Wildlife Conservation: A Nexus of Perception, Baby Schema, and Education

Priyasha Sharma
Thapar Institute of Engineering and Technology

Abstract

This research investigates the interplay among baby schema (Kindchenschema), aesthetic preferences, and public perceptions in shaping support for species conservation. We explore how societal attitudes towards different species vary, influenced by cultural, social, and psychological factors. First, the study evaluates the impact of baby schema, the innate attraction to infant-like traits, on conservation dynamics. The research adopts a demographic lens, analyzing age, geographic location, and gender dynamics to unravel their roles (if any) in shaping opinions on species aesthetics and influencing conservation support. Through a comprehensive questionnaire, we collect diverse responses, providing a nuanced understanding of public attitudes towards various species. The findings highlight potential biases that may impede inclusive conservation initiatives. Beyond mapping the current landscape, this study lays the groundwork for future conservation efforts. By addressing the influence of education and technologically driven tools in mitigating biases, the research aims to inform more inclusive and effective strategies. Ultimately, this work gives insights into the nuanced relationship between public perceptions and species conservation, fostering a holistic approach to safeguarding biodiversity.

Introduction

"Only if we understand, can we care. Only if we care, we will help. Only if we help, we shall be saved," remarked Jane Goodall, the renowned conservationist. This sentiment underscores the imperative to delve into the web of human emotions, biases, and cognitive processes that shape wildlife conservation efforts and preferences.

The success of species conservation efforts not only hinges on scientific advancements but is also profoundly influenced by public perceptions, a complex relationship that demands diligent exploration.

In this study, we navigate the multifaceted domain of public perceptions and conservation preferences, shedding light on some of the

factors influencing attitudes toward species of varying aesthetic appeal. Aesthetic preferences, deeply rooted in cultural, social, and psychological contexts, play a pivotal role in garnering public support for conservation initiatives. Hence, understanding these variations is essential for tailoring effective and inclusive conservation strategies.

Adding a layer of complexity to this interrelation is the concept of baby schema (Kindchenschema), a term coined by ethologist Konrad Lorenz. It refers to the set of infant-like features that trigger an innate nurturing response in humans. These features, such as large eyes and a rounded face, evoke a sense of caretaking and protection. The research attempts to unravel the impact of baby schema on conservation dynamics and provide a unique lens through which certain species may be perceived and valued more favorably.

This paper also seeks to contribute nuanced insights into the demographic aspects of public perceptions. Drawing inspiration from the words of ecologist Rachel Carson, who advocated for a deepened connection with nature, we aim to understand how age, geographic location, and gender dynamics may influence opinions on species aesthetics and, subsequently, conservation support. The administration of a comprehensive questionnaire captures diverse responses, providing a

panoramic view of public attitudes toward various species and surfacing potential biases that impedes inclusive conservation initiatives.

As we navigate through the web of public perceptions, this study will not only uncover the current landscape but also lay the foundation for future endeavors. By addressing the role of education and technologically driven tools in mitigating biases, we hope to pave the way for more inclusive and effective conservation strategies.

Literature Review

Understanding the profound influence of baby schema, as proposed by ethologist Konrad Lorenz, has been a subject of scholarly exploration. The concept encapsulates specific infantile physical features, such as a large head, round face, and big eyes, collectively triggering perceptions of cuteness and motivating caretaking behaviors in adults. Pioneering research by Melanie L. Glocker and colleagues (Glocker et al., 2009) experimentally tested the effects of baby schema on the perception of cuteness and motivation for caretaking, providing crucial insights into the foundational aspects of human social cognition.

Extending beyond human interactions, the relevance of similar concepts in the territory of wildlife conservation has garnered attention. Diogo Veríssimo, Brooke Tully, and Leo R. Douglas (Veríssimo et al., 2019) delve into the application of social marketing as a tool to foster human-wildlife coexistence. Recognizing the important role of human behavior in conservation success, this research underscores the significance of social marketing interventions in reshaping perceptions and engaging external stakeholders. As we initiate our exploration on the

intersection between baby schema and wildlife conservation, these studies provide valuable context, emphasizing the broader context of human responses to both infant faces and wildlife.

Furthermore, Christoph Klebl, Yin Luo, Nicholas Poh-Jie Tan, and Judah Teo Ping Ern (Klebl et al., 2021) contribute to the dialogue by investigating the role of beauty as a dimension in the moral standing of animals. While previous research has primarily focused on internal qualities influencing moral standing, their work introduces beauty perceptions as an external aesthetic quality with implications for conservation efforts. As we consider the potential transferability of baby schema principles to animals and wildlife, this study prompts us to broaden our understanding of factors influencing moral standing, transcending traditional criterions.

To complement these perspectives, Andrew J. Knight's study (Knight, 2008) explores public perceptions of endangered species, highlighting the interplay among aesthetic preferences, negativistic attitudes, and support for species protection. By identifying specific species that stand out due to cultural fears and emotional reactions, Knight's research underscores the intricate relationship between aesthetics, emotions, and ethical considerations in predicting public support for conservation efforts.

As we dissect the potential implications of baby schema on wildlife conservation, these studies lay the groundwork, providing valuable insights into the multifaceted nature of human responses.

Methodology

Survey Design:

The empirical investigation specifically aimed to dissect (a) the influence of aesthetic preferences on conservation choice by navigating a decision between funding two animals with juxtaposing features (b) the impact of baby schema in shaping the perception of specific species by contrasting the appeal of animals with strong versus weak infant-like resemblance.

To assess perceptions of aesthetically contrasting species, respondents were asked to rate the aesthetic appeal of two sets of species, namely blobfish and chimpanzee. The association between the two animals is based on their contrasting aesthetic traits: the blobfish is generally perceived as unattractive due to its unique and unconventional appearance while the chimpanzee is seen as more appealing because of its familiar and expressive features. Furthermore, conservation biases were evaluated by examining respondents' inclination to assist conservation efforts for each of the two species, as well as how visual appearance influences their willingness to support their preferred choice.

