, 2016).

Efforts aimed at achieving environmental objectives typically rely on communicating effectively to different audiences and encouraging pro-environmental behaviors, such as following sustainable diets and lifestyles, to be adopted. It is essential, therefore, that conservationists ground their use of conservation marketing and, in particular, celebrity endorsements, in evidence, in order to maximize the likelihood of success. The need for further research on the effect of celebrity endorsement in the environmental field has been highlighted (Anderson, 2011), but has not yet been rigorously examined. Despite this, the assumption that celebrities' symbolic power will result in effective environmental action (Craig, 2018) has driven their continued use. Duthie, Verissimo, Keane, and Knight (2017) explored the effectiveness of celebrities in conservation marketing by testing willingness to engage with an advertisement and message recall, using messages created for the purpose of the study delivered by a celebrity and a non-celebrity. Findings show respondents had a higher willingness to engage with adverts featuring celebrities but message recall was lower with these advertisements, as the celebrity appeared to distract viewers from the message. These results showcase the complexities of using celebrity endorsements as a conservation tool. This review investigates the extent to which celebrity endorsement has been used in environmental conservation campaigns, whether and how its effectiveness has been evaluated, and what evidence exists of its effectiveness.

2 | METHODS

We use a broad definition of celebrity adapted from Boykoff & Goodman, 2009 (see Introduction). We define "celebrity endorsement" as active participation by a celebrity in delivering campaign messages, and "environmental conservation campaign" as the organized delivery of messages that focus on actions benefitting the natural environment and/or biodiversity, including both protection against a specific threat and conservation generally.

We searched for existing reviews on celebrity endorsement in environmental conservation campaigns in the following databases: PROSPERO, the Cochrane Library, The Campbell Collaboration Library, the Collaboration for Environmental Evidence Library, Web of Science,

ProQuest and Google Scholar. Terms searched for were "review AND celebrity AND environmental AND campaigns," and "review AND celebrity AND conservation AND campaigns." We found no other review on this topic. We conducted the searches in six languages: English, Spanish, French, Portuguese, Chinese and Vietnamese. These languages were selected to cover a wide geographic range of publications, ensuring in particular that those areas where celebrities are known to be used for campaigns on the illegal wildlife trade (Vietnam and China) were covered.

We searched Web of Science (databases specified in Supplementary Material 1), ProQuest (databases specified in Supplementary Material 1), Scopus, Open Grey and Google Scholar to search for relevant literature in each language in both published and grey literature as we suspected reports of environmental conservation campaigns that have employed celebrity endorsement may be published in NGO reports. Additional databases in Vietnamese, Chinese and Spanish were used; reviewers identified language specific databases to get the best coverage possible of the literature. (Supplementary Material 1). A pilot search in Google was tested ("Environmental campaigns celebrities") to add to the grey literature but results from the first five pages ranged widely from online news articles to lists of celebrities who support environmental topics without mentioning specific campaigns and thus would have been excluded. Links that did mention campaigns did not report the information required for inclusion in the review.

Searches were conducted from July 2018 to January 2019 using institutional access from the University of Oxford, Sun Yat-Sen University and University of Kent, with the time frame of the search being set from the earliest records available to January 2019. Reviewers translated 12 original search strings from English into each language (Table 1; Supplementary Material 2). Original search strings in each language were used in all data bases except for Google Scholar and Open Grey. There is a character limit for searches in Google Scholar; search strings that exceeded this limit were divided into two different search strings. Half of the synonyms of "celebrity" were combined with the other search terms for the first search and the other half of the synonyms were combined with the other search terms for the second search. Google Scholar and Open Grey did not have Boolean logic to search for plural terms; this was remediated in Open Grey by using the Boolean logic for different word endings and in Google Scholar all the synonyms and plural words had to be added into the search string next to the original word.

We followed guidelines from the Centre for Environmental Evidence (CEE, 2018) and developed a

TABLE 1 Search strings in English using Boolean logic.

(Celebrity* OR "Very Important Person" OR "famous individual*" OR superstar* OR "household name*" OR "famous pe*" OR ambassador* OR "famous face*" OR "famous name*" OR influencer\$ OR "role model\$")	AND	(environment* OR conservation) impact\$ AND (environment* OR conservation) marketing AND (environment* OR conservation) (campaign\$ OR advert*) AND (environment* OR conservation) (endorsement OR advoca* OR support*) AND (environment* OR conservation) (campaign\$ OR advert*) AND (endorsement OR advoca* OR support*) AND (environment* OR conservation) (evaluat* OR effect*) AND (environment* OR conservation) (campaign\$ OR advert*) AND (endorsement OR advoca* OR support*) AND (evaluat* OR effect*) (campaign\$ OR advert*) AND (attitude OR behavior\$ OR awareness) "behavior\$* intention" (environment* OR conservation) AND "social norm\$" (environment* OR conservation) AND "behavior\$* change"
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TABLE 2 Inclusion and exclusion criteria for the scoping review.

