

Online Illegal Trafficking of Species in Puerto Rico



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Abstract

Every day, Internet service becomes increasingly accessible, which could be both advantageous and dangerous. Illicit trafficking of species, for example, has increased due to the use of social media and free advertising pages. Illegal wildlife trafficking poses a threat to biodiversity in general. Introduced organisms can compete for resources with native and endemic species, possibly driving them to extinction. The objective of this research was to document the species currently being trafficked on Puerto Rico. During a three-month period, we used the trading site "Clasificados Online" to keep track of different species being trafficked in Puerto Rico. We recorded 155 sales posts of different species, most of which were reptiles, birds, and mammals. Out of all posts, 20% were advertised in the area of San Juan, 12.9% in Bayamón, and 11.6% in Carolina. Additionally, some species being trafficked have been found to be an invasive species in other countries, such as the hedgehog in New Zealand, and the tokay gecko in the United States, which means that these species hold the potential of becoming invasive species in Puerto Rico as well.

Introduction

Wildlife trade is estimated to be a multibillion-dollar business involving the legal and/or illegal harvest and trade of live animals and plants or parts and products derived from them. Although wildlife is traded for many different reasons, one key driver of the global wildlife trade is the demand for pets (Baker et al 2013; Tingley et al 2017). Today's degree of accessibility and the exposure of the exotic pet trade have intensified due to the growth of the Internet, which has massively expanded both the legal and illegal wildlife markets via the creation of multiple platforms to facilitate this business (Lavorgna 2015). Wildlife Consumption for the pet trade has multiple unavoidable consequences such as species population loss (Bush et al 2014) and nonnative species introductions (Fong and Chen 2010). This popular practice not only poses a threat to ecosystems they are retrieved from and the biodiversity that exists among them but can immensely affect the ecosystems of the areas where they are being transported and sold. Exotic organisms have the ability to compete for resources with the endemic or native species, potentially causing the displacement or disappearance of these (Romero et al. 2005). Island ecosystems specifically, are highly sensitive to the impacts of introduced species. Non-native species can introduce diseases into native populations and have other harmful effects through predation, competition, and habitat manipulation (Platenberg, 2007). Puerto Rico, an island in the Caribbean rich in flora and fauna diversity, can potentially be more at risk of disappearance than displacement of its endemic species when threatened by non-native wildlife introduction. The Department of State regulation 6765, established by the government of Puerto Rico and the Department of Natural and Environmental Resources (DRNA for its initials in Spanish), allows the trade of various species of reptiles, mammals, and birds. Considering this, monitoring illegal wildlife trade on the Internet helps identify possible threats to our native and endemic species. The objective of this study was to document illegal trade of reptiles, mammals, and birds along with the most common illegal species being traded, and the areas on the island with more illegal reptile trade activity.

Methodology

The online free advertising page, "Clasificados Online", was monitored for a period from February 3, 2021, until April 15, 2021. The page has the following sub-tabs for the different animals: dogs, cats, horses, reptiles, birds, fishes, and others. For this research, the tabs of reptiles, birds, and others were used. Many of the names appeared in Spanish, some appeared in English. The monitoring sessions consisted of browsing through all the posts of animals for sale in the selected categories and identifying illegal species. We collected the following information: common name of the animal; municipality; the identification number of the advertisement (to avoid duplication) and the posting date. Additional information provided by the post such as age, weight, sex and physical description of the specimen was documented. The monitoring sessions took place one up to three times a week, every week in the time frame of three months and 12 days. With the data collected, we compared each group with the overall number of posts monitored, analyzed the trade and distribution.

Results and Discussion

From the months of February through April a total of 155 advertisements of illegal species were posted. The group that had the most illegal species being advertised were the reptiles, with a mean of 20.3 reptiles per month. Mammals represented the second largest group being trafficked, with a mean of 15 per month. Birds had a mean of 11.3 advertisements per month, making them the third most popular group. The fourth group, Amphibians, had a mean of 4 per month. Invertebrates were rarely being trafficked, with a mean 0.3 per month (Figure 1).