The impact of baby schema was examined through questions probing respondents' preferences for species with infant-like characteristics and their belief in the impact of baby schema on conservation priorities. To determine the same, the study compared pandas, which possess traits like a

round face and large head, with proboscis monkeys, which are comparatively deficient in baby-like features.

To gauge awareness of conservation efforts, respondents were asked about their familiarity with initiatives targeting aesthetically challenged species and their opinions on improving public perception to promote conservation.

The influence of education on biases and conservation attitudes was determined through questions addressing respondents' exposure to education about the importance of conserving all species, as well as their beliefs regarding the effectiveness of educational programs in reducing biases.

An optional question allowed respondents to express their thoughts on how public perception of aesthetically challenged species can be improved, providing additional qualitative insights.

Participants:

A diverse sample of 74 individuals participated in an online questionnaire. The distribution across age groups revealed a predominant representation from the under 18 category (62.3%), followed by 31.9% in the 18-30 range, 4.3% in the 31-55 range, and 1.4% aged 56 and above. Geographic diversity was also notable, with 26.1% from North America, 5.8% from Europe, 47.8% from Asia, 11.6% from South America, 7.2% from Africa, and 1.4% from Australia/Oceania. Finally, the gender distribution included 72.5% females, 17.4% males, 5.8% identifying as non-binary, 4.3% preferring not to say.

Data Collection:

The survey was conducted through an online platform to maximize reach and accessibility. Participants were assured of the confidentiality and anonymity of their responses. The online survey was available for completion over a month to capture a comprehensive snapshot of public attitudes.

Demographic Analysis:

Demographic information, including age, geographic location, and gender, was collected to discern patterns within different demographic segments. This allowed for a nuanced understanding of how these factors intersect with aesthetic preferences and conservation attitudes.

Results

Species Support and Visual Influence

Examining support for conservation efforts, while a significant majority (53.6%) of respondents express a willingness to support both Blobfish and Chimpanzee, we explore deeper to understand how the aesthetic appeal of these species plays a part in shaping respondents' conservation inclinations:

Visual Influence:

The data on visual influence reveals insights into how aesthetic considerations impact conservation support. Notably, when comparing support for specific species:

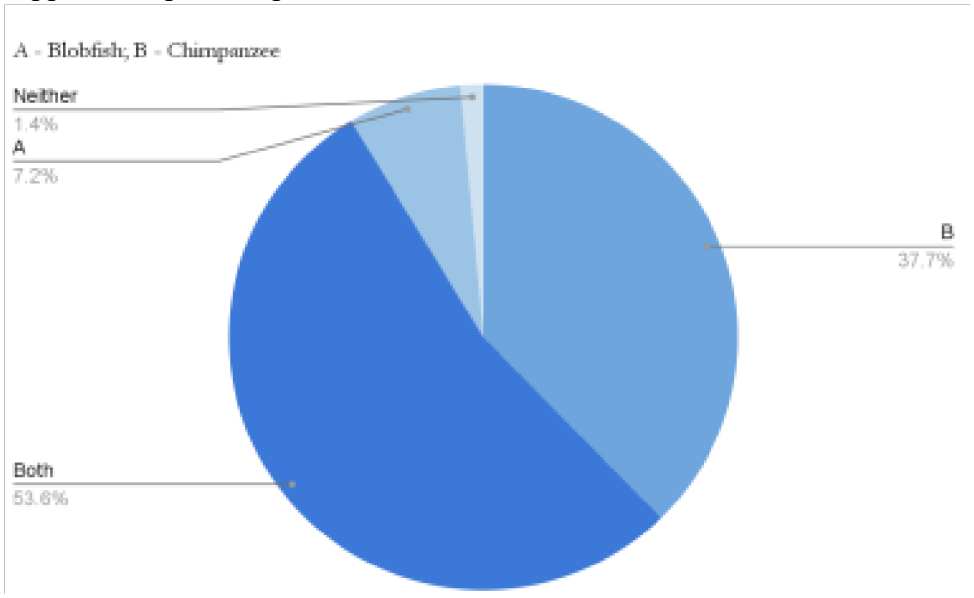

FIGURE 1. Pie chart shows the distribution of responses to a comparison between Blobfish (A) and Chimpanzee (B)

- *Chimpanzee Dominance:* Chimpanzees emerge as a focal point for conservation support, with a substantial inclination of 37.7%. This suggests a strong resonance with the visual appeal or other characteristics associated with chimpanzees, positioning them as a priority for conservation initiatives.
- *Limited Support for Blobfish:* In contrast, Blobfish receives a considerably lower level of support, standing at 7.2%. This marked difference in support indicates a distinct visual preference or perceived conservation value, signaling that Blobfish might face additional challenges in garnering public support compared to Chimpanzees.

These findings emphasize the significance of visual appeal in shaping conservation priorities. Understanding the nuances of how specific species are visually perceived can inform targeted conservation strategies, ensuring that greater efforts are directed toward species that may not resonate strongly with the public, ultimately fostering more effective and inclusive conservation initiatives.