Population	Interventions may focus either on a specific target audience or on the general public. Review is not limited to a geographical location.
Interventions	Environmental conservation campaigns: Organized delivery of messages that focus on benefitting the natural environment and/or biodiversity, including protection against a specific threat and general conservation. Excluding: Natural disaster relief efforts, the promotion of use and purchase of products, campaigns that focus solely on health benefits, animal welfare campaigns and interventions that encourage the adoption of a vegan or vegetarian diet solely for health and/or welfare reasons, concerts, simulated campaigns under experimental conditions and celebrities' blogs discussing personal lifestyle choices.
Outcomes	Articles that describe the use of celebrities in campaigns are included, whether or not they specifically address outcomes. This is because one of the aims of this review is to understand celebrity use across the environmental field. Publications reporting on the evaluation of effectiveness of celebrity endorsement can include various outcomes such as: Campaign reach; campaign results (including amount of donations raised, pledges, commitments or other immediate action); message or advertisement recall; evidence of voluntary change in behavior or change in awareness and attitude (e.g., obtained through pre- and post- intervention surveys or experiments that compare changes in the target audience with a control group).

protocol to outline the process, objectives, key definitions, screening strategy, and inclusion and exclusion criteria for our review (Supplementary Material 3). The protocol was sent to experts in celebrity research, practitioners in celebrity relations within the NGO sector, and researchers who have conducted, or are conducting, illegal wildlife trade consumer research, given the popularity of celebrity use regarding this topic (e.g., USAID, 2016; Voices for Wildlife, 2018; WildAid, 2018; Supplementary Material 3). Stakeholders were consulted for feedback on the protocol during the development stage. Changes were made to the protocol following this feedback. These changes are included in Supplementary Material 4.

We sought to answer a two-part question in this review: to what extent has celebrity endorsement been used in environmental conservation campaigns, and is there evidence for its effectiveness? We used the list of elements commonly used in evidence synthesis to guide inclusion and exclusion of articles: *Population, Intervention, Comparison, and Outcomes* (PICO; CEE, 2018), where *Intervention* is celebrity endorsed environmental conservation campaigns and the *Outcome* is the evidence for celebrity endorsement effectiveness. To critically assess the *Outcome*, we set out to understand if and how these campaigns have been evaluated. Although the *Population* is not explicit in our review question it has been defined with the other parameters in Table 2. We



FIGURE 1 Steps for the design and implementation of a celebrity-based intervention. Adapted from Olmedo, Sharif, and Milner-Gulland (2018)

excluded the *Comparison* element as this review aimed to find any evidence of celebrity endorsement and not to compare it to endorsement by different messengers.

To analyze campaign design, we evaluated the campaigns against the steps necessary for a celebrity-based intervention to be adequately planned and implemented (Figure 1). These are based on Olmedo et al. (2018), who developed key steps required for an intervention to achieve and demonstrate behavioral change. This framework was based on interviews with practitioners responsible for delivering behavior change interventions for the illegal wildlife trade in Vietnam, combined with elements from the conservation, business, and behavioral science literatures (Margoluis, Stem, Salfasky, & Brown, 2009; Osterwalder, Pigneur, Bernarda, & Smith, 2014; Zhuang, 2013). As this review did not seek to evaluate behavior change campaigns exclusively, but rather celebrity campaigns regardless of their objective, the elements related to behavior change in the original diagram in Olmedo et al. (2018), including research into motivations driving behavior and selecting a behavior change model, were removed. We used steps 1–8 in the diagram below to assess the extent to which the campaigns we found in the literature followed a robust design-delivery-evaluation-learning process.

