



Conserving West Indian
Whistling-ducks on Antigua
and Barbuda's Offshore
Islands

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Cover Photo: Credit Dr. Jenny Daltry, Fauna & Flora International

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on Antigua and Barbuda's Offshore Islands

Country: Antigua & Barbuda

Site Location: North East Marine Management Area; 17.1333N

61.71666W

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Project Partners & Collaborators

Partners & Collaborators	Roles
ABS Television/Radio (Local Broadcasting Service)	Provided coverage for our conservation work in the form of radio and television interviews and site visits.
Andelle Trotman	Volunteered with members of the team to keep West-Indian Whistling-duck habitat free of Invasive Alien Species.
BirdsCaribbean	Provided strong support in the form of material, equipment, funding, training, and guidance throughout the elaboration of the project. Two members of the project team are also members of the BirdsCaribbean West Indian Whistling-duck Working Group.
Carmel Samuel	Began to volunteer to monitor West Indian Whistling-ducks on Long Island (Privately owned and developed offshore island) when she learnt about the waterfowl through a CLP alumna's presentation.
Daily Observer (Local Newspaper)	Published articles relating to our project free of cost in the local paper.
Daryl George	Volunteered with members of the team to keep West-Indian Whistling-duck habitat free of Invasive Alien Species.
Department of Environment	Facilitated the team's training sessions and stakeholder meetings.
Environmental Awareness Group (EAG)	Provided a meeting space for the core project. Provided administrative support to the project.
Fauna & Flora International	Provided technical guidance to project team.
Galley Bay Resort	Provided access to the property to shoot

Partners & Collaborators	Roles
	video footage of West Indian Whistling- ducks to produce educational material and short media pieces.
Jepson Prince	Began to volunteer to monitor West Indian Whistling-ducks on Long Island (Privately owned and developed offshore island) when he learnt about the waterfowl through a meeting with the CLP project team.
Joseph (Junior) Prosper	Provided guidance throughout the execution of the project. It is worth mentioning that Mr Prosper has collected nearly two decades worth of data on mainland sightings of West Indian Whistling-ducks. Mr. Prosper is also a member of the aforementioned West Indian Whistling-ducks working group under BirdsCaribbean
Ministry of Education	Supported educational outreach and capacity building activities through the participation of the local students and teachers.
Conservation Leadership Programme Partners	Provided training before the start of the project and guidance throughout the elaboration of the project.
Shanna Challenger	Has become a core member of the project team as we continue to monitor WIWDs on the mainland and on offshore islands.
Sophia Steele	Has become a core member of the project team as we continue to monitor WIWDs on the mainland and on offshore islands.

Section 1:

Background

The West Indian Whistling-duck is a Caribbean Endemic, and one of the rarest to be found in the Americas. It can be found across several Caribbean countries primarily in the Greater Antilles. Its southernmost identified habitat is Antigua & Barbuda, although in 2008, Anthony Levesque discovered a family of nine ducklings and two adults in Guadeloupe, 57 miles away from Antigua.

WIWD populations, once abundant, have known to be in decline in most of their range (Collar et al. 1992, Staus and Sorenson, 1997, Raffaele et al. 1998) due to several factors including hunting, degradation or loss of habitat and predation of eggs and young by Invasive Alien Species. The current known habitat for WIWDs is Cuba, Jamaica, Turks & Caicos, Dominican Republic, Puerto Rico, Bahamas and Antigua & Barbuda.

The offshore islands of Antigua and Barbuda are important habitat for endemic and globally threatened wildlife including WIWDs. This project aimed to conserve the West Indian Whistling-ducks (Dendrocygna arborea) which nest on our offshore islands. In our local setting, this species is subject to (sport-)hunting and faces other threats including habitat degradation and loss of habitat, and is also under threat of predation by invasive alien mammals (Rattus rattus, Herpestes javanicus). The end result of this project is to maintain safe habitat for WIWDs, establish an offshore island Whistling-duck monitoring protocol, improve the management of its offshore island habitats, and educate residents about the Whistling-ducks.