Demographic Influence on Aesthetic Preferences**:**

1. Age Dynamics:

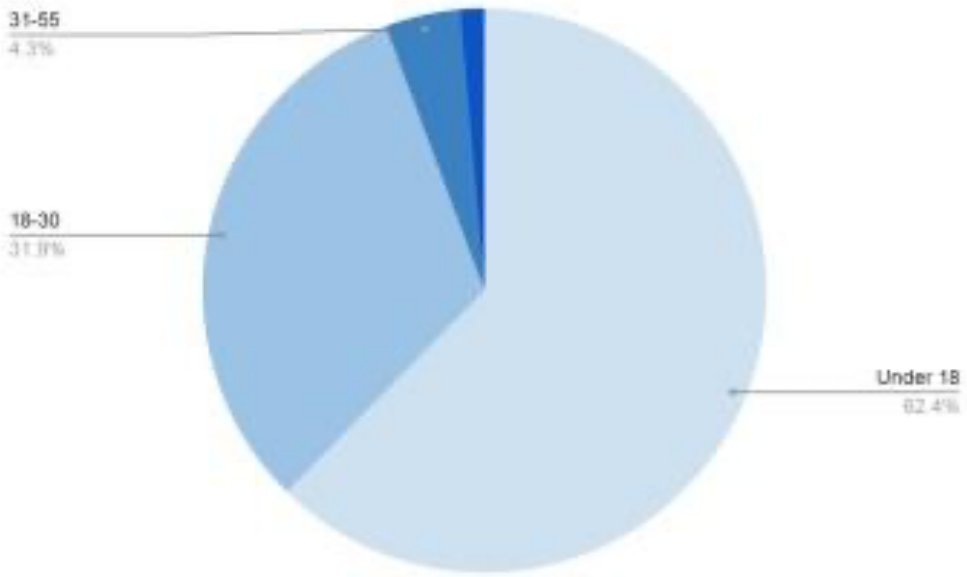

FIGURE 2. Pie chart shows the age distribution of the respondents

The participant pool is dominated by respondents under 18, comprising a substantial majority at 62.3%. While generalizations cannot be made for all age groups, this specific demographic exhibits a clear inclination towards baby-like features, as evidenced by a significant preference for higher aesthetic ratings:

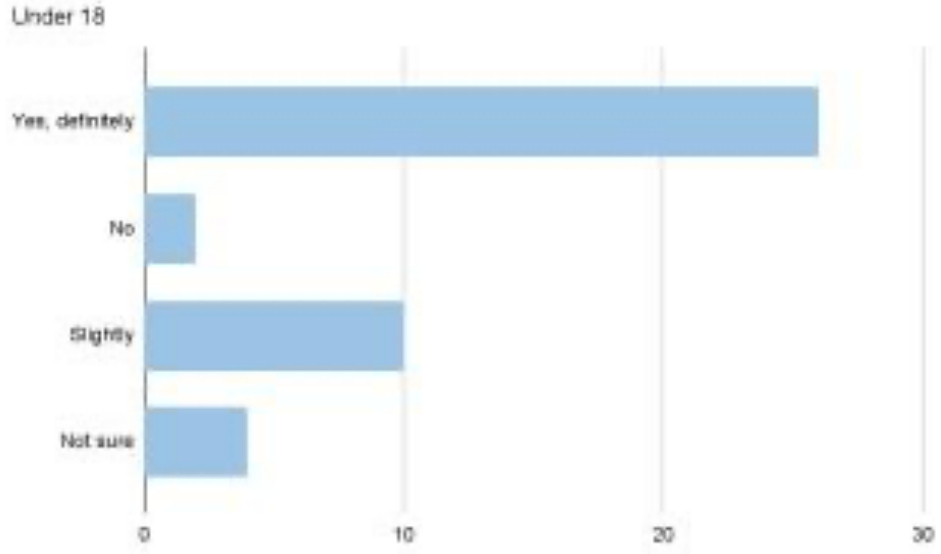

FIGURE 3. Bar chart displays the responses from participants under 18 years old to *"Do you find species with baby-like features (e.g., large eyes, rounded face) more appealing?"*

Figure 3 suggests a correlation between age and aesthetic preferences, underlining the importance of tailoring conservation strategies to resonate with younger audiences and future changemakers.

2. Geographic Variations:

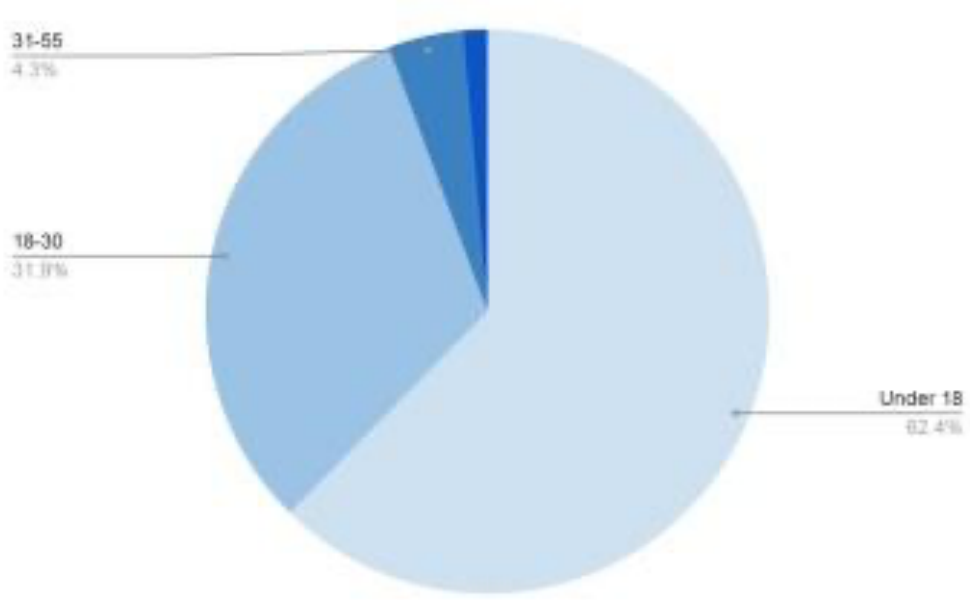

FIGURE 4. Pie chart shows the geographic distribution of the respondents

Geographic analysis underscores the diverse nature of aesthetic preferences, with participants from various regions contributing to the survey. This analysis aimed to understand how beauty standards and cultural differences might impact and potentially impede inclusive funding for conservation efforts.

While Asia constitutes a substantial portion at 47.8%, it is crucial to emphasize that conclusive statements should not be made without a more comprehensive regional analysis as aesthetic inclinations are multifaceted. By analyzing geographic variations, regional conservation efforts can be implemented, allowing for the identification of existing conservation biases and ensuring better advocacy of threatened species.

