

Conserving Dominica's Endemic Parrots

Lara Kreuter & Stephen Durand
Texas A&M University

The unique characteristics of islands provides ideal habitat for endemic species to evolve. Dominica is no exception. Regarded as the Nature Island of the Caribbean, Dominica's active parrot conservation program focuses on two of its most threatened endemic species, the Imperial (*Amazona imperialis*) and the Red-necked (*Amazona arausiaca*). This paper will focus on the historic population trends and current conservation status of these endemic parrot species, with a large portion devoted to the Imperial, the national bird of Dominica.

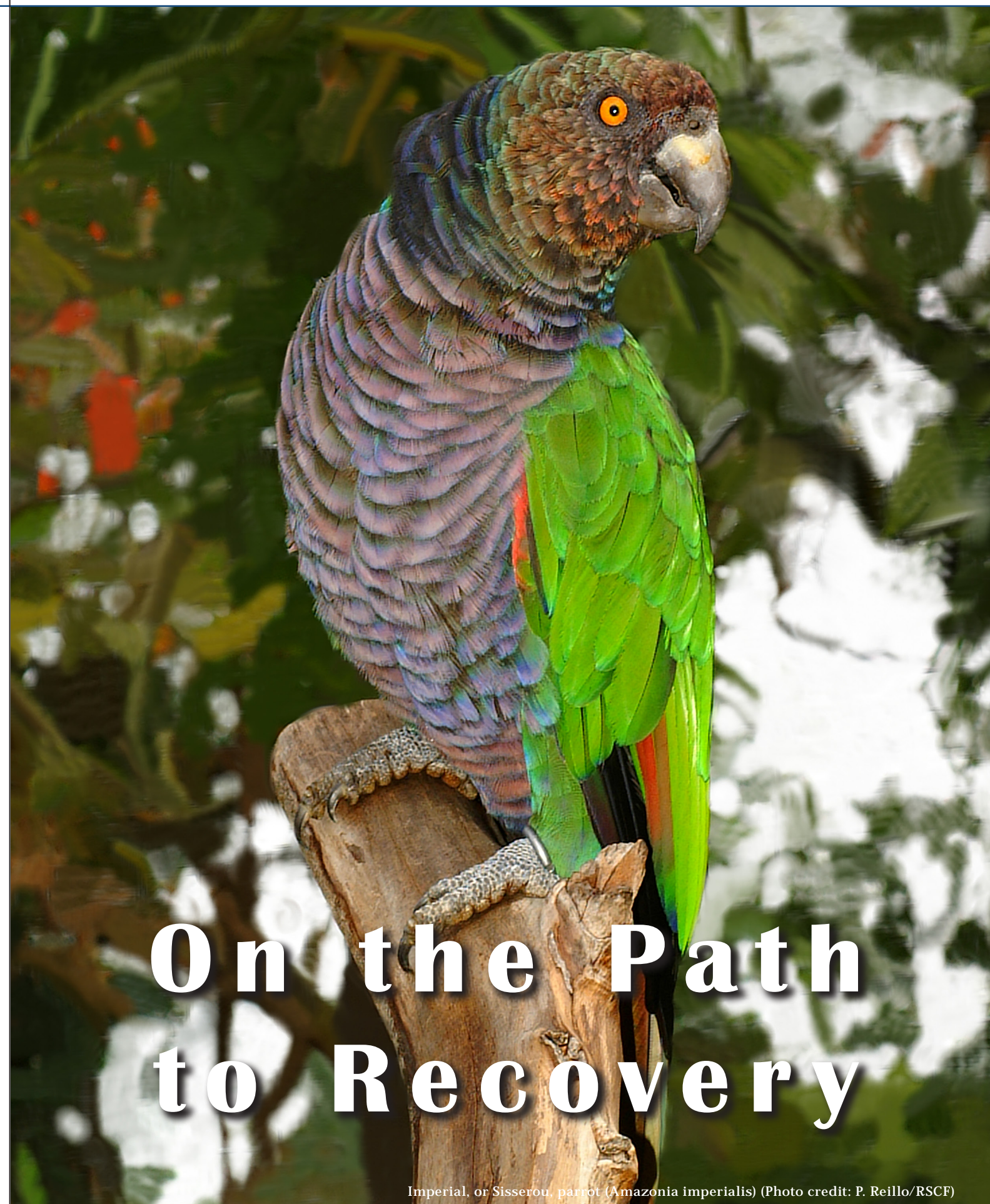
The Imperial, or Sisserou, is the largest member of the genus *Amazona*. They have distinct coloration with a deep-green back and a purple head, neck, and underbelly, with an average length of 46-51 cm. Their call is can be best described as a metallic trumpet sound. Due to the significant habitat loss following back-to-back hurricanes and other compounding factors, Imperials have become the rarest of the *Amazona* genus. Their remaining habitats are remnant mature forests located at an elevation of 610 to 1,220 meters in central portion of the Morne Diablotin National Park (Durand, 2013).