Summary

The Whistling-duck project officially began in August 2014 and had as its long-term objective to prevent the extinction of the vulnerable West Indian Whistling-Duck (WIWD) in Antigua. The project's main purpose was to ensure the survival of West Indian Whistling-Ducks by providing safe and secure breeding habitats on Offshore Islands in the North East Marine Management Area (NEMMA) via the following objectives:

- 1. Suitable WIWD forest habitat is maintained on priority islands.
- 2. Island users know and comply with measures to minimise disturbance on Offshore Islands allowing WIWD to remain.
- 3. Priority WIWD breeding sites on the offshore islands are kept free from harmful Alien Invasive Species (AIS).

While the team did encounter some problems and delays as the project was implemented, we believe that our work has supported the improved knowledge and capacity of residents to identify, monitor and conserve WIWDs and their habitat.

Introduction

Antigua & Barbuda is a Small Island Developing State and archipelago in the Eastern Caribbean with over 30 uninhabited offshore islands of outstanding biodiversity importance. Most of these are forested, low-lying limestone islands within a few miles of the coast of Antigua. While natural habitats on Antigua and, increasingly Barbuda, have come under increasing pressure from urban and tourism development, human population growth, pollution and invasive alien species, the uninhabited offshore islands have become even more important as a vital habitat and refuge for biodiversity including our avifauna, such as the West Indian Whistling Duck: Globally Vulnerable (IUCN, 2016)—Antigua & Barbuda contains the world's second largest population, with dozens of pairs recorded on the offshore islands (Government of Antigua and Barbuda, 2014).

With our country's offshore islands proven to be critical habitat for WIWDs, the primary end of our work was to ensure that we provided WIWDs with a better chance for survival by safeguarding their habitat, by educating residents to identify and appreciate these birds as an integral part of a healthy, natural ecosystem, and training residents to adopt behaviour that would safeguard WIWDs and their homes. In short, our team focused our efforts on preventing the extinction of this iconic Caribbean bird.

To achieve this, our team aimed to keep key sites free of Invasive Alien Species (IAS), specifically black rats (Rattus rattus) and small Asian Mongooses (Herpestes javanicus) that can have quick and devastating consequences for biodiversity on offshore islands. Further to this, we executed a series of educational awareness activities to bring knowledge of WIWDs to the forefront of the minds of residents, and in particular, government policy-makers.

Additionally, to increase understanding of our work's rationale, to gain more support for and to ensure continuity of our efforts, the team ensured that residents were trained to detect and deal with the presence of IAS, to identify and monitor WIWDs and other water fowl, and to understand how birds support our life and well-being in various ways, such as being environmental indicators.

The team tested a series of methods to monitor WIWDs on offshore islands, eventually settling on four simple methods that can be easily repeated in the future: Flyover counts, point counts, index counts and nest searches.

The core project site was in the North East Marine Management Area (NEMMA), a Marine Reserve established in 2005, and an Important Bird Area (AG006), covering 9,021 hectares. This IBA is also recognized as top priority Key Biodiversity Area. Some survey method testing and research was also conducted on the mainland and was later applied on the offshore islands.

More than just a team effort, the execution of this project involved the expertise of our mentors, Mr Joseph Prosper (local) and Dr Lisa Sorenson (Executive Director of BirdsCaribbean). Additionally, the support and guidance of the Environmental Awareness Group, our CLP advisors, the Department of Environment was invaluable in guiding our actions throughout the implementation of our project.



Fig. 1 Map showing Geographic Location of Antigua & Barbuda

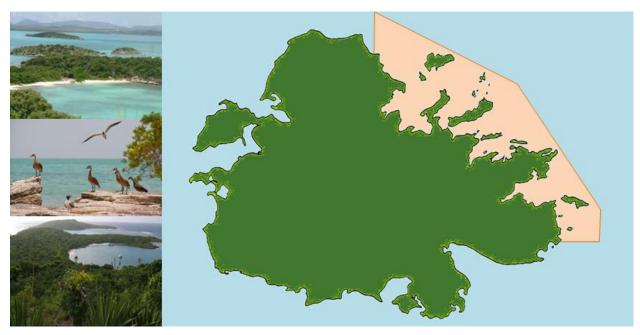


Fig 2 Map Showing Project Work Site

Project Members

Natalya Lawrence – Age group 35 – 44 years. Natalya was the project lead who organised the group and received the CLP Alumni training held in July, 2014. She returned to Antigua and trained the other members of the team. She coordinated the logistics of the field work and meetings, wrote the reports, did media appearances and wrote press and social media pieces. Natalya participated in biosecurity monitoring and monitoring for WIWDS. She worked along with Andrea and advisors to produce educational material for the project. Natalya organised and participated in training workshops for biosecurity, bird monitoring and the BirdSleuth Caribbean. She also coordinated the execution of the Caribbean Endemic Bird Festival, with particular focus on the West Indian Whistling Duck in 2015 and 2016. Natalya conducted stakeholder interviews and surveys among local stakeholders. She also conducted a series of field trips with schools and technical staff from the Department of Environment. She is currently employed by the Environmental Awareness Group as Coordinator of the Offshore Islands Conservation Programme.