3. Gender-Specific Trends:

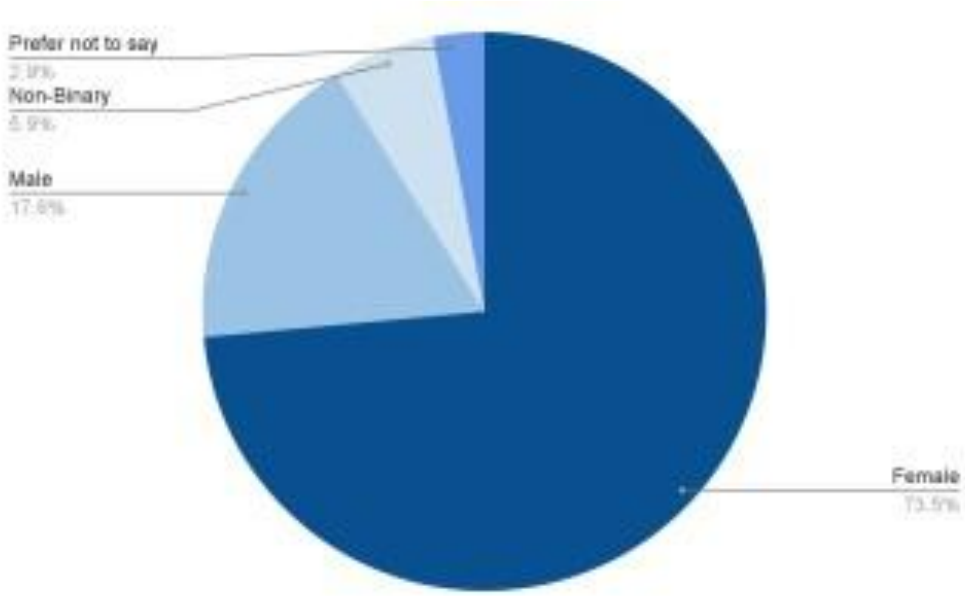

FIGURE 5. Pie chart shows the gender distribution of the respondents

The pie chart sheds light on gender-specific trends in aesthetic preferences. While overall preferences may not significantly differ between males and females, there is a notable distinction in the level of certainty regarding the influence of baby-like features on species preferences.

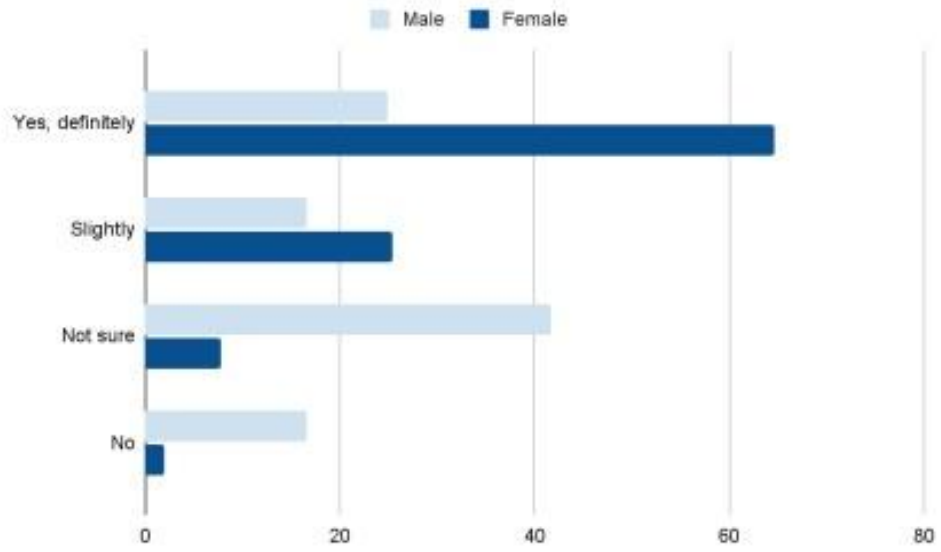

FIGURE 6. Bar chart compares male and female responses to *"Did the visual appearance of the above species influence your willingness to support its conservation?"*

In figure 6, females, in particular, express a definite belief and a strong agreement that baby-like features influence their response, while among males, there is a lower percentage of definite belief and a notable portion expressing uncertainty on this influence. Again, the observation highlights the importance of gender-specific tailoring in conservation efforts.

In summarizing these findings, it becomes evident that demographic factors play a pivotal role in shaping aesthetic preferences. Crafting conservation initiatives that consider the perspectives of different age groups, geographic locations, and genders is essential for ensuring broad public support and engagement in conservation efforts, especially neglected species.

Baby Schema and Conservation Priority

Preference for Baby-like Features:

Respondents overwhelmingly find species with baby-like features (56.5%) more appealing, with an additional 25.6% expressing a slightly favorable view, indicating a strong preference for traits associated with baby schema.

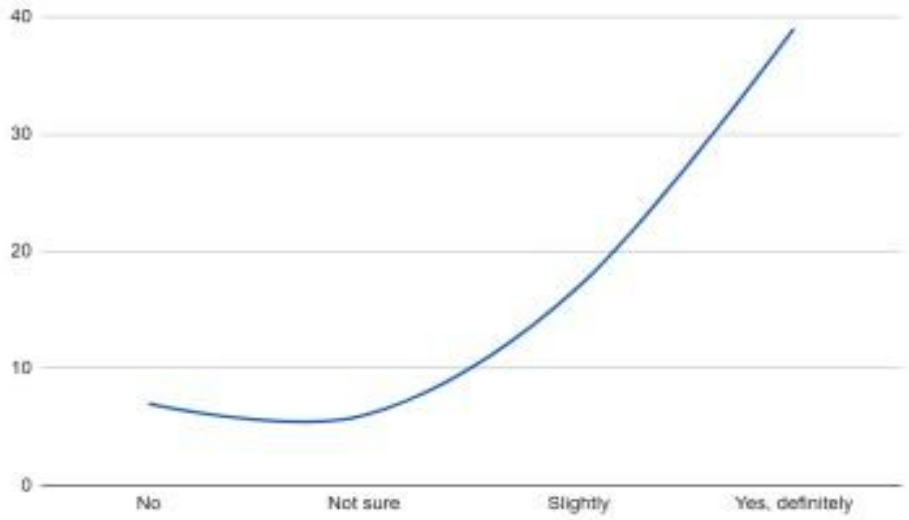

FIGURE 7. Line graph displaying responses to *"Do you find species with baby-like features (e.g., large eyes, rounded face) more appealing?"*