Dominica's other endemic parrot, the Red-necked, is also known as the Jaco. This species is much smaller than the Imperial, averaging 33-36 cm in length. The Jaco's plumage is primarily bright green with a bluish head, characteristic red areas on the neck and upper breast, with a distinguishing scarlet patch on its wings. Red-necked parrots have a high-pitched squawk and are distinguished in flight by their green tail and shallow wing beats. The distribution

of the Red-necked parrot is more widespread than the Imperial. They are also in the Morne Diablotin National Park but have spread to Morne Trois Pitons National Park, as well as the Northern and Southern Coastal areas. In contrast to the Imperial, their distribution is maintained due to their ability to tolerate humans and their aggressive behavior towards other birds (Durand, 2013).

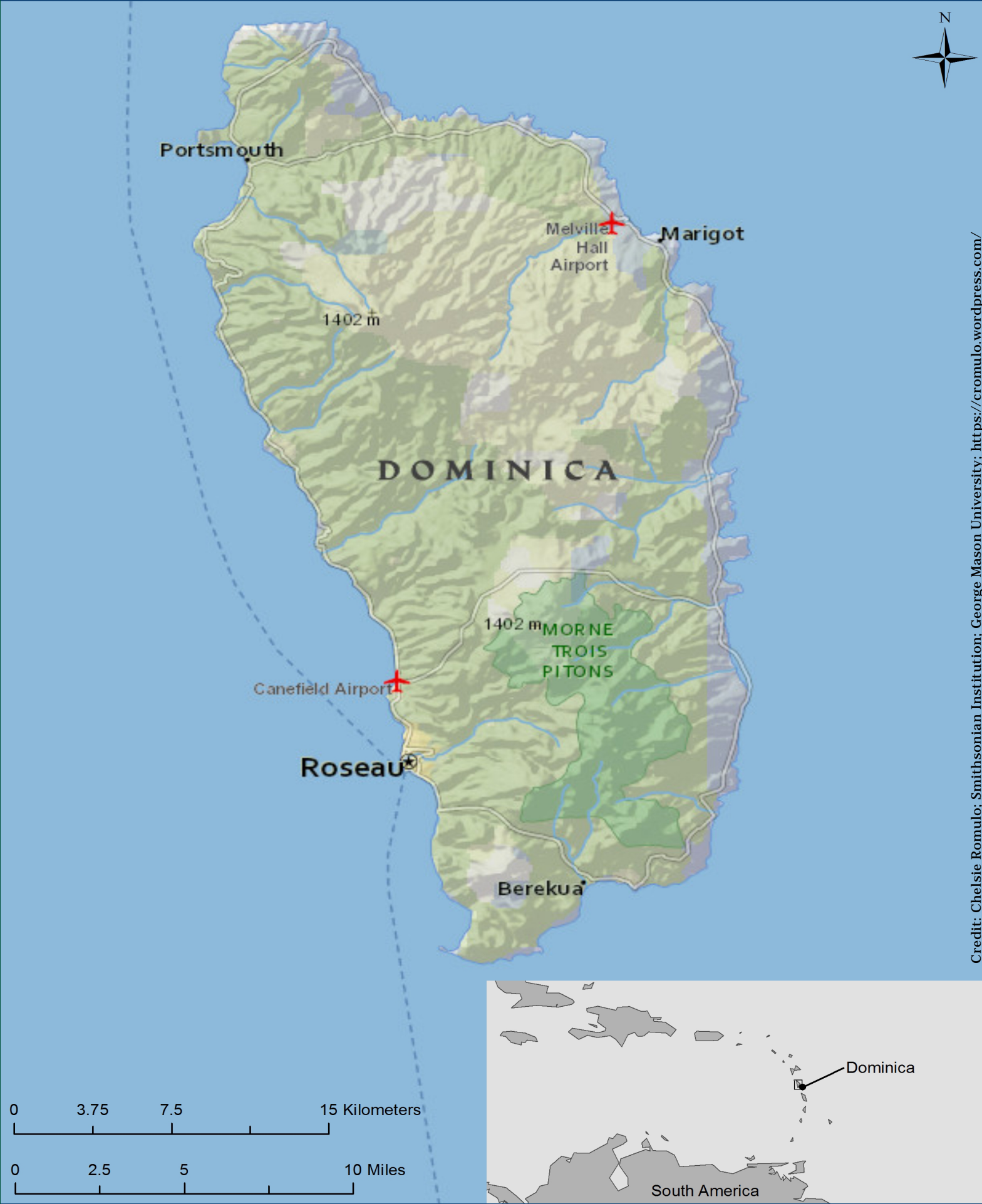
In general, parrots are social birds and flocks tend to need and preside over large territories to provide feeding, nesting, and breeding habitat. However, with increased forest clearing for agriculture, lumber, and charcoal, their breeding and nesting habitats are quickly disappearing (Salinas-Melgoza et al., 2013). Including habitat destruction, there are four major threats to the Sisserou and Jaco. These include (1) natural and introduced predators, (2) hunting for trade or food, (3) interspecific competition, and (4) habitat destruction (Evans, 1991; Christian et al., 1996a). Predation decreases the number of offspring reaching adulthood and, in turn, decreases the overall population growth rate. These parrots are also targets for international trade. Those seeking to exploit this demand scour nesting trees to collect chicks for trade in a practice locally known as nest robbing. Wing shooting is another practice in which individuals target parrots' wings in order to injure adult birds for collection, although many times this results in accidental death. In the past, hunting was an issue but recently it has become extremely rare due to the high levels of protection and public education campaigns.