Andrea Otto – Age group 35 – 44 years. Andrea received CLP Alumni training from Natalya Lawrence. Andrea conducted a significant amount of research to aid in the execution of our project. She helped to review project reports and was instrumental in testing survey methods for WIWDS. She also played an integral part in the educational

outreach, media releases, and bird identification training. Andrea is currently a lecturer at the Teacher Training Department but continues to survey birds with Natalya on mainland and offshore island sites.

Tahambay Smith – Age group 35 – 44 years. Tahambay has led the bioseucurity arm of the project and has conducted biosecurity training of local volunteers. They learnt how to identify pathways by which IAS can be introduced to an island, protocol to follow to minimise the likelihood of IAS introduction, identification of IAS presence, methods to remove IAS from the site. Tahambay has also assisted with monitoring for WIWDs. Currently, Tahambay is employed as a tax collector, but still devotes much of his time to conservation, including volunteering on a new grant aimed to expand and improve habitat for birds on offshore islands.

Sean Lee – Age group 35 – 44 years. Sean has significantly contributed to this project through his bioseucurity work, keeping islands free of IAS. He has also supported the training and capacity building of local volunteers to do the same work that he executes. He has also assisted with monitoring for WIWDs. Currently, Sean is employed as a Delivery man for a pharmaceutical company, but still devotes large amounts of his time to conservation, including volunteering on a new grant aimed to expand and improve habitat for birds on offshore islands.

Victor Joseph – Age group 45 – 54 years. Victor originally formed part of the WiWD survey method testing. However, due to unforeseen circumstances, Victor could no longer contribute to the execution of the project. Victor did participate in the CLP training with the rest of the team. The team still continues to monitor wildlife, including WIWDs and Victor has shown a keen interest in our activities, but has not been able to participate in recent times. However, he has noted that opportunities do arise during his job as a teacher to continue to raise awareness of the WIWD among youth.

Section 2: Overall Goal:

Prevent the Extinction of the Vulnerable West Indian Whistling-Duck (WIWD) in Antigua.

Project Purpose:

Ensure the survival of West Indian Whistling-Ducks through providing safe and secure breeding habitats on Offshore Islands in the North East Marine Management Area (NEMMA).

Objectives:

- Objective 1: Suitable WIWD forest habitat is maintained on priority islands.
- Objective 2: Island users know and comply with measures to minimise disturbance on Offshore Islands allowing WIWD to remain.
- Objective 3: Priority WIWD breeding sites on the offshore islands are kept free from harmful IAS.

Changes to Original Project Plan:

 The original four project objectives were rewritten and compressed into three objectives (<u>please see Logical Framework submitted to Julie Lewis</u>), however the overall activities and goal remained the same.

- As part of the monitoring of WIWDs, the team hoped to used mist nests and banding as a means of monitoring them. However, as the team met with our advisors, it was determined that mist nets were not suitable to capture the birds given the windiness of the islands and the size of the birds. Further, given the duration of the project and the unavailability of a licensed bird-bander, the team decided to postpone any attempt to band the birds. As the team now has this expertise available, banding can be tested in the near future.
- The NEMMA, the primary project site, is a marine reserve declared in 2005. It is an area of outstanding natural beauty and of significant ecological value. Soon after the commencement of our WIWD project, the newly elected government signed off on a deal with investors from China which would allow for major development within the NEMMA Marine Reserve. This led to uncertainty for the project team as we were unclear of the extent of this development. Both reports from the Fisheries Division and the Department of Environment have indicated that the development in its current form contravenes regulations in the Fisheries Act and the legislation for protected areas in the Environment Protection and Management Act. Despite assurances from both the Minister of Environment and the Prime Minister of the country that development will not pose significant risk to the habitat within NEMMA, the Chinese developers have gone ahead and removed out huge swathes of mainland coastline and had even removed significant vegetation on one of the team's key islands, Rabbit Island. The team lodged a formal complaint with the Department of Environment, but it is still evident that for us, there is uncertainty, concerning the extent of development. Notwithstanding this, the team has re-evaluated sites for monitoring and proceeded to work on islands that are open to the public. Additionally, due to this proposed development, the educational component of our work became more urgent and was pursued vigorously by our team.
- Our project started off well on track. However, a series of natural events hampered the execution of some project activities. Our offshore islands are all only accessible by boat and unusually high seas and gusty winds impacted our ability to carry out activities including outreach field trips, monitoring trips and biosecurity trips. Concerning the field trips, several had to be rescheduled multiple times, with some ultimate cancellations.

