

Crowdsourcing Wildlife Data from Social Media

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ABSTRACT

Images are one of the most abundant, readily available sources of information about animals. Among the variety of the sources of images, social media platforms, such as Instagram, Facebook, Twitter, YouTube, Flickr, provide as yet untapped but potentially plentiful supply of photographs and videos. With modern image analysis technologies and platforms such as Wildbook, it is becoming possible to extract information out of this opportunistic data down to the identity of an individual animal and turn these crowdsourced images into knowledge about population sizes, movement, ranges, and dynamics.

However, little understanding exists of the relative user base and posting habits' variability of animal images across different social media platforms, user types, geographic regions, as well as animal species. In this study, we present the first results comparing the volume, frequency, geographic distribution, and the relative utility of images of six species of animals across four social media platforms. We collected images of whale sharks, humpback whales, reticulated giraffes, iberian lynx, grevy's zebras, and plains zebras from YouTube, Flickr, Twitter, and iNaturalist platforms. The species were chosen to be individually identifiable, with existing Wildbooks (for future individual identification), and existing known (sub)population sizes (for ground truth comparison for future population parameter estimates). The platforms were chosen to have a range of media type (videos and photographs), user types (from professional photographers to nature enthusiasts), and public data accessibility through APIs.

We showed that the number of posts, the frequency of posts, and the ratio of wild animals to the total number of posts matching the query terms, varies across platforms and species. However, overall there is a sufficiently large number of posts of wild animals on social media to provide a significant source of wildlife monitoring data.