We used 11 reviewers, two per language (AO reviewed in two languages). Each language had a designated lead reviewer who conducted the searches across all databases. Both reviewers screened the titles, abstracts and full texts separately and met to discuss and agree on

their decisions about inclusion and exclusion and reach consensus keeping track in flow diagrams (Supplementary Material 5). Once the lead reviewer in each language had conducted the searches and downloaded the articles found, both reviewers separately screened all the titles and abstracts, categorizing them as “Excluded”, “Included,” or “Maybe Included”. Reviewers then compared the articles each had placed in these categories to ensure mutual agreement was reached. The abstracts for the articles categorized as “Included” and “Maybe Included” were then read and screened separately by both reviewers to categories them as “Included” or “Excluded,” and then compared for mutual agreement. Where there was a difference on the decision to include an article, reviewers were instructed to include the article in order to be as inclusive as possible. Both reviewers read all the full-texts of articles that were included after abstract screening and if articles complied with the inclusion criteria, the main reviewer extracted the data from the full-texts (Supplementary Materials 8 and 9).

Data were extracted by each lead reviewer in every language recording information on the campaign, its implementation, and the evaluation of effectiveness (based on Table 2 and Figure 1), all data were recorded in English (Supplementary Material 10). Once the data had been extracted from each of the included articles this was shared with the second reviewer in each language to ensure there was agreement on extraction. Data on all campaigns from every language were then collated into a single spreadsheet using Microsoft Excel where details of campaign information (location, year, audience, objective, celebrities involved), campaign design elements (theory of change, indicators of success, evaluation) and evidence of effectiveness were grouped into relevant categories (e.g., campaign topic, type of celebrity, objective of celebrity endorsement, etc.) and graphed in line with standard practice for a scoping review (Sucharew & Macaluso, 2019).

Due to limited time, the review team was not able to search for campaign websites, social media posts or find and reach out to individuals involved with implementation to gather further information on campaign design, evaluation and outcomes. Thus, the results presented here pertain only to what was reported on each campaign in the literature included.

3 | RESULTS

3.1 | Celebrity endorsed campaigns

We found 79 campaigns with celebrity endorsement in the literature, in English ($N = 23$), Portuguese ($N = 1$),

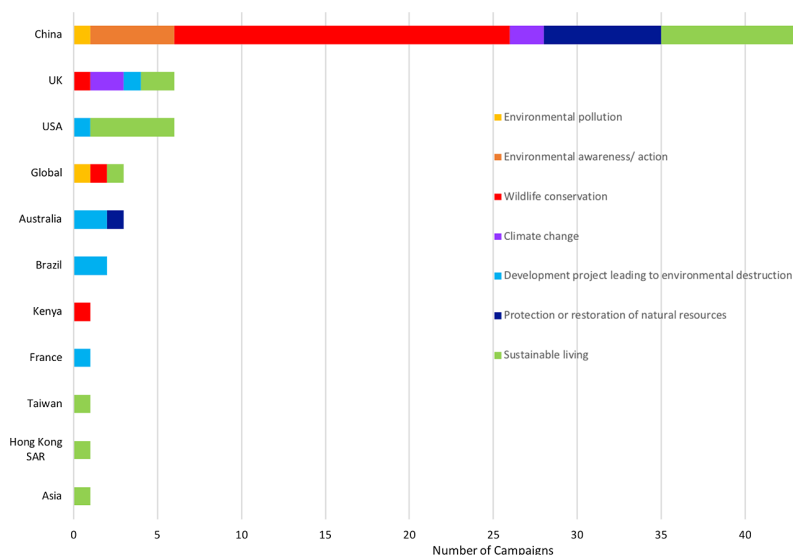


FIGURE 2 Number of campaigns implemented by geographical location by topics of focus. Does not include campaigns where implementation location is unknown

and Chinese ($N = 55$). Searches include records published until January 2019. The campaigns were implemented between 1976 and 2018, with between one and six campaigns each year ($\bar{x} = 2.5$). Campaigns were implemented across nine countries, the majority in China. However, not all sources specified the year or location of campaign implementation. A myriad of topics was represented in these campaigns; the majority ($N = 29/79$) focused on sustainable living practices (e.g., promoting energy conservation) and wildlife conservation, while others including pollution and climate change received limited attention (Figure 2, Supplementary Material 6).

A total of 181 celebrities were involved in these campaigns, some endorsing multiple campaigns. For example, the Chinese athlete Yao Ming endorsed six different campaigns, most with WildAid and some in collaboration with the Yao Ming Foundation and Save the Elephants, focused on wildlife conservation. The vast majority of celebrities ($N = 143$) only endorsed one campaign reported. Regarding campaigns, the majority ($N = 52$) used a single celebrity endorser. Three campaigns did not specify which celebrity(ies) were involved and an additional nine did not provide a full list of participating celebrities. Actors were the celebrities most used for endorsement ($N = 70$), followed by musicians, athletes and experts on different topics (e.g., chefs, scientists) (Figure 3); a full list of the celebrities is provided in Supplementary Material 7. Sixty-six organizations and/or agencies (local government and international) were responsible for implementation of the campaigns reported in the literature. For 21 campaigns, the organization/agency responsible was not reported. The majority of the organisations/agencies ($N = 50$) implemented one of the included campaigns while WildAid, implemented eight.