As for The Commonwealth of Dominica (Dominica, for short), it is a small island in the



On the Path to Recovery

Imperial, or Sisserou, parrot (*Amazona imperialis*) (Photo credit: P. Reillo/RSCF)

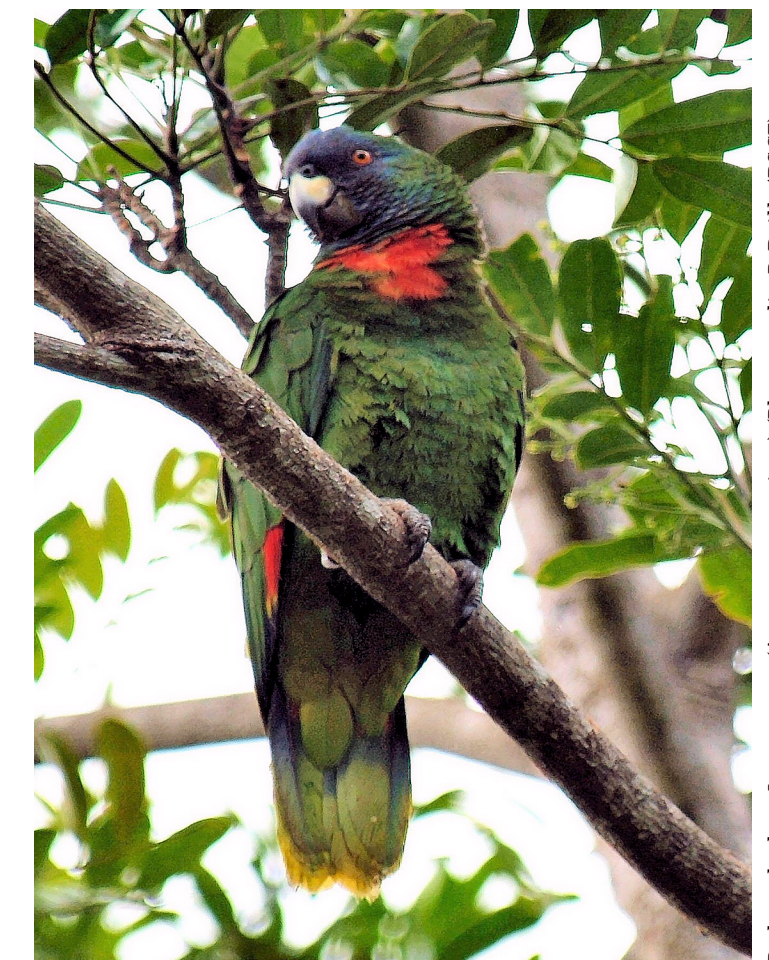


Credit: Chelsie Romulo; Smithsonian Institution; George Mason University: <https://cromulo.wordpress.com/>

Lesser Antilles with a land area of 790 km². It is located about 870 km southeast of Florida at approximately 15° north latitude and 62° west longitude. The island is of volcanic origin and steep peaks and deep ravines characterize its topography. The terrain is very rugged but also very beautiful. The Atlantic side of the island is covered by windswept littoral (shoreline) forest able to withstand the strong winds and waves that constantly buffet the island. In contrast, the Caribbean side conveys what you think of in a tropical island: calm blue waters, palm trees, tiny coastal villages, iguanas, and parrots. In 1979, Hurricane David hit the island, and in 1980, the island was struck again, this time by Hurricane Allen. Hurricane David was considered one of the most devastating hurricanes in the Caribbean at the time, with sustained winds between 209 to 251 km/h. Soon after the storms passed, the impact of the hurricanes became very apparent. There was overwhelming devastation to the forest, beaches, farmlands, animal populations, and the island as a whole. Much of the breeding and foraging habitat for wildlife on Dominica was gone.

In response to these hurricanes and threats to their endemic parrots, The Division of Forestry, Wildlife and Parks of Dominica (FWPD) has several programs focused on conservation and restoration of the parrots and their habitat. In 2000, in partnership with the Rare Species Conservation Foundation (RSCF), the Government of Dominica created Morne Diablotin National Park, built specifically around Dominica's National Bird, the Imperial Parrot (Forestry, Wildlife and Parks Division, Dominica, 2009). As such, the rainforest on the northern most slope of Morne Diablotin is now the most important refuge of the Imperial (Collar & Juniper, 1992). However, the concern in Dominica is that both the Imperial and Red-necked parrot are confined to small, specific areas, and are considered in danger of extinction (Christian, et al., 1994). Both species are considered globally threatened by the IUCN; the Imperial is classified as Endangered and the Red-necked is classified as Vulnerable (www.birdlife.org).

