Beyond the Bats: A Comprehensive Analysis of Human Dimensions and Bat Conservation

Introduction

The conservation status of North American bat species is now widely acknowledged, 52% of North American species are considered in need of conservation (BCI, 2023). Human activities are the main drivers for these losses and understanding human-nature dynamics can assist in finding suitable solutions for the well-being of both parties (Maxwell et al., 2016). To find a solution for the parties, there are inquiries that must be made into the disconnection of bats and the public. Misconceptions of danger and cultural implications can be the main drivers for these disconnections. Specifically, after the global pandemic caused by SARS-CoV-2, better known as COVID-19, bat species have been a hot button issue in the public eye. To understand where this sediment arose from, one needs to evaluate the historical and cultural implication of this relationship.

Prior to the COVID-19 pandemic, based on the conclusions of several scientific journals, the fear of the chiropteran can be summarized into three distinct groups: fear of harm, the lack of charisma, and symbolism of the species in pop culture. The fear of harm can be traced back to the morphological and genomic elements of bat species. Expansions of anti-viral genes, like APOBEC3, highlight the incredible immunity and provide reasoning for the group's tolerance to viral disease. Due to this tolerance, there is concern from both the public and scientific domain of viral spillover (Sasse, 2020). The lack of charisma is less of a scientific evaluation, rather, it focuses more on the domain of human perception. In the public domain, especially in visual media, visually appealing species tend to be valued over their less charismatic counterparts. In a study conducted with a hypothetical selection of species and money allocation, they found that individual perceptions (i.e., utilitarian, and phylogenetic factors) tend to be valued higher than ecological significance (Martín-López et al., 2007). In symbolism, I refer to the establishment of a species used as an icon for a feeling or an association to a specific character. For media, bats are commonly associated with vampires, specifically adaptations like Bram Stoker's novel *Dracula* (Low et al., 2021).

Purpose

In this innovative study, I wanted to find avenues for threading these networks together that would benefit, not only the scientific community, but engage the public in a species that is otherwise not viewed favorably. When the project is finished, the favored outcome is getting the public to intelligently engaged with these topics, even if the public is not fully receptive to non-charismatic bat species. Having the public independently involved in furthering education in bat conservation is a major step in the right direction for the scientific community. Public concern for these species is critical as pioneering data sets and desirous conservation policies rely on the concern of the public.

Methods

When conducting the project, I needed to understand the format of dispersal for the deliverables. After understanding the avenues of dispersal, next was understanding the demographic of each format. The formats that were utilized were three visual short-form, one written with visual support, and one long-form content application. The three visual short-form content applications were the following: TikTok, YouTube Shorts, and Instagram Reels. The

written content with visual support was on Facebook and the long-form visual content was a documentary style film posted on YouTube.

Demographics and Formatting

In the assessment of social media application, I wanted to understand the general demographic to provide a better insight to the audience of the content. To do this, I used the data provided by Statista (see Figure 1) to evaluate the distribution of age for TikTok, YouTube, Facebook, and Instagram users worldwide. It does need to be addressed that the individuals in the data are over the age of 18, so minors (i.e., those below the age of 18) in the population may be excluded from the data set.