Methodology:

Objective 1: Suitable WIWD forest habitat is maintained on priority islands

Data Compilation: The project team first compiled data to understand the historic sightings of WIWDs on the offshore islands. These islands were visited regularly during the project period and team members interacted with visitors, passing on our knowledge on the value of the offshore islands as key nesting sites for WIWDs and other vulnerable wildlife.

Informal meetings and Interviews: The team interacted with stakeholders within the NEMMA including tour operators (Antigua Nature Tours, Adventure Antigua and Paddles Kayak Adventure) and local fishermen who plied their trade in the same area. The dialogues had a two-fold impact in that these stakeholders were able to learn about WIWDs and their significance as a Vulnerable Caribbean Endemic. Secondly, these persons would also become our 'eyes and ears' in the field, being able to report on any destruction of habitat that might take place. Meetings were also held with villagers who lived near the project site. It was during these meetings that Mr. Ferrance was discovered. He raises and releases WIWDS. An article was written about our meeting with Mr. Ferrance and can be found here.

Educational Outreach: It was good to meet with stakeholders within the NEMMA, but there are many persons from outside the area who visit the offshore islands for leisure. These are recreational campers and recreational fishers, or persons who are just in need of a "different scene" to relax or have an event. The team made several television appearances, and published several media releases to raise awareness of the WIWDs and their habitat on offshore islands. Public events were also held including the celebration of the Caribbean Endemic Bird Festival (CEBF) in 2016 and 2017, and the feature for the CEBF events was the West Indian Whistling-duck. The team also attended several fairs, including the Arbour Day Fair put on by the Department of Environment, where they shared information about WIWDs and offshore island habitats with the fair's patrons.

Objective 2: Island users know and comply with measures to minimise disturbance on Offshore Islands allowing WIWD to remain.

Educational Outreach: The methodology employed was the same as mentioned in Objective 1. Further, the team dispatched 200 surveys to find out what people knew about WIWDs and the threats that they faced. In some cases, the surveys allowed the team to interact with persons from various parts of the country, giving them information on the WIWDs following the completion of the surveys.

Objective 3: Priority WIWD breeding sites on the offshore islands are kept free from harmful IAS.

Monitoring: The project team conducted regular biosecurity checks on the islands, ensuring that there were no indications of the presence of IAS particularly rats, mongooses, dogs or cats. Additional volunteers were trained to detect and eradicate any IAS. Refer to Outputs and Results Section for details.

WIWD data was collected during the project period and methods to monitor WIWDs were tested. The monitoring protocol for the birds was shared with trainees and government stakeholders.

Educational outreach: The project team held a series of meetings, conducted interviews, held town hall meetings, produced and distributed educational material including branded pens, pencils, posters, post cards and stickers. Field trips were taken to the project site with schools, community groups and with government agencies (Department of Environment and Ministry of Tourism – at no cost to CLP).

Summary of Objectives, Activities and Outputs

Activities	Comments	Outputs
Objective 1: Suitable	WIWD forest habitat is maintain	ned on priority islands
1.1 Finalise a WIWD monitoring protocol, and implement monitoring so that results obtained can be used to influence policy-makers in the use of the duck-habitat.	Andrea Otto and Natalya Lawrence met with advisor, Joseph Prosper to discuss protocols that had been used to monitor WIWDs on the mainland, and to discuss methods that could be tested to monitor the ducks on offshore islands. Andrea and Natalya met several times virtually with the other project advisor, Dr. Lisa Sorenson of BirdsCaribbean, also to discuss monitoring	 Point count data sheets Interview data Monitoring Protocol