Currently, the most insidious threat to Dominica's endemic parrots is due to forest clearing for agriculture, these practices bringing down the parrot's nest cavities high in the trees. Compounding these circumstances are natural disasters, such as hurricanes and volcanic eruptions, which threaten parrot habitat, specifically nesting cavities. As mentioned before, Hurricane David decimated Imperial parrot and Red-necked populations in 1979. In 1987, Evans (1991) estimated that the total populations for Imperial and Red-necked parrots, eight years after Hurricane David, were 60 and 200 individuals, respectively. Currently the Dominican Government's focus for conservation and recovery is the Imperial Parrot. This is primarily due to the Red-necked parrot being more tolerant of human disturbance with a broader habitat distribution while Imperials are more sensitive and have limited habitat tolerance. Another reason is due to fledgling



Red-necked, or Jaco, parrot (*Amazona arausiaca*) (Photo credit: P. Reillo/RSCF)

numbers. Based on field observation, Imperial parrots generally only have one fledgling every other year (Forestry, Wildlife and Parks Division, Dominica, 2009). Intra-cavity research methods have been developed and tested to allow researchers to examine the inside of parrot nests, providing the first video recordings of Imperial rearing and fledging, and quantitative analyses of bi-parental care and recruitment in both species (Reillo & Durand, 2008). This lower fecundity places increased importance on making sure the small number of offspring survive. The available nesting area is also a major factor. While Red-necked parrots are smaller, they are also more aggressive with competing bird species. In contrast, Imperials parrot tend to have more intra-species competition, placing increased importance on managing limited nesting, breeding, and feeding habitats (Durand, 2013). The Red-necked parrot population has been increasing steadily since Hurricane David. They have extended their distribution far into the southern half of the island, while the future of the Imperial is still uncertain.