In the data set, 37.3% of global users of TikTok were between the ages of 18-24 and 32.9% were between the ages of 25-34. Most global users on Instagram were between the ages of 18-24 (30.8%) and 25-34 (30.3%) (Dixon, 2023). The average age of global Facebook users did shift with an equal distribution of the age 18-24 group (21.5%) and the 35-44 group (19.4%). However, much of the Facebook demographic was in the 25-34 age group (29.9%). YouTube's distribution is the most consistent with an even distribution across all age groups. This information is stated in the graphic below.
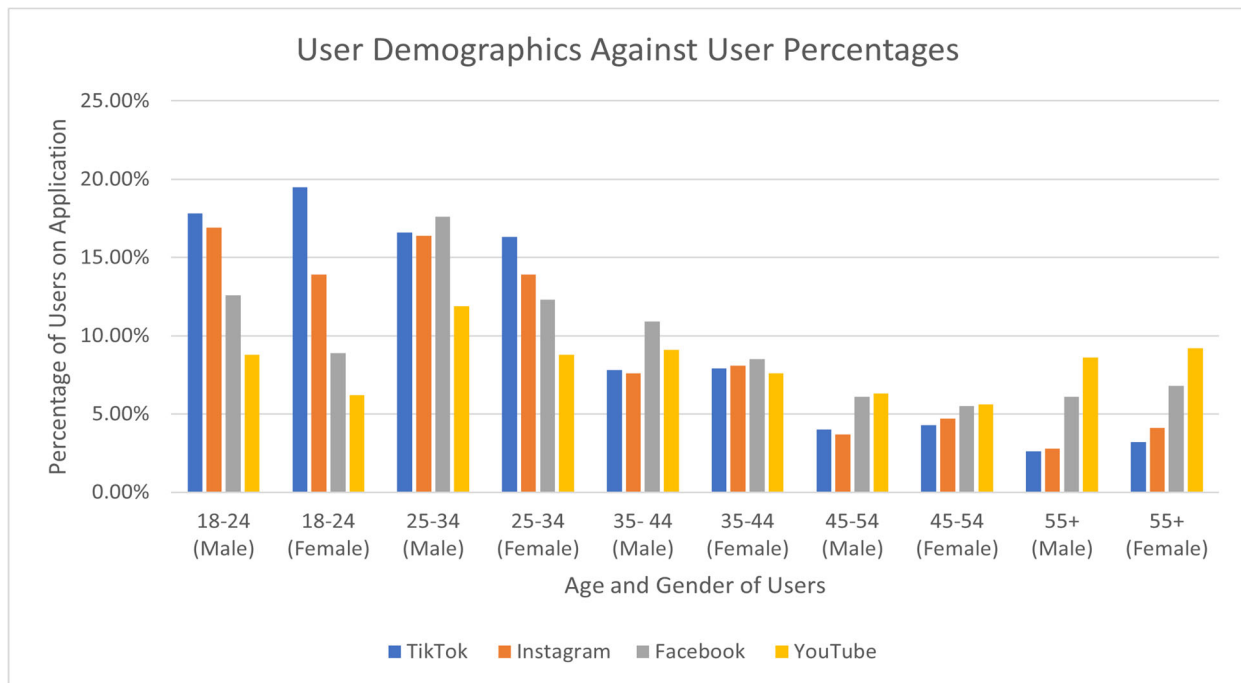

Figure 1. User Demographics Against User Percentages. Data collected by Statista in January 2023; demographics were consolidated into gender and age of the users of the social media applications.

Content Creation and Curation

I use demographic-related information pertaining to the various sources of social media to curate the content to the dominate age ranges of each social application. The posts for the media applications will be conducted between the months of October and November of 2023. Additional posts may be posted during the months of May and July of 2023 to meet the requirements of the Science Influencers Program deadlines, these will not be accounted for in the projects results.

TikTok has a content range between the time of 15 seconds to 10 minutes, usually averaging around 16.7 seconds for non-professional accounts. This was collected by creating a new account, sampling 10 randomized videos and averaging the length of the videos listed in the "For You Page". This process was repeated 3 separate times to confirm that the averages were not skewed. A total of 10 posts relating to bat conservation will be uploaded, these posts will be within the average length of a TikTok post.

Instagram has a similar age demographic, there will be 10 posts relating to bat conservation during the same period. Attached to the post with be a photo, this will be photos taken during field work with BCI, brief caption followed by a longer caption when the window is expanded.

Facebook will be 10 posts relating to bat conservation during the same period. The post will be the exact post from the Instagram section.

YouTube is typically a longer form of content; the post will be a singular video. The video will be a miniature documentary delving into the relationship between human dimensions and bat conservation.

Content Data Analysis

After the publication of each deliverable, the data will be collected after a week period since the initial posting. Data includes the age, gender, retention time, and geological placement of viewers.