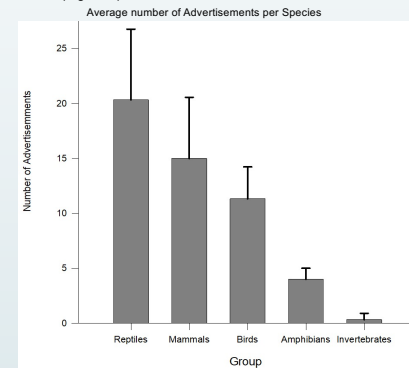


Figure 1: Average number of posts per group

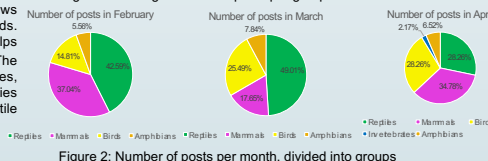
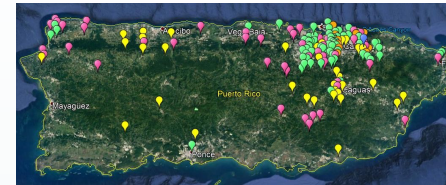


Figure 2: Number of posts per month, divided into groups



Map Legend: Reptiles (green), Mammals (pink), Birds (yellow), Amphibians (orange), Invertebrates (blue)

Figure 3: Map view of the distribution of all posts collected.

As shown in Figure 3, most of the advertisements reported were from the metropolitan area. This finding could be attributed to the increased population in this area, compared to the rest of the island. The three municipalities with the most advertisements were San Juan (20.00%), Bayamón (12.90%), and Carolina (11.61%). Additionally, the northern coast of the island exhibited more illegal activity than the eastern, western, and southern coasts of the island.

The most common advertised species of each group were the following:



Leopard gecko (*Eublepharis macularius*)



Hedgehog (*Erinaceidae*)



Macaw (*Ara macao*)



Pacman Frog (*Ceratophrys*)



Puerto Rican Brown Tarantula (*Cyrtopholis portoricae*)

Table 1: Invasive species found on "Clasificados Online"

Species	Country where species is considered invasive
Hedgehog (<i>Erinaceidae europaeus</i>)	New Zealand (and surrounding islands)
Sugar gliders (<i>Petaurus breviceps</i>)	Tasmania, Australia
Leopard gecko (<i>Eublepharis macularius</i>)	Japan
Veiled Chameleon (<i>Chamaeleo calytratus</i>)	Hawaii, USA
Tokay gecko (<i>Gekko gecko</i>)	Florida, USA
Red-eared slider (<i>Trachemys scripta elegans</i>)	California, Oregon, Washington, Idaho (USA)
Savannah monitor (<i>Varanus exanthematicus</i>)	Florida, USA
Nile monitor (<i>Varanus niloticus</i>)	Florida, USA

To investigate the growing threat of illegal trafficking, different species being sold on "Clasificados Online" were examined to see if some of them were considered invasive in other countries. As a result, multiple observed species were shown to be invasive in other ecosystems (Table 1). This means that our ecosystems are in danger if these species escape captivity. In addition, endemic species from Puerto Rico, such as *Cyrtopholis portoricae*, were also found. Even though capturing and selling endemic species is illegal.

Conclusion

This study has shown that the internet is actively being used to traffic and trade illegal species. Free public websites, such as the one used throughout this research, are utilized largely because of their accessibility and few posting restrictions. Moreover, increased levels of illegal trafficking activity has been observed in areas with more population. One of the main dangers of illegal trafficking is the potential movement of invasive species. Multiple native species around the world have been shown to compete with these invasive species, resulting in less resources available and, in effect, decreased fitness. Furthermore, these invasive species may potentially harm our ecosystems. It is imperative for the government to begin reinforcing the existing restrictions, and further regulating this practice to ensure the safety, protection and general well-being of our native species and ecosystems.

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