Comments	Outputs
protocols to be tested.	
The surveys (Point counts, nest searches, interviews, and fly-over point counts) were conducted and in some instances were overseen by team advisor, Mr. Joseph Prosper.	
Team members Andrea Otto and Natalya Lawrence also joined and met with the WIWD regional working group, a sub-group of BirdsCaribbean to learn from and share with regional counterparts concerning WIWD conservation.	
Status: Completed During the project period, the project team has noted any activity that would jeopardize both WIWDs and their habitat. This included illegal clearing of land on two offshore islands (Rabbit and Guiana) and nearby mainland coastal habitat. Photo documentation was sent to the relevant authorities and site visits were conducted by them (Fisheries and Environment Department). In the case of Guiana Island, a multibillion dollar development	Communications to the Development Control Authority, Fisheries Division, and the Department of Environment
	protocols to be tested. The surveys (Point counts, nest searches, interviews, and fly-over point counts) were conducted and in some instances were overseen by team advisor, Mr. Joseph Prosper. Team members Andrea Otto and Natalya Lawrence also joined and met with the WIWD regional working group, a sub-group of BirdsCaribbean to learn from and share with regional counterparts concerning WIWD conservation. Status: Completed During the project period, the project team has noted any activity that would jeopardize both WIWDs and their habitat. This included illegal clearing of land on two offshore islands (Rabbit and Guiana) and nearby mainland coastal habitat. Photo documentation was sent to the relevant authorities and site visits were conducted by them (Fisheries and Environment Department). In the case

Activities	Comments	Outputs
	island and surrounding coastal mainland, but the initial clearing of vegetation, within the Marine Reserve, is prohibited and was stopped by the Department of Environment.	
1.3 Disseminate information on regulations relating to the management of the offshore island Important Bird Area/Marine Protected Area via articles and social media.	Through the supporting organization, the Environmental Awareness Group (EAG), several articles on management regulations pertaining to the North East Marine Management Area (NEMMA) have been published in the local newspaper (The Daily Observer) and on the EAG's Facebook page, assisting to raise awareness concerning the regulations governing the management of the NEMMA. This included support for and promotion of the Environmental Protection and Management Act which was passed in 2015 and gives protection to WIWDs. 5 Community meetings were held in the Seatons (x2), Parham, Freetown,	 24 published articles in the local paper pertaining to management of NEMMA, with 14 of these being written by members of the project team. Social Media posts 5 community meetings

Activities	Comments	Outputs
	and Wilikies communities to discuss regulations governing NEMMA as an IBA and KBA, and to garner the feelings of the community members concerning development.	
Activities	Comments	Outputs
•	ow and comply with measures ore Islands allowing WIWD to re	
2.1 Publish magazine, newspaper articles and educational material with information on WIWD, their habitat, their threats, and ways to conserve them.	Members from the project team have produced 14 articles, published in the Daily Observer, specifically focused on conservation of WIWDs and/or their habitat. One article was written for a local Magazine "Simply Antigua & Barbuda" Magazine. One article was written for LIAT's Zing Magazine (LIAT is a regional airline company) One article was published in the 2014 EAG newsletter. In addition to articles written, team members made several appearances on radio shows and made several television interviews.	 14 published newspaper articles 2 submitted published magazine articles (2016 – LIAT's in-flight magazine, 2017 – Simply Antigua & Barbuda) 1 published newsletter article 7 television interviews 8 radio interviews Printed educational material (infographics, pens, pencils and stickers, postcards and Posters)

Activities	Comments	Outputs
	In terms of printed material, the project team received in August 2018 educational material from BirdsCaribbean, specifically focused on WIWDs. These included posters, Wetland workbooks, colouring books and bird identification cards. This material was tailored to a select audience. The CLP team created additional material including infographics, stickers, pens and pencils. These were distributed to Secondary and Post-Secondary Aged Students, Tour operators, Fishers, and Government Technicians and Officers, private property owners on Mill Reef Club (Owner of Green, Smith, Bird and York Islands.	
2.2 Celebrate WIWDs during the Caribbean Endemic Bird Festival (CEBF) April- May 2015	Status: Completed The 2015 CEBF theme was "Restore Habitat, Restore Birds". With support from CLP, BirdsCaribbean and the Mohamed bin Zayed Species Conservation Fund (MBZSCF), the project team was able to plan and execute a successful, educational and fun CEBF which entailed a bird movie in a local school,	 Successful execution of the CEBF, featuring WIWDs as a leading theme. Two published articles in the local paper raising awareness about bird conservation, focusing on WIWDs (included in the aforementioned 9 published articles). 5 school