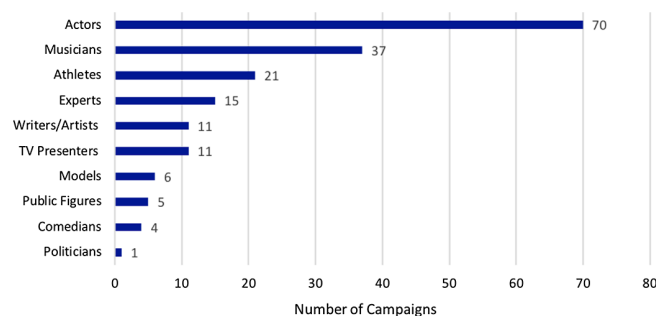


FIGURE 3 Type of celebrities who endorsed the recorded campaigns

Only 40% of the campaigns stated the objective(s) celebrity endorsement was meant to achieve. The most common objective for enlisting celebrities was to increase media coverage of the campaign ($N = 7$). This was followed by increasing campaign impact (although no campaign actually defined impact), applying pressure to governments, and changing the behavior of the target audience or influencing the adoption of sustainable lifestyles as role models. Other campaigns made use of celebrities' access to elite spaces and people, such as high-ranking executives or politicians. These campaigns aimed to increase pressure on governments, asking celebrities to deliver petitions to drive specific actions, or reach out to other famous individuals to increase campaign support.

3.2 | Eight steps of the campaign evaluation framework

Only 15 campaigns provided evidence that they had included more than two of the steps required to design

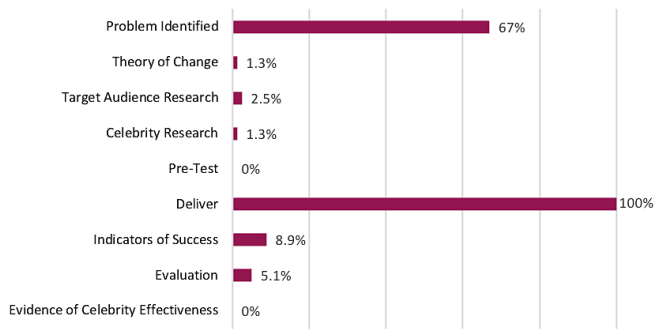


FIGURE 4 Proportion of campaigns ($N = 79$) that included the design and implementation steps for celebrity-based interventions identified in Figure 1

and evaluate a celebrity-based intervention, outlined in the framework (Figure 4).

Most campaigns (67%) identified an environmental problem to be addressed. The remainder did not articulate a specific problem but aimed to encourage support for the environmental cause more generally. Only Hether (2018), who discussed the United Nations Environment Programme's (UNEP) #WildforLife campaign, provided evidence of a theory of change that guided the development of measurable objectives, target audience selection, campaign design, and celebrity choice.

Only two campaigns reported on research conducted to understand the target audience and identified which specific behavior change was sought. The "Target 140 campaign," which aimed to reduce residential water use in Brisbane, Australia, investigated residents' current water use and attitudes toward efforts to conserve water, and used this information to design the intervention (Walton & Hume, 2011). The #WildforLife campaign identified the relevant demographic groups to target, to raise the profile of illegal wildlife trade in consuming countries. This was the only campaign for which celebrity selection research was reported; identifying local celebrities who the target audience followed on social media in order to engage those individuals as influencers (Hether, 2018).

Seven campaigns measured indicators of effectiveness, but only the Target 140 campaign measured effectiveness against the campaign's objective. Residential water consumption was recorded throughout campaign implementation (Walton & Hume, 2011). Other campaigns measured effectiveness based on number of pledges signed (Peng, 2012; Zhang, 2010), the amount of funds donated (Liu, 2011), advertisement views (Cao, 2005; Li, 2008; Liu, 2016; Yu, 2008; Zhang, 2006), and number of celebrities who installed solar power facilities in their homes (Qin, 2005). However, none of these indicators relates to the effect of celebrity involvement in these campaigns.

