Birds of Paradise and Sexual Dimorphism: Using Zoos to Inspire Conservation in New Guinea

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Abstract Birds of paradise have become internationally known for their bright plumage, creative dances, and wild songs. These distinct attributes are what can be used to promote the conservation of this species and the entire region. Using their popularity, historical connections, and unique attributes, these birds can become a flagship species to preserve the New Guinea ecosystem with the help of Zoos. By promoting this species through signage and presentations, we can begin to educate the public on the importance of birds of paradise and in doing so, we can protect a plethora of other endangered species from fragmentation, loss of biodiversity and a number of other anthropogenic factors.

Introduction

New Guinea, a large island in the South Pacific, is home to a wide range of species but is best known for their tropical birds of paradise which have incredibly unique sexually dimorphic characteristics, including bright plumage, intricate songs, and playful dances (Freeman and Herron, 2007). In the case of birds of paradise, the male is generally more elaborate to entice a female; the female then chooses the more extravagant, productive mate. Since these birds are so unique (Jepson, 2015) and have a strong historical relationship to local tribes (Kirsch, 2006), they are an excellent candidate for a flagship species we can rally behind in order to promote conservation of the New Guinea ecosystem (Jepson, 2015).

Background

Currently, 36 of the 42 bird of paradise species are endemic to New Guinea, and even though they have wings, tropical birds tend to be reluctant to cross water, making this island their prime habitat (Diamond, 1986). Most male bird of paradise species are polygynous and territorial; therefore courting depends on attracting the female to their nesting area. A majority of the species has males with ornate plumage and exuberant courtship displays and females tend to be colored to blend into the environment (Irestedt, 2009). The females tend to pick the flashiest, brightest, and loudest males, consistent with the concept of sexual selection. Sexual selection occurs when one sex applies selection pressure to the other causing a change in a phenotypic characteristic used for mate choice, in birds of paradise, the brighter or bigger the better (Freeman and Herron, 2007). What is hypothesized for the bird of paradise is that the more elaborate features tend to intimidate competitors and promote higher reproductive success. Birds of paradise have one of the most notable cases of avian sexual selection (Irestedt, 2009). These beautiful characteristics imposed by sexual selection can be used to entice the public to care and respect these fascinating, and culturally significant species.

New Guinea Ecosystem

New Guinea has great biodiversity, but factors like anthropogenic changes, climate change and invasive species are all threats to the current ecosystem. Protecting the species of New Guinea is critical to prevent further detrimental loss or even extinction (Hope, 2014). There are a number of endemic bat species located on New Guinea, the Bulmer’s Fruit Bat (Aproteles bulmerae) is just one of these species, which is near extinction, reduced to just 250 mature individuals in the wild and still believed to be on a steady decline. By protecting the birds of paradise, we protect the future of the Bulmer’s fruit bat, and other critically endangered species (IUCN Red List, 2016). What is especially crucial for the bird of paradise and other species is stopping the ongoing forest fragmentation in order to protect their habitats. Fragmentation is threatening biodiversity, availability of nesting habitat, and preferred food sources (Sam et al., 2014). Segmented ownership of tribal land makes it difficult to preserve large regions, and only 2.8% of total land area is protected (Sam et al., 2014). Thus, it is important to involve local communities in the preservation of bird of paradise, a well-known, spiritual animal, and teach them how to live among these birds.

Historical Significance

Historically, the locals of New Guinea have always indulged in the art of decorating themselves with bird of paradise feathers. Rituals were often copied from the birds themselves, and it is thought that by wearing the feathers the animal’s life force is absorbed by the wearer (Holland, 2007). But in the early 20th century, international trade boomed (Heads, 2001), as extravagant feather hats were the craze in European culture (Kirsch, 2006). Throughout this time period over 80,000 adult males were killed and exported a year (Heads, 2001). If the decline in numbers continues, indigenous peoples will begin to lose their culture, rituals, and the knowledge they contain.

Conservation & Zoos

The different species of birds of paradise have a large range, powerful presence, distinguishing features, and cultural significance, an ideal flagship species.
They are species that will attract financial support, thus having the potential to protect an entire ecosystem (Baura, 2011). Structuring a conservation framework around species like the bird of paradise, that symbolizes the area in need of conservation, could both benefit New Guinea and local zoos. Zoos provide the perfect environment to promote the conservation of birds of paradise species.

Over 700 million people visit zoos and aquariums every year (Moss 2014), giving them access to conservation education and allowing for an improved understanding of biodiversity. While not everyone will walk away with a better understanding of conservation, signage placement and information, and presentations, could play a key role in this process. Signage often presents us with species behavior and ecology information and introduces people to conservation challenges and indicates potential solutions (Fraser et al., 2009) and through this, people will often walk away with some awareness regarding the species. It also has been noted that zoo visitors who walked away with a greater understanding of a species, often developed a connection with them, which then often lead to a willingness to change their behavior in order to protect said species (Pearson et al., 2013).

If zoos are able to capture the distinct nature of birds of paradise and promote awareness, it could lead to a greater understanding of the New Guinea ecosystem and potential conservation (Pearson et al., 2013). Acquiring birds of paradise in their collection allows for the opportunity to utilize their attributes to promote conservation. Zoos are being recognized more and more as places to expose people to environmental issues and conservation challenges species face. Financially through donating to in-field partnerships developed by zoos and smart consumerism can help prevent habitat loss and fragmentation, which is driving a number of New Guinea species to extinction (Sam et al. 2014). Through presentations, signage, blogs, and promotion, zoos can tap into their market and help conserve birds of paradise, while also helping to protect all the other species found in the New Guinea ecosystem.

**Conclusion**

There is power behind using a culturally significant and well-respected animal to promote change and conservation. Their relationships to local villagers, historic environmental awareness, and their distinct physical attributes make them a powerful ally in New Guinea conservation. Their sexual dimorphism showcases a peculiar attribute and makes them uniquely qualified to become a flagship species. The birds of paradise are an intriguing, fun species to watch and engage with, and could easily be promoted within zoos in order to secure their future. With the local and global support of these species through zoos, we can start to protect and preserve a spectacular ecosystem.

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**References**