Activities	Comments	Outputs
	field trips to offshore islands, which are habitat for WIWDs, and a final mini-fair that heavily featured WIWD. Activities of the fair included nature photography classes, learning to use binoculars and spotting scopes, a talk on West Indian Whistlingducks, and some art exercises.	presentations. • 2 floating classrooms.
	5 school presentations and 2 floating classroom trips were also done during the period.	
	In 2016, due to the success of the CEBF event in 2015, a small grant was secured to host the CEBF activities again. The 2016 theme was "Spread Your wings for Bird Conservation". In Antigua and Barbuda, we again focussed on the West Indian Whistling-duck as the key species to highlight.	
2.3 Conduct workshops to familiarise stakeholders about the WIWD, their habitat, their threats, and ways to conserve them.	A small workshop was held with crewmen from one charter company in the early stages of the project (August 2014). Although a larger workshop had been originally planned, it was found that regarding relationship building with	Completed workshops and meetings with Fishers, Minister of Health & Environment, the Prime Minister of the country, the Fisheries Division and members of the

Activities	Comments	Outputs
	also done to try out monitoring techniques. While several interesting bird species were observed, no WIWDs were seen.	
	The workshop was very successful, and additional funding was secured to host the workshop again in 2018 (at no cost to CLP) to train more science teachers.	
2.4 Conduct Field Trips to familiarise stakeholders with the WIWD, their habitat, their threats, and ways to conserve them.	Status: Completed The project team worked with Ministry of Education, Department of Environment, the Antigua & Barbuda Defence Force, local tour operators, and the University of the West Indies¹ to host a variety of fieldtrips to the NEMMA where persons could see first-hand, the habitat of WIWD and the threats that they and other wildlife face. Following the great popularity of the field trips to the offshore islands with members of the project team, in 2018, members of	During the project period under the support of the CLP, 18 field trips were undertaken benefitting: • 351 students² and at no cost to CLP,120 persons as follows: • Accompanying teachers • Accompanying parents • Department of Environment Staff • Department of Environment Interns • Ministry of Tourism

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¹ The University of the West Indies professors visited the offshore islands and discussed the possibility of sending students to Antigua to conduct research work on these islands.

² The original proposal estimated CLP supporting the costs of 150 students. However some schools paid part of the fees to cover tour operator costs allowing CLP sponsorship to reach a larger audience.

Activities	Comments	Outputs
	the team were able to host a delegation from the Ministry of Tourism on a trip to the NEMMA. The ministry focuses much of its attention on marketing but had no recent, first-hand account of the beauty and importance of the offshore islands as well as the constant threat to their habitat and unique plants and animals.	
	The offshore islands are one of the top 5 most visited sites in the country and face tremendous pressures from heavy visitation, threat of development and the threat of (re)introduction of IAS.	
2.5 Conduct and document evaluation of educational outreach effectiveness.	Status: Completed Interviews were conducted with a variety of stakeholders who should have been exposed to public awareness outreach by the project team.	 Interview data sheets Postcard notes Evaluations from teachers who were trained
	Postcard notes were collected from students detailing what they had experienced during presentations and field trips.	

Activities	Comments	Outputs
2.6 Conduct regular site visits to offshore islands to both interact with island users as well as to monitor the condition of the duck habitat.	Status: Completed Site visits were conducted regularly by members of the project team. These opportunities arose when field trips were undertaken, and monitoring was being conducted (WIWD and biosecurity). This gave members of the project team the opportunity to interact with the island users.	 Completed site inspections Photographic data (Photographic data includes pictures stakeholders and children visiting the offshore islands and photos of WIWD habitat).
2.7 Document and disseminate findings from site visit to relevant stakeholders	Status: Started, to be completed. Stakeholders in government have been engaged through meetings and emails concerning the progress of the WIWD project. Additionally, Natalya Lawrence is now a member of the Technical Advisory Committee (TAC) ³ and was able to give a brief presentation on the project at one meeting in July, 2015.	 Meetings with government stakeholders Community meeting presentations Photographic data Data sheets submitted by members of the project team
Activities	Comments	Outputs

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³ The TAC is comprised of several government and non-government organisations which work together to ensure the efficiency and efficacy of various projects specifically focused on environmental issues.