Analysis of Specific Species**:**
Examining the appeal of specific species on the scale:

- *Panda Appeal:* Pandas receive a notably high appeal rating, with 56.5% of respondents giving them a score of 5 on the appeal scale. This suggests a widespread acknowledgement of the baby-like features associated with pandas, reinforcing the impact of baby schema on the aesthetic preferences of respondents:

Ratings: Panda

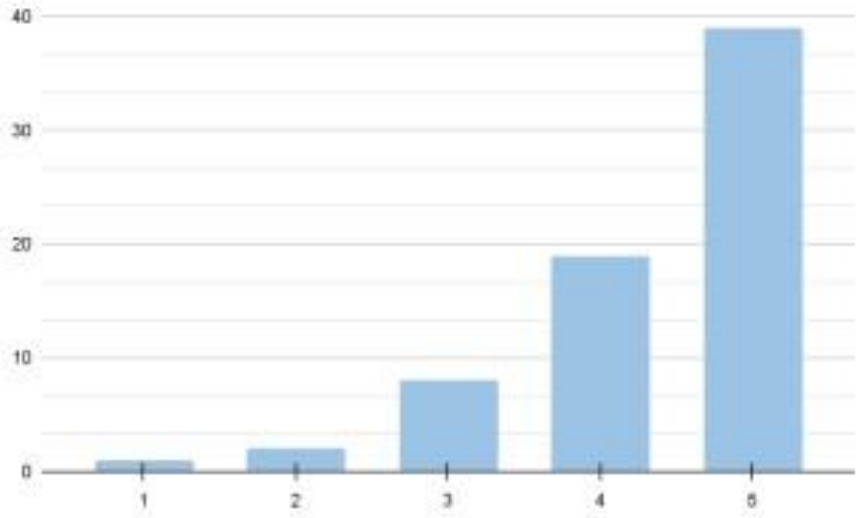

FIGURE 8. Bar graph shows ratings by respondents for the aesthetic appeal of Pandas

- *Proboscis Monkey:* While the proboscis monkey received a lower appeal rating (13%), a substantial proportion (36.2%) of respondents still found them appealing to some degree. This nuanced response may indicate that the appeal of the proboscis monkey goes beyond the traditional baby schema traits, suggesting a more complex psychological choice in supporting a species perceived as less conventionally attractive:

Ratings: Proboscis Monkey

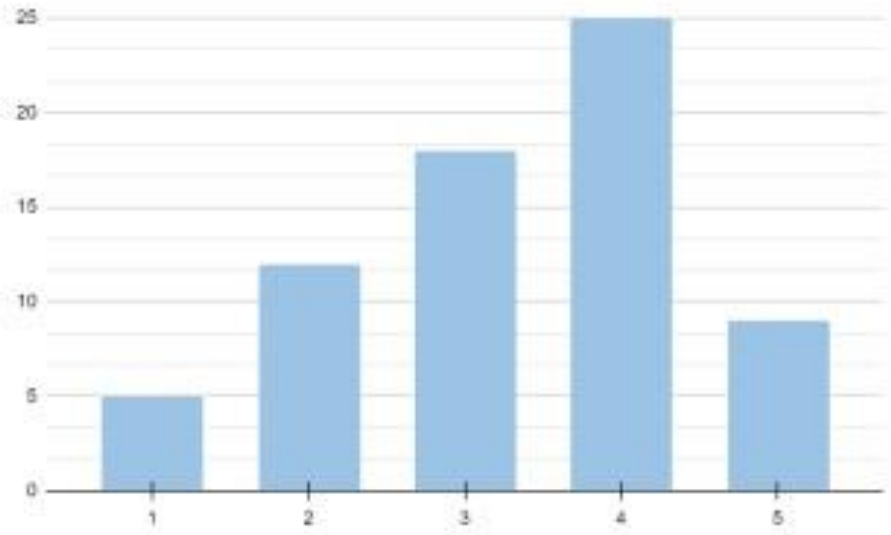

FIGURE 9. Bar graph shows ratings by respondents for the aesthetic appeal of Proboscis Monkey

These findings display the correlation between baby schema and conservation priorities. Understanding how certain species, particularly those with strong baby schema traits, capture public attention and support is essential for crafting targeted conservation strategies that align with the psychological inclinations of the public. The observations also suggest that exploring other psychological phenomena could provide useful insights into prevalent aesthetic biases that hinder conservation efforts for specific species.

Correlation between Appeal and Influence**:**

To ascertain the extent of influence of baby schema in conservation choice among respondents, we calculate the correlation between the following responses:

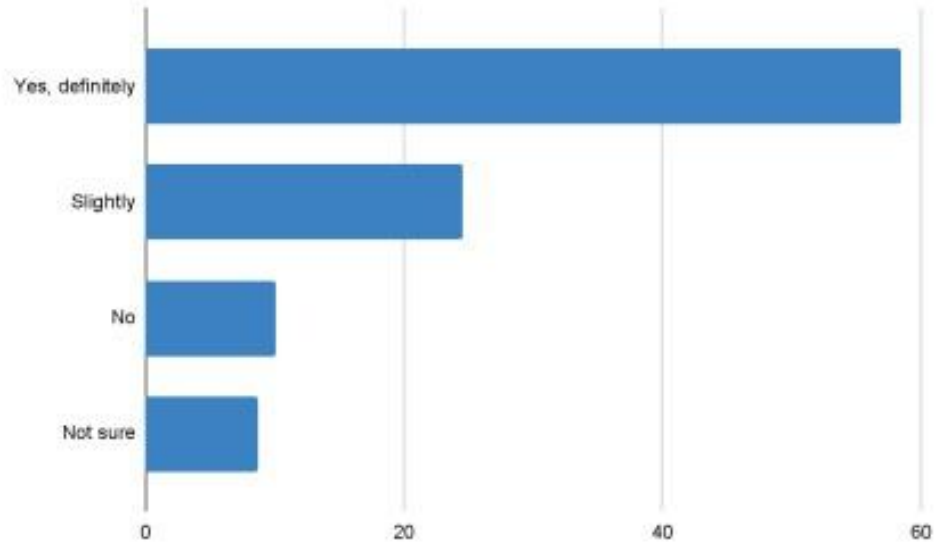

FIGURE 10. Bar graph displaying responses to *"Do you find species with baby-like features (e.g., large eyes, rounded face) more appealing?"*

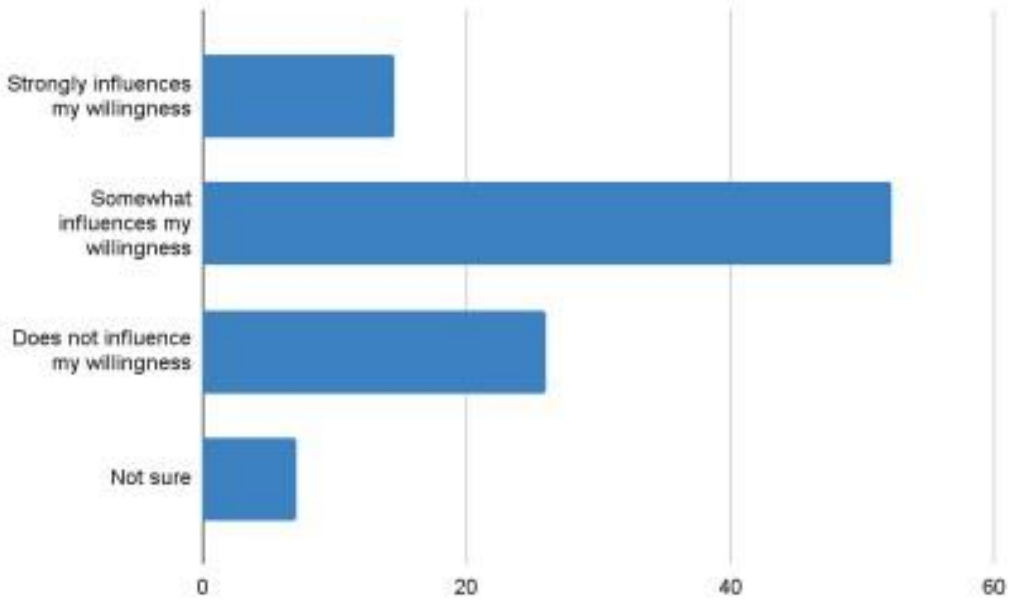

FIGURE 11. Bar graph displaying responses to *"Did the visual appearance of the above species influence your willingness to support its conservation?"*

Using Pearson's Correlation Coefficient Formula:

$$r = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$$

Converting Responses to Numerical Values, For the first question:

1. No = 1
2. Not sure = 2
3. Slightly = 3
4. Yes, definitely = 4

For the second question:

1. Does not influence my willingness = 1
2. Not sure = 2
3. Somewhat influences my willingness = 3
4. Strongly influences my willingness = 4

Substituting values into the formula:

$$r = \frac{5(43) - (14)(14)}{\sqrt{[5\ X\ 46 - 14^2][5\ X\ 46 - 14^2]}}$$

$$r = \frac{215 - 196}{\sqrt{[230 - 196][230 - 196]}}$$

$$\frac{19}{34} \approx$$

Hence, $r = 0.56$, indicating a *moderate positive correlation*

The moderately positive correlation found between the appeal for species with infant-like features and the influence of baby schema on conservation support suggests that individuals who find such species more appealing are somewhat more inclined to support conservation efforts based on visual cues. However, it's crucial to note that this relationship is not strong enough to imply a direct cause-and-effect connection and requires further study.

Conservation Awareness and Education

1. Education and Awareness:

A substantial portion of respondents (59.4%) acknowledge receiving education about conserving all species. However, deeper insights in education receipt reveal nuances that warrant further exploration.

2. Familiarity with Challenges:

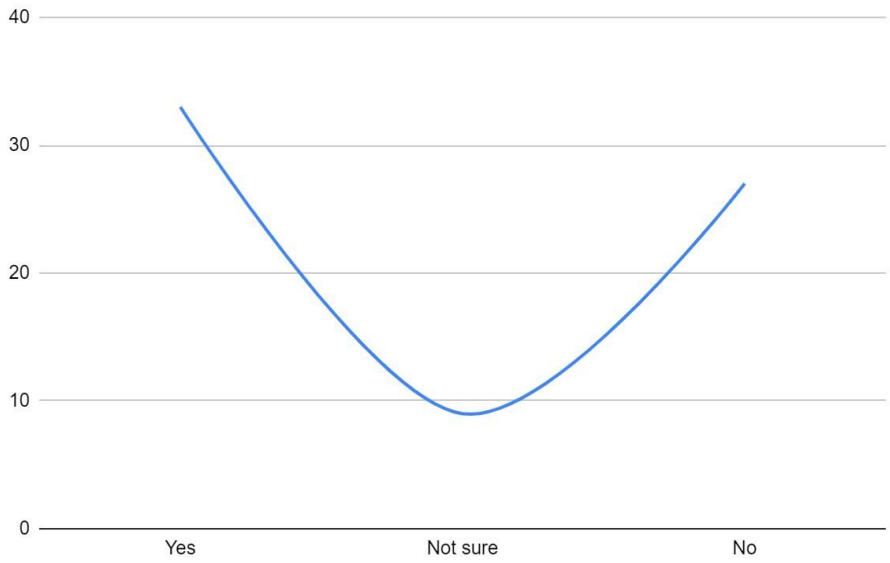

FIGURE 12. Line graph shows responses to *"Are you familiar with the challenges faced by my unattractive species in conservation efforts?"*

Nearly half of the respondents (47.8%) demonstrate awareness of challenges faced by aesthetically unappealing species. However, it is evident that visual appeal still significantly influences their decisions while deciding which challenged species need urgent address, highlighting a potential gap in awareness and advocacy for less visually appealing species.