Only four campaigns reported information on evaluation (Table 3), but did not assess whether the celebrity endorsement was successful in achieving the campaign and/or endorsement objectives. UNEP's #WildforLife campaign was successful in reaching the intended number of people, however Hether (2018) states that the primary goal of the campaign was to raise "awareness about the problems and risks associated with illegal trade of wildlife and to mobilize individuals to support the protection of endangered species and ending illegal trade in wildlife." It is not clear from the evaluation whether this was achieved or not, or even evaluated, and whether it was assumed that campaign reach was equivalent to accomplishing the primary goal.

WildAid's Active Conservation Awareness Program (ACAP) for "endangered wildlife" campaign aimed to achieve a change in threatened wildlife consumption, but, as reported in the literature, WildAid focused its evaluation on campaign reach rather than behavior change, using advertisement views and self-declared future consumption intention among people who reported having seen the campaign as their metrics (Cao, 2005; Li, 2008; Liu, 2016; Yu, 2008; Zhang, 2006). WildAid's ACAP "shark" campaign reported reduced shark fin consumption, increased knowledge of shark issues and how shark fins are sourced, and a high proportion of people who had seen the campaign and had indicated no future consumption intention (Ali, 2014; Liu, 2016; Wang, 2014; Zhang, 2006). However, it is not clear whether the survey respondents were shark fin consumers or had any intention to consume shark products prior to the campaign.

Despite the dearth of evaluation effort, 11 of the campaigns made claims of general success. Of these, three claimed celebrity endorsement was effective. In these campaigns, celebrities were reported to be effective at encouraging individuals who might otherwise be difficult to access, to take certain actions: chefs were encouraged to make public commitments stating they will avoid cooking with endangered wildlife (Zhang, 2004) and multiple celebrities in Hollywood installed solar panels in their homes (Dai, 2008; Qin, 2005). Celebrities were also reported as helping to achieve the campaign reach desired (Hether, 2018). The common denominator in these effectiveness claims appears to be that the celebrities were the main means of communication, and therefore any impact was attributed to celebrity endorsement. The #WildforLife campaign made use of the celebrities' own social media to deliver messages to their followers. Celebrities in the other two campaigns engaged directly with other elites, who, being in positions of power, were able to make the desired changes. In one of these campaigns, two famous Chinese writers, Zhao Danian and

TABLE 3 Summary of evaluation of campaigns with celebrity endorsement reported in the literature.

Campaign	Reported objectives	Reported celebrity engagement	Reported pre-intervention data	Reported post-intervention data	Reported results
#WildforLife (Hether, 2018)	Reach 10 million unique individuals, engage 50,000 individuals in social media and build a community of partners	Celebrities created avatars, shared messages on their social media, created social influencer pyramid	No data available before intervention	Reach and reactions on social media, number of pledges, partnerships and goodwill ambassadors	Reached over 1 billion people, 4.5 million social media reactions, 12,500 pledges signed, 25 partners and 35 goodwill ambassadors recruited
Target 140 (Walton & Hume, 2011)	20% reduction of water use in the residential area	Celebrities supported the campaign (no other details provided)	Current water use at the residential level in the target area	Water use after intervention in target area	22% reduction in average daily water consumption in target area
Asian Conservation Awareness Program (ACAP) on endangered wildlife (Cao, 2005; Li, 2008; Liu, 2016; Yu, 2008; Zhang, 2006)	Raise awareness of endangered species conservation, change consumption behavior of endangered species	Celebrities included in campaign communications materials and attended campaign events	None available	Advertisement views, intention of future consumption	Over 1 billion advertisement views, 78% of viewers in Taiwan claimed no future consumption intention
ACAP shark (Ali, 2014; Liu, 2016; Wang, 2014; Zhang, 2006)	Raise awareness on shark conservation, reduce shark fin consumption	Celebrities included in campaign communications materials and attended campaign events	Consumption prevalence	Consumption prevalence, knowledge/awareness, future consumption intention	50% reduction in consumption 35% increase in awareness of shark issues 80% of respondents indicated no future consumption intention

Shu Yi, encouraged famous chefs to sign a pledge committing not to cook with threatened plants or animals (Zhang, 2004). In another, the actor Edward Norton catalyzed a snowball effect of multiple celebrities installing solar power facilities in their homes (Dai, 2008; Qin, 2005).

3.3 | Celebrity endorsement evaluation studies

In addition to the 79 reports of campaigns themselves, we found 15 studies that evaluated the role of celebrity endorsement in environmental campaigns. Of these, only five suggested that celebrities were effective at fulfilling the stated campaign objectives. Two studies evaluated the impact of the endorsement of chef and TV personality, Hugh Fearnley-Whittingstall, one focused on the French scientist, Jacques Cousteau, another on the film director, James Cameron, and the fifth on the internationally known architect, Roberto Burle Marx.