Results

Data collected from the 10 posts per platform were consolidated into visual representations to compare the individual categories among the several posts. Across the four platforms a collection of 25,093 views, 1055 interactions, and 803 profile visits were gathered. All the data was collected on October 31st prior to the 4 account's deletion. The platform with the highest retention, viewership and interactions was Instagram. Roughly, 51% of all viewership was from Instagram and this group had a higher retention rate of 76%, compared to TikTok's 48% retention rate. For the raw data collected, view the Supplementary Material. All the data was collected on October 31st prior to the 4 account's deletion. In the graphics below, it completely encapsulates the variables collected from each platform. Profile activity, interactions, and viewership was collected from YouTube. Retention, video length, profile activity, interactions, and viewership data were collected from the other three platforms.
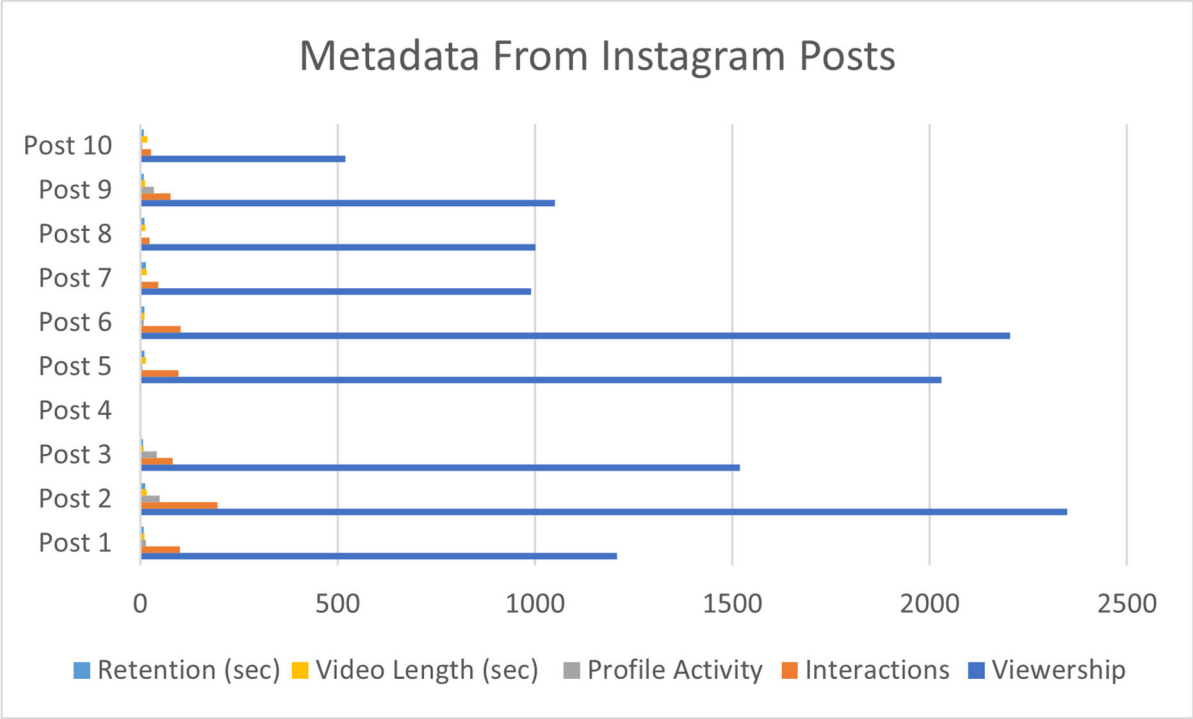
Figure 2. Metadata From Instagram Posts. This metadata was collected from the 10 posts created by Jeremiah Wright on the Instagram website in October of 2023. The categories include retention, video length, profile activity, interactions, and viewership.
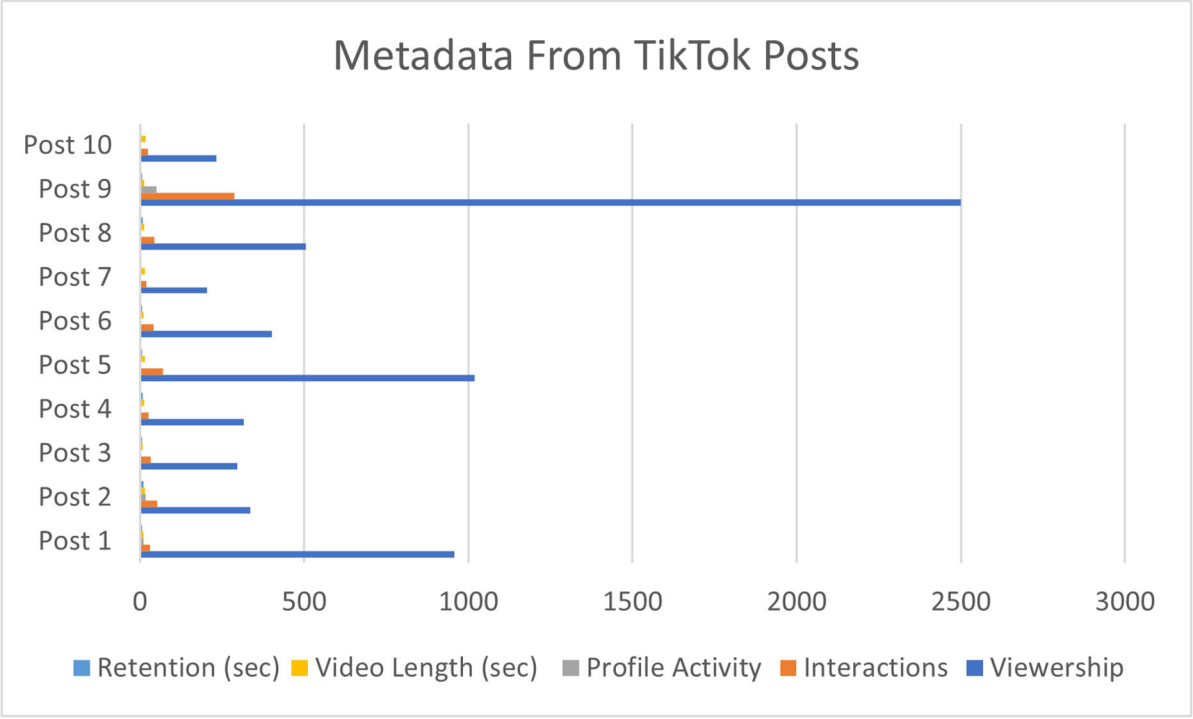