The remainder of this article will discuss recent survey work conducted on Imperial parrots with a grant provided to the Dominican Forestry and Wildlife Department. The purpose of these surveys were to help determine the location(s) of Imperial parrots in the wild, identify future avenues for conservation, and provide information to educate the public on issues of parrot conservation.

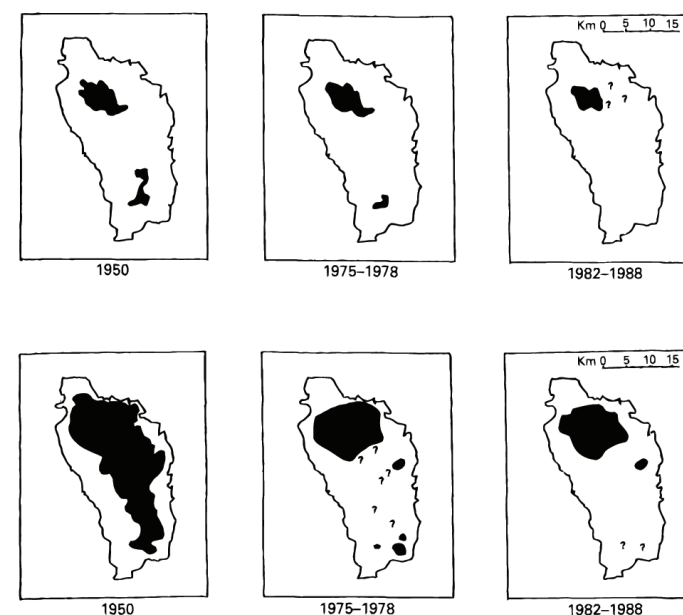
Surveying Imperial Parrots

In the summer of 2013, I (Lara Kreuter) was fortunate to spend three weeks on Dominica as part of a Texas A&M University study abroad class on Tropical and Field Biology. Two separate field excursions were organized for me to travel into the field with a group from the Forestry, Wildlife and Parks Division of Dominica. I was able to work with four Division staff members, Stephen Durand, Randolph (Ronnie) Winston, Matthew



Maximea, and Roy Paul. These professional and knowledgeable gentlemen taught me about their ongoing conservation work with the parrots of Dominica. They also provided me with training to track and record parrots not accessible through mere observation. Thus began my fieldwork. This consisted of hiking through the forests of Morne Diablotin National Park.

The main purpose of our fieldwork was to listen, spot, and mark the location of Imperial parrots. My main task was to mark the locations in a GPS device with descriptive names for later data analysis. During these hikes, Stephen Durand provided me with basic background information on Imperial parrots, such as population trends, management tactics, and preferred vegetation types. Stephen also taught Randolph Winston and myself how to use GPS devices to record observations (visual and auditory) of parrots. The other field biologists enlightened me with various facts about the forest, the parrot's behavior, and just about anything having to do with the monitoring these endemic species or the ecology of the island. When making field observations and GPS recordings, Stephen would write down the type of vegetation we were in, the elevation, and the weather conditions. We would also note if we observed multiple parrots, if they were flying, and any other information that might provide data for future census analysis.



Opposite, left: Me working with the GPS system with the help of Ronnie Winston (Left) and Matthew Maximea (Right). Photo Credit: Lara Kreuter

Above: Imperial (top) and Red-necked (bottom) parrot population distribution (Evans, 1991).

Population Trends

The survey work described above is just the tip of the iceberg in trying to understand the population numbers of the past decades. The work that Evans (1991) has done provides a great description of the species' population changes from around 1950 to 1990. Prior to this study, there was little work done to gather this information. The following figure provides a visual of Imperial and Red-necked parrots observed between 1950 and 1990. These maps also show the importance of the devastation from both hurricanes to the island. Based on the conversations I had with Steven Durand in the summer of 2013, the parrot populations have greatly increased. In 1987, the Imperial parrot had declined to around 60 individuals and the estimated Red-necked population was about 200 individuals (Evans 1991). However, with the new data collected by Durand and the field team from the DFWP, there are now estimated to be about 500 Imperials and 2,500

Red-necked parrots on the island!