3. Belief in Educational Effect

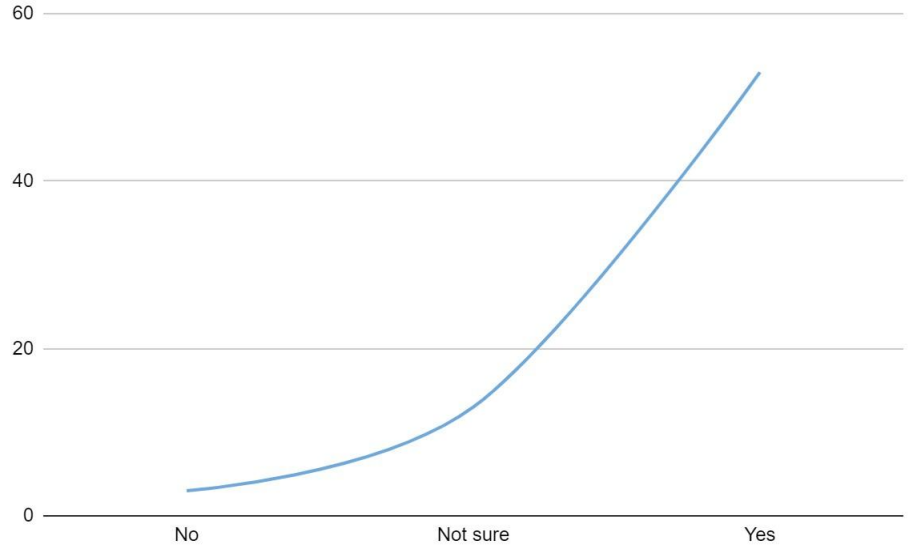

FIGURE 13. Line graph shows responses to *"Do you think educational programs that emphasize biodiversity can help reduce biases towards aesthetically challenged species?"*

4. Willingness to Use Educational Resources:

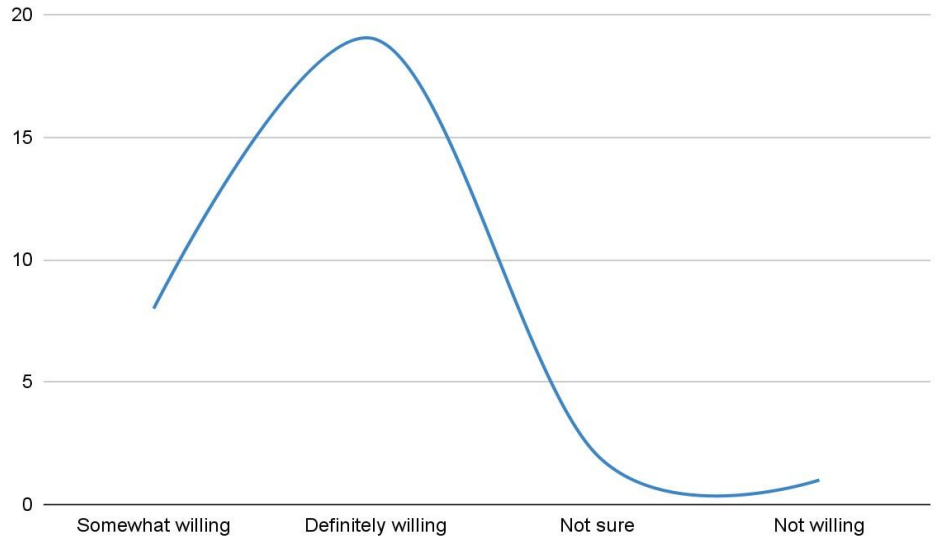

FIGURE 14. Line graph shows responses to *"Would you be willing to use educational resources that aim to educate and raise awareness about unappealing species in conservation efforts?"*

Respondents show significant openness (55.1%) to utilizing diverse educational and awareness tools. This willingness emphasizes the receptivity of the public to various educational approaches, presenting an opportunity to leverage technology and innovative methods in raising awareness and promoting informed conservation decisions.

In summary, the recognition of education's vital role in species conservation underscores the importance of understanding demographic variations, identifying biases in species perception, and leveraging diverse educational resources. This collective awareness fosters a more informed and inclusive approach to conservation efforts. It is imperative to consider dialectal variation when developing speech-to-text algorithms to overcome these difficulties. This can be accomplished by gathering and employing training data that accurately represents the variety of dialects worldwide and by creating algorithms that can generalize to new speech samples from a variety of dialects. This requires the ability not only to use common, easily retrievable data but also to produce new data from different regions, genders, socioeconomic classes, ages, etc., to account for the numerous combinations of human factors that lead to different dialects.

Open-Ended Responses Analysis

The open-ended responses revealed insightful perspectives on addressing challenges related to aesthetic bias. These qualitative insights offer valuable strategies for enhancing public perception of species facing aesthetic challenges. Here's a breakdown of the recurring themes and noteworthy suggestions:

Education on Biodiversity:

- Suggested Approach: Start with educating people on the importance of biodiversity to the ecosystem.
- Rationale: Awareness of the ecological role of each species and the interconnectedness of ecosystems can foster a more comprehensive understanding of conservation needs.

Social Media and Positive Representation:

- Suggested Approach: Use social media platforms to spread awareness and showcase the positive aspects of aesthetically challenged species.
- Rationale: Leveraging the reach of social media can highlight the endearing qualities of these species, appealing to a broader audience.