Figure 3. Metadata From TikTok Posts. This metadata was collected from the 10 posts created by Jeremiah Wright on the TikTok application in October of 2023. The categories include retention, video length, profile activity, interactions, and viewership.
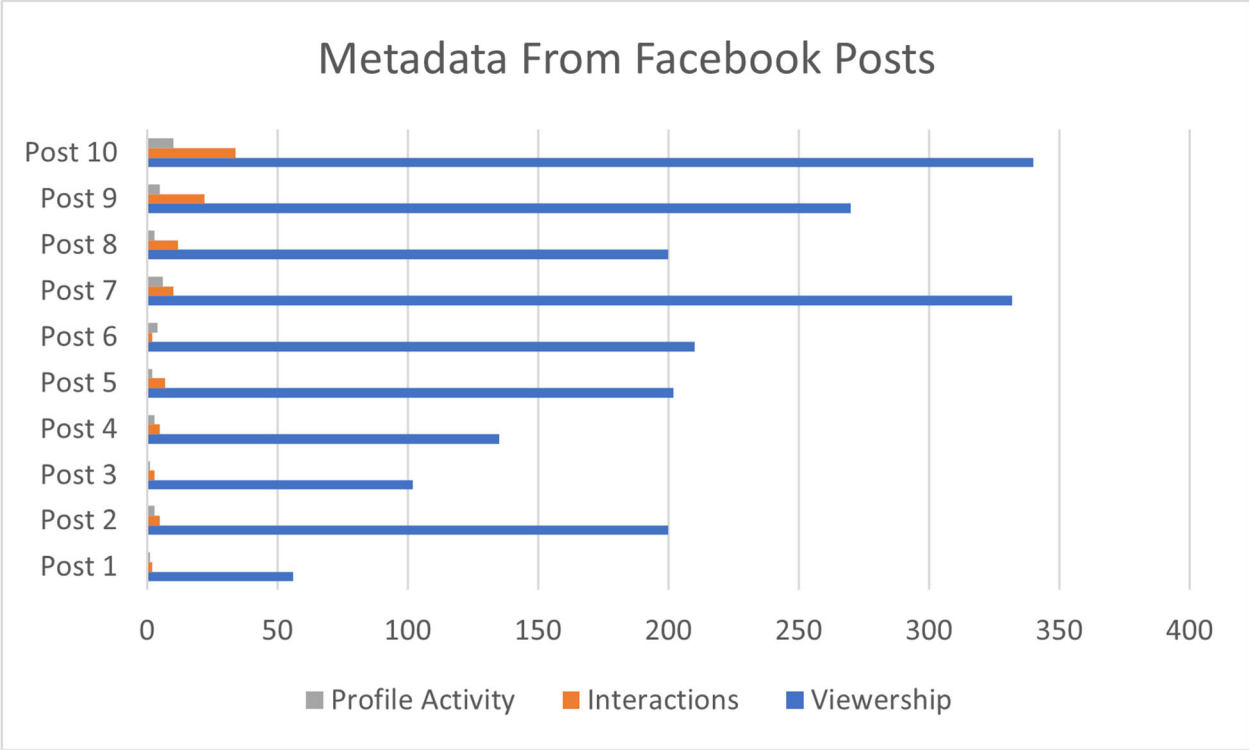
Metadata From Facebook Posts