After the release of a movie he directed (*Avatar*) James Cameron spearheaded his own campaign against the construction of the Belo Monte Dam in Brazil. Jampolsky (2012) argues that Cameron's involvement contributed significantly to the Brazilian courts' consideration of the indigenous and environmental advocates of the region, rallied the support of thousands against the construction of the dam and generated more media coverage for the issue than ever before. Hugh Fearnley-Whittingstall's personal efforts were associated with revisions of the European Union fisheries legislation in 2014 (Hopkinson & Cronin, 2015). Jacques Cousteau was invited to join the Antarctic and Southern Ocean Coalition (ASOC) and Greenpeace's efforts to rally support against mining in the Antarctic, but he was already personally committed to ensuring governments would abstain from joining the Mining Convention. The scientist and explorer went beyond what was initially asked of him and successfully pressured the French, Australian, and U.S. governments to reconsider their support toward mining in the Antarctic and make commitments to protect the ecosystem instead (Shortis, 2015). Pereira (2017) argues that Roberto Burle Marx was effective at raising awareness of Volkswagen's role in destroying the Amazon forest by sending private letters to newspapers, government representatives and other key stakeholders.

A common factor is that all of these four celebrities were seemingly personally committed to the topics they endorsed. Cameron had publicly shown his interest in the protection of ecosystems and native people's rights; as a chef, Fearnley-Whittingstall had previously covered topics on sustainable seafood consumption; Cousteau is

known for his interest in ocean conservation and the Antarctic ecosystem; and Marx began private correspondence with key stakeholders to stop habitat destruction in the Amazon. Although the evidence for their success may appear compelling, it is only supported by anecdote rather than rigorous analysis (Craig, 2018).

The remaining studies evaluated celebrity endorsement, not linked to a specific campaign, and found mostly negative or inconclusive results. One study tested the effectiveness of Indian actor Mohanlal Viswanathan's attractiveness (based on whether he was perceived to be attractive/unattractive, classy/not classy, beautiful/ugly, elegant/plain, and sexy/not sexy) in improving message comprehension and changing attitudes and behavioral intention toward energy conservation. The results showed that respondents understood the message, that there was a positive attitude toward the advertisement, and a future intention to conserve energy (Thomas & Johnson, 2016). However, the study did not include a comparison with an influencer considered to be unattractive, or with a non-celebrity as a control, nor did it compare message comprehension, attitudes or intention of respondents who did not find the actor attractive. Furthermore, the study did not compare results to data on intentions to conserve energy before being exposed to the message. Other confounding factors, such as the celebrity's perceived expertise or trustworthiness, or respondent characteristics that might suggest they are already interested in energy conservation, were not taken into consideration either. It is therefore difficult to effectively demonstrate that it was Viswanathan, and his physical attractiveness in particular, that were responsible for the results. Three studies looking at campaign media coverage generated by celebrity endorsement concluded that this strategy can acquire media coverage but does not guarantee it (Lester, 2006), and that celebrity involvement distracted media attention from the issues being discussed (Anderson, 2013; Wells & Heming, 2009). A study comparing the effects of celebrity Public Service Announcements (PSAs) discussing shark conservation to non-celebrity PSAs (not linked to a particular campaign) discovered there was no significant difference in intentions to support shark conservation between the two (Myrick & Evans, 2014).

Five other studies evaluated the effectiveness of particular campaigns by conducting pre- and post-intervention surveys to measure attitudes, behavior, awareness, and behavioral intention, and by recording campaign reach. However, they did not report on the celebrity endorsement or whether it contributed to campaign results (Gueterbock, 2004; Hether, 2018; Liu, 2016; Yu, 2008). One of these studies, which analyzed Yao Ming's endorsement of WildAid's shark campaign in

mainland China, concluded that a PSA in which Ming pushes away a bowl of shark fin soup at a banquet and shows images of fins being removed from sharks resulted in incoherent framing for the audience (Jeffreys, 2016). Jeffreys argues the PSA assumes that “empathy with an edible animal naturally supersedes the social relations between host and guest”, and that it would be socially acceptable for a guest to reject a dish and potentially insult the host in the particular situation depicted in the PSA. Jeffreys further highlights that the PSA received much better coverage in the West than it did in China, and proposes that the reported decline in shark fin sales is more likely due to the efforts of Chinese business elites advocating for relevant legislation, rather than mass communication featuring Ming and other celebrities. Jeffreys compares the PSA featuring Yao Ming, among other international celebrities, to one featuring only Chinese business elites and finds the latter's framing to be more coherent, as it links environmental protection with national pride, although she still suggests business leaders might not be the most appropriate messengers. Jeffreys' study is an example of where the overall campaign goal was reached but the effectiveness of the celebrity endorsement (i.e., attribution) was unclear, partly due to confounding factors such as other interventions being implemented simultaneously.