Current Conservation

The Rare Species Conservatory Foundation (RSCF) and the Dominican Government have developed numerous projects in order to protect the Imperial Parrot. These programs are complex. They are attempting to extend legal protection to all forests surrounding Morne Diablotin, develop management and conservation strategies, and coordinate support for ongoing research and education programs with public zoological facilities and non-profit organizations. In general, the Dominican government's parrot programs serve many functions. This includes monitoring parrot populations, collecting and analyzing ecological data, and recording life history information on the parrots and other wildlife, delineating forest habitat and land use, and simplifying strategies for wildlife and habitat protection (Reillo & Durand, 2008).

Additionally, the FWPD tries to maintain a good relationship with local farmers in order to gather information about the surrounding areas. Some farmers are willing to come forward with information about destructive human behavior to parrot habitat, such as poaching parrots that feed on their crops or harvesting parrots for the wildlife trade. However, others do not share information because they believe doing so might compromise their farming operations (Reillo & Durand, 2008). This may include people threatened by poachers or farmers indirectly benefiting from the decreasing parrot population, i.e., fewer parrots eating their crops.

Overall, Dominica has experienced enormous success in their efforts to restore their two endemic species. The current conservation programs are contributing to our ever increasing understanding of Imperial parrots. Still, much remains unknown. The survey work I participated in provides an opportunity to expand this knowledge. With Morne Diablotin National Park providing 9,000 acres of protected forest for both



the Imperial and Red-necked parrots to forage and nest, conservation is moving forward, even after the difficult circumstances endured. Research on the Imperial parrots continues, new data is being collected, and these initiatives will allow their populations to continue to expand, guaranteeing a bright future for the national bird of the Nature Island island!

Author Correspondence

Lara Kreuter
 Texas A&M University
 Email: larakreuter@hotmail.com

Acknowledgements

I would like to thank the Forestry, Wildlife and Parks Division, and the Ministry of Agriculture and Forestry for allowing me to accompany Stephen Durand, Matthew Maximea, Randolph Winston, and Roy Paul; their knowledge and expertise was a great help with this project. I would also like to say a special thanks to Dr. Tom Lacher and Dr. Jim Woolley of Texas A&M University for helping me with my report and organizing the excursions with FWD.

References

Christian, C. S., Lacher, T. E., Zamore, M. P., Potts, T. D., & Burnett, G. W. (1996a). Parrot Conservation in the Lesser Antilles with some Comparison to the Puerto Rican Efforts. *Biological Conservation*, 77, 159-167.

Christian, C. S., Potts, T. D., Burnett, G. W., & Lacher, T. E. (1996b). Parrot Conservation and Ecotourism in the Windward Islands. *Journal of Biogeography*, 23 (3), 387-393.



Top: Day 1 FWD team from left to right, Matthew Maximea, Ronnie Winston, Stephen Durand.

Middle: Syndicate Trail, Morne Diablotin National Park

Bottom: Final hike back on the second day of surveying. Matthew Maximea (left), Roy Paul (middle) and Stephen Durand (right).

Photo Credit: Lara Kreuter

CONTINUED ON PAGE 35

INTERESTED IN CONSERVATION?



Unique biodiversity, such as the Pancake Batfish, can be found in the Gulf of Mexico. Photo by: Ken Lucas

Undergraduates of any level are invited to apply for the ABS Conservation Scholars Program

We seek applications for internship positions from undergraduate students interested in local issues related to the Gulf of Mexico ecosystems and energy development and on broader questions of the relationship between energy development, energy policy and natural resources.

Each intern will receive a small research stipend to conduct baseline research and associated travel related to a proposed summer internship opportunity, available over the Fall and Spring semesters. The student will then spend one month working in a state or federal agency, **fully funded by the program**, to gain hands-on experience on issues related to natural resource management and energy development.

Applications are due **September 30, 2015**. Please see our website for details!
All serious undergraduates are invited to apply.



ABS CONSERVATION SCHOLARS PROGRAM

Dr Thomas Lacher; Texas A&M University

← Scan here for our website:

<https://absconservationscholarsprogram.wordpress.com>