Media Representation and Storytelling:

- Suggested Approach: Increase representation of aesthetically challenged species in media, including video games, cartoons, anime, and emotional short films/animations.

- Rationale: Positive portrayal in media can shape public perceptions and create emotional connections, fostering empathy and support.

Diverse Educational Tools:

- Suggested Approach: Beyond traditional educational resources, explore technocratic tools like Excel macros or GIS maps for specific decision-making and calculations like population estimates and habitat area.
- Rationale: Recognizing diverse learning preferences, and incorporating technologically advanced tools can enhance engagement and knowledge retention.

Highlighting Unique Aspects:

- Suggested Approach: Highlight other fascinating aspects of aesthetically challenged species beyond their appearance.
- Rationale: Drawing attention to the unique characteristics and roles of these species can generate appreciation beyond aesthetic considerations.

Generational Trends and Cultural Shifts:

- Suggested Approach: Capitalize on changing generational trends, where Gen Z is inclined to appreciate both beautiful and blatantly ugly things.
- Rationale: Recognizing shifts in preferences, and aligning conservation messages with evolving cultural norms can broaden support.

Environmental Context and Ecosystem Impact:

- Suggested Approach: Showcasing the environment in which aesthetically challenged species live and explain their impact on ecosystems.
- Rationale: Providing a broader context can enhance understanding of the species' ecological significance and motivate conservation actions.

Visual Appeal in Media Campaigns:

- Suggested Approach: Design media campaigns that present aesthetically challenged species in visually appealing or heartwarming scenes.
- Rationale: Strategic presentation can evoke positive emotions, counteracting negative biases based on appearance.

Synthesis and Future Considerations:

The diverse suggestions underscore the multifaceted approach to addressing aesthetic biases. Existing and future initiatives can benefit from adopting a holistic approach that combines educational strategies, media representation, and innovative tools to engage a wide audience. Emphasizing the intrinsic value of each species and their critical roles within ecosystems should remain at the core of conservation communication efforts.

Conclusion:

In conclusion, this paper has provided insightful revelations into the relationship between human perceptions and public attitudes towards species conservation. The key findings shed light on crucial aspects of aesthetic preferences, demographics and baby schema, paving the way for informed strategies in biodiversity conservation.

Summary of Findings**:**

Aesthetic Preferences:

Respondents, notably those under 18, demonstrate clear preferences for visually appealing species. Geographic and potential gender influences add complexity to the observed aesthetic inclinations.

Species Support:

While the majority expressed a willingness to support both Blobfish and Chimpanzees, the distinct levels of support towards each species indicate the significant role of visual appeal in shaping conservation priorities.

Baby Schema Influence:

The pronounced preference for species with baby-like features underscores the influence of baby schema in shaping aesthetic preferences. Beyond acknowledging this influence, it is crucial to study other psychological phenomena and preferences that may hinder inclusive funding and support for certain species.

Conservation Awareness and Education:

A significant portion of respondents is aware of conservation challenges, with a majority having received education on the importance of conserving all species.

However, a gap exists between this education and the willingness to protect endangered animals, particularly those that lack aesthetic appeal. Nevertheless, optimism about the effectiveness of educational programs in reducing biases suggests that education can be used as an influential tool in promoting a more inclusive conservation ethic.

Implications for Conservation:

Targeted Conservation Initiatives: Given the influence of aesthetic appeal and demographics on species support, initiatives could benefit from tailoring campaigns to ensure inclusive conservation efforts.

Educational Strategies: The strong belief in the effectiveness of educational programs suggests an opportunity to design initiatives that emphasize biodiversity and interconnected ecosystems, fostering a more inclusive conservation mindset.

Baby Schema Considerations: Recognizing the impact of baby schema on preferences, conservation campaigns could strategically emphasize the baby-like features of species to enhance public engagement.

Future Directions:

Further Demographic Analysis: A deeper exploration of demographic variations in aesthetic preferences, conservation awareness, and education could provide nuanced insights.

Longitudinal Studies: Tracking changes in attitudes over time could reveal evolving patterns and offer a more dynamic understanding of public perceptions.

Comparative Studies: Comparing the effectiveness of different educational tools in reducing biases and promoting conservation could be a promising avenue for future research.

Closing Thoughts:

This research underscores the importance of understanding public perceptions in shaping effective conservation strategies. By acknowledging the nuanced influence of demographic variables, conservationists can tailor initiatives to resonate with diverse audiences. The findings provide a foundation for future endeavors aimed at fostering a more inclusive and informed approach to species conservation.

References

Glocker, M. L., Langleben, D. D., Ruparel, K., Loughead, J., Gur, R. C., & Sachser, N. (2009, January 29). Baby schema in infant faces induces cuteness perception and motivation for caretaking in adults. *Ethology, 115*(3). https://doi.org/10.1111/j.1439-0310.2008.01603.x

Knight, A. (2008, March 1). Bats, snakes and spiders, Oh my! How aesthetic and negativistic attitudes, and other concepts predict support

for species protection. *Journal of Environmental Psychology, 28*(2). https://doi.org/10.1016/j.jenvp.2007.10.001

Klebl, C., Luo, Y., Tan, N. P. J., Ern, J. T. P., & Bastian, B. (2021, June 1). Beauty of the beast: Beauty as an important dimension in the moral standing of animals. *Journal of Environmental Psychology, 75*, 101624. https://doi.org/10.1016/j.jenvp.2021.101624

Lobmaier, J. S., Sprengelmeyer, R., Wiffen, B., & Perrett, D. I. (2010, January 1). Female and male responses to cuteness, age and emotion in infant faces.

Evolution and Human Behavior, 31(2). https://doi.org/10.1016/j.evolhumbehav.2009.05.004

Veríssimo, D., Tully, B., & Douglas, L. R. (2019, May 2). Conservation marketing as a tool to promote human–wildlife coexistence. In *Conservation marketing and outreach*. Cambridge University Press. https://doi.org/10.1017/9781108235730.019