4 | DISCUSSION

4.1 | Articles reviewed

An increase in celebrity endorsement for environmental causes has been reported since the 1990s (Boykoff et al., 2010; Craig, 2018; Doyle et al., 2017). In our scoping review, we found only 79 environmental campaigns featuring celebrity endorsement, and 15 studies of celebrity-endorsed environmental campaigns. The fact that the majority of the campaigns reported ($N = 55$) were in Chinese suggests that reviews solely in English can exclude a large amount of relevant literature (Amano, Gonzalez-Varo, & Sutherland, 2016). We hypothesize that most of our results are in the Chinese literature because multiple additional Chinese language databases were available and thus more grey literature was captured than in other languages. This emphasizes the importance of conducting reviews in languages other than English and including language specific databases in a review's search strategy. While there is ample literature in English on the topic of celebrities acting as endorsers for environmental causes, only a limited number focus on the actual delivery of campaigns. This may be because organizations implementing campaigns keep

results and evaluations internal but this raises questions over whether organizations are conducting evaluations at all. Conservation marketing professionals may not always have the resources, time or even skills to carry out evaluations. There is very limited impact evaluation for conservation projects generally (Baylis et al., 2015) and it is likely that this is the case for celebrity associated campaigns.

4.2 | Celebrity use and the lack of research

The range of campaign topics found shows that celebrity endorsement has proliferated across the environmental field. The high frequency of endorsement by actors, which follows patterns elsewhere in marketing (Roy & Mishra, 2018), may be because film stars, as well as musicians, are often featured in mass media (Tamizhjyothi & Rajkumar, 2011) and may therefore be perceived to have high recognizability among audiences. However, the consumer research necessary to guide celebrity selection was only conducted by one campaign. Additionally, apart from Thomas and Johnson (2016), no literature was found on whether the celebrity attributes which the marketing literature finds to impact advertisement effectiveness have a similar effect in an environmental context, nor on how to use these attributes to guide endorser selection. It is surprising that there is little evidence that the knowledge and principles used in marketing are being applied in environmental conservation.

Choosing the right celebrity is as important as delivering a message which is framed appropriately for the campaign subject and the cultural context (Lakoff, 2010). As illustrated by Jeffreys' (2016) analysis of Yao Ming in WildAid's shark fin campaign, the actions enacted by celebrities might not reflect what is culturally appropriate or possible within a particular social context. Thus, the message risks being ignored because it does not match the narrative, social roles, emotions and values associated with that particular situation (Lakoff, 2010). This emphasizes the need to rely on evidence for celebrity choice and message design. While it appears that WildAid's campaign's goals were reached, better design of the intervention itself, based on audience research and message testing, could have helped to disentangle confounding factors and thus success could have been more confidently attributed. Uncertainty of attribution is seen in the literature reporting another WildAid campaign. An uncritical evaluation of the reduction in shark fin consumption may suggest the campaign was effective, but there are numerous confounding factors, such as a decrease in availability of the product, policy changes in

state functions, and that the studied audience was exposed to and persuaded by other messages being delivered at the same time (Ali, 2014; Liu, 2016; Wang, 2014; Zhang, 2006).

4.3 | Celebrity endorsement effectiveness

While celebrities were engaged to achieve several goals, none of the objectives reported for celebrity endorsement were measurable and it is therefore impossible to examine whether the celebrity was effective in meeting those objectives (Britt, 2000; Stem, Margolouis, Salafsky, & Brown, 2005). Information on the quality and content of social media reactions to #WildforLife's campaign messages could have indicated whether the audience was responding to the celebrity or the message, but this information was lacking. Future behavioral intention to consume, as measured by WildAid, should be viewed cautiously, as present intentions can differ from future behavior for many reasons (Fife-Schaw, Sheeran, & Norman, 2007). In addition, it is not clear whether the respondents surveyed for evaluation were consumers or had the intention to consume before being exposed to the campaign. Similarly, the "knowledge deficit" model of behavior change interventions, which assumes that people's ignorance about the consequences of their actions is the problem, and that giving them information will therefore change their behavior, has been shown to be largely unfounded (McKenzie-Mohr, Lee, Schultz, & Kotler, 2012). Counting an increase in people's knowledge of the threats wildlife faces as a success, as done in many illegal wildlife trade campaigns in Asia, assumes that providing knowledge will catalyze a change in consumption behavior. This is unlikely to happen in conservation, just as it does not happen in other fields such as public health (Jebb, 2018; Marteau, 2017).