Figure 4. Metadata From Facebook Posts. This metadata was collected from the 10 posts created by Jeremiah Wright on the Facebook website in October of 2023. The categories include profile activity, interactions, and viewership.
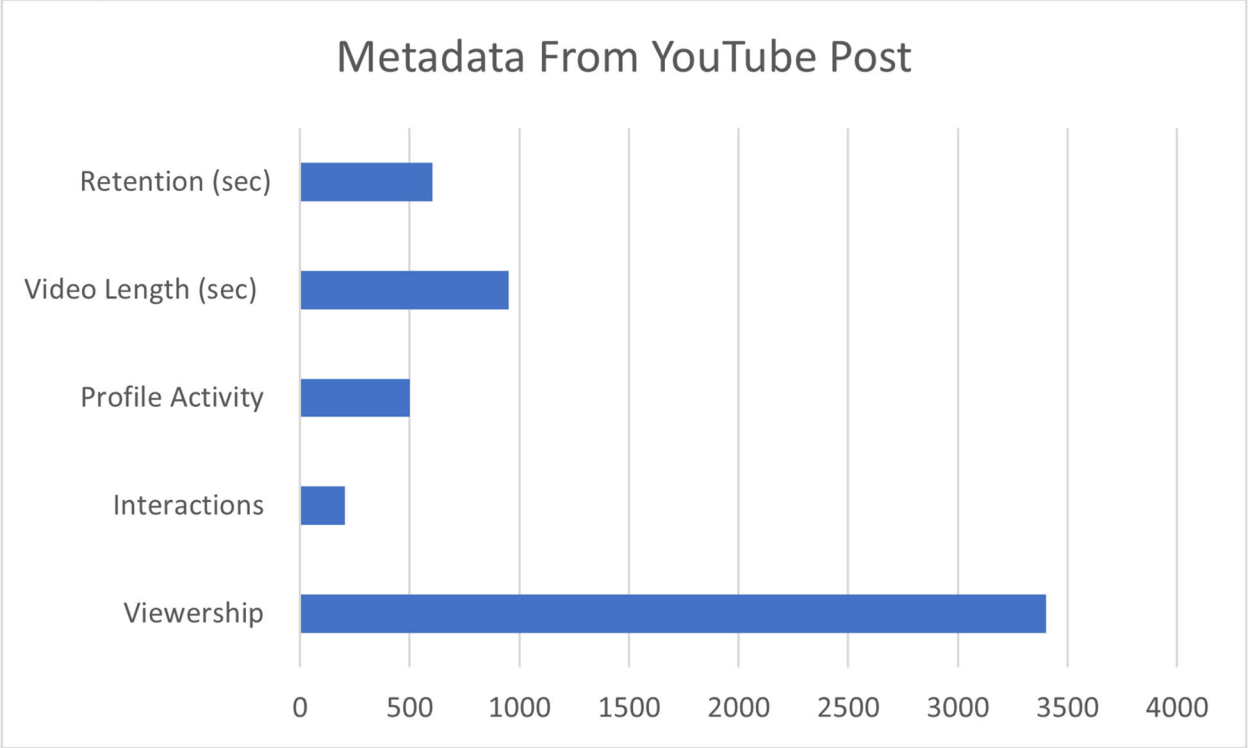

Metadata From YouTube Post

Figure 5. Metadata From YouTube Post. This metadata was collected from the post created by Jeremiah Wright on the YouTube website in October of 2023. The categories include retention, video length, profile activity, interactions, and viewership.

Application

  Since the account used in this project was new, there were only 2 previous posts prior to the establishment of the project, it was starting from a "blank slate". Considering this, the accounts were able to gain considerable traction within the two weeks of posting content. Collectively, the 4 accounts across the platforms were able to reach 25,000 individuals with bat and conservation related content.

  It is possible that all platforms have the capacity to promote conservation content : in this study, Instagram was easier to gain traction and interactions on the social media landscape. TikTok post had the capacity to gain larger view counts, but it was very dependent on post times and the audios selected for that specific post. The other two platforms did not gain as much traction, but there are some factors that may have impacted this. Facebook content is harder to get exposure to if there is not an already established audience, at least from this experience and YouTube only had one longer post.

  Given this, there is for certain a need and desire for conservation content on these platforms, especially if the content is distributed by a larger and trusted organization. Recommendations would include Instagram as the avenue for highest viewership with the lowest variability, TikTok as an avenue with the highest growth with least stability, Facebook as a reliable platform given an established audience, and YouTube with slower growth but stable viewership.

Supplementary Material
  [Metadata of Platform Responses .xlsx](#)
  Collection of the data used in the project and more results.

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