Higher campaign visibility, as achieved by increased media coverage or reach, should not be an end in itself because it is an output metric (Anderson, 2013; Veríssimo & Wan, 2018). Yet, it is common for conservation campaigns to focus on reach and other measures that assess delivery rather than success with attribution (Greenfield & Veríssimo, 2018; Wright et al., 2015). While there are examples of private and public commitments leading to a change in behavior, their efficacy depends greatly on the audience and context, and pledges or intentions should therefore not be the sole evaluation measurement for campaign effectiveness (McKenzie-Mohr & Schultz, 2012; Mullaly, 1998).

The non-profit sector literature has suggested that celebrities can be effective in their role as endorsers when

they are known to be personally connected to a cause, as they are perceived to be more credible (Wheeler, 2009). The same has been noted in public health where experience with an illness elevates a celebrity's credibility. For example, Magic Johnson's support for HIV-AIDS and Michael J. Fox's efforts to increase awareness of Parkinson's disease (O'Regan, 2014). This was the case in four examples from the review; Hugh Fearnley-Whittingstall, James Cameron, Roberto Burle Marx and Jacques Cousteau were all passionate about the topics they endorsed and campaigned to achieve their personal objectives. Audiences can recognize a genuine interest in a topic; if it appears that celebrities are advocating for a cause simply because they have been hired to do so, they can be perceived as deceptive (de los Salmones & Dominguez, 2016).

Making strategic use of the access provided by celebrities can be an effective way of reaching individuals who would not otherwise be reached. This use of celebrities has been discussed in the international development field. Brockington (2014) describes the enjoyment elites, such as politicians, get from interactions with celebrities as it enhances their own image and reinforces their own status. Famous individuals can not only provide access but can also facilitate discussion and their presence can attract the participation of corporate executives and politicians, which might not otherwise be possible (Brockington, 2014).

Despite there being some circumstances in which celebrities do appear to be helpful in achieving campaign objectives, based on the evidence analyzed here, it is impossible to say whether the outcomes achieved in the campaigns would have occurred without the presence of the celebrities. This uncertainty is a result of a lack of robust evaluation, which mirrors that in the non-profit sector more broadly (de los Salmones & Dominguez, 2016; Duthie, 2014). Even if success can be demonstrated for some of the campaigns, failure to assess whether the celebrity engagement contributed to this or not obstructs the creation of any evidence to substantiate the use of celebrity endorsement.

It is likely that more information about the effectiveness of celebrity involvement in environmental campaigns exists but was not captured in this review and is not available in the peer-reviewed or grey literature. We hypothesize this because we are aware of a number of campaigns having been implemented but found no evidence of their evaluation in the literature (e.g., Knot On My Planet, 2019; Live Kindly, 2018; WildAid, 2018). This raises important concerns for the future of the environmental conservation field. If evaluation of celebrity endorsement remains internal to practitioner organizations, it makes it harder to test assumptions about the effectiveness of celebrities, thus potentially impeding the

achievement of conservation objectives and precluding improvements to future conservation practice. Future research should aim to improve understanding of why celebrity endorsement evaluation is so limited; this will inform what steps can be taken to ensure evaluation does take place, and that results are used to inform future practice.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

Alegria Olmedo: Conceptualization; research design; result analysis; write-up; English lead reviewer; and Spanish second reviewer.

E. J. Milner-Gulland: Conceptualization; support with research design; analysis; and write-up.

Daniel W. S. Challender: Conceptualization; support with research design; analysis; and write-up.

Laure Cugnière: French second reviewer and support with write-up.

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Laura Thomas-Walters: English second reviewer and support with write-up.

Anita Kar Yan Wan: Chinese lead reviewer and support with write-up.

Yifu Wang: Chinese second reviewer and support with write-up.

Diogo Veríssimo: Conceptualization; research design; support with analysis and write-up; Portuguese lead reviewer.

ETHICS STATEMENT


This research adhered to the University of Oxford's Social Science and Humanities Inter-Divisional Research Ethics Committee standards. In accordance with University policy, as there was no interaction with human subjects, no formal ethics review was sought.

DATA AVAILABILITY STATEMENT

All original data used has been included in Supplementary Material 10.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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