Activities	Comments	Outputs	
Objective 3: Priority WIWD breeding sites on the offshore islands are kept free from harmful IAS.			
3.1 Regular biosecurity monitoring conducted on offshore islands that are free of invasive predators that would harm the survival success of WIWD.	Status: Completed Biosecurity checks were scheduled on a 5-week rotation. Some juggling of schedules had to be undertaken when the country faced severe air and sea conditions for several months.	 Completed biosecurity checks. Reports on the status of the restored islands. 	
	It should be noted that following the completion of the project (end of 2017 and beginning of 2018) rats were rediscovered on two offshore islands: Green and Pelican. Though this presents a setback in terms of having pristine habitat for the birds, it also presents a major opportunity as the team and our partners are working along with private land owners, Mill Reef Club, to develop and implement an island-specific management strategy for Green Island. Further, major funding4 secured through the Department of Environment to combat the problem of IAS in critical habitats allows presents our team with an opportunity restore Green and Pelican,		

⁴ Global Environment Facility (GEF) Regional Project – Preventing the Costs of IAS in Barbados and the OECS

Activities	Comments	Outputs
2.0 Diego queitu en opitorio e	develop island-specific management plans, and to work closely with volunteers and government stakeholders to keep key offshore islands free of rats and other IAS.	All lo git stations are
3.2 Biosecurity monitoring protocols regularly reviewed and adjusted as necessary to reduce risk of alien invasive species incursion.	The project team received advice from invasive species specialists, including Elizabeth Bell of Wildlife Management International Ltd. (WMIL) and Dr. Jenny Daltry from Fauna & Flora International (FFI). Points coming out of reviews were implemented and listed as outputs. A biosecurity monitoring plan for Antigua's offshore islands was also developed by the Project Leader in July 2014 with assistance from FFI and WMIL. Although funded under another grant, this plan sets out relevant protocols for the biosecurity activities in this project. Additional adjustments to biosecurity monitoring since then include use of trail cameras, inked tracking tunnels (do detect footprints) and flavoured non-toxic wax (peanut, aniseed and chocolate). Further, under the GEF	 All bait stations are at a specified height above the ground. Use of an innovative non-toxic wax block, irresistible to rats and excellent for assisting to detect their presence. Increase in biosecurity stations on some of the restored islands (Green, Pelican, Codrington and Guardhouse). All bait stations are maintained. All bait stations are mapped. Use of additional monitoring equipment and material – tracking pads, trail cameras and non-toxic, flavoured wax.

Activities	Comments	Outputs
	grant, island-specific monitoring protocols will be developed based on the specific needs of the island.	
3.3 Reports submitted immediately after each monitoring session	Status: Completed Biosecurity reports are submitted to the team leader following trips to the project site.	 Submitted biosecurity reports. Kobo Toolkit Form (in the testing phase)
	Efforts have been made to streamline the biosecurity data collection and management system, through utilisation of the Kobo Toolkit. Useful information can now easily be extracted to create graphs and chartsin a short period of time	

Summary of Threat, Objectives and Verifiable Indicators and Results

Problem/Threat	Objective	Objectively Verifiable Indicators	Results
Loss and degradation of habitat for WIWD on the offshore islands	Suitable WIWD forest habitat is maintained on priority islands	 Area of vegetation cleared or degraded in 2015 is at least 15% less than in 2013 Number of indiscriminate temporary and permanent structures constructed in 2015 is at least 15% less than 2013 Evidence of overall increase in natural vegetation biomass in priority sites (Great Bird Island, Rabbit Island, Green Island) 	- Generally, due to high traffic to the islands during long weekends, large areas are cleared to accommodate campers, especially on Great Bird Island and Green Island. This was scarcely observed during the project period. It is worth noting that the Mill Reef Club, owner of Green, York, Smith and Bird Islands have taken a greater interest in supporting the conservation of their private islands. They have implemented a no-camping without prior approval policy for their islands. Unfortunately, due to a large and illegal Chinese development operation in the marine reserve (primarily on the mainland coastline within the NEMMA), the project team came upon indiscriminate clearing of a significant track on Rabbit Island on one of the scheduled biosecurity trips (July, 2015). This was probably to allow technicians to survey the land but the true reason has never been discovered. Reports were filed with Fisheries, Development Control Authority and the Department of Environment who later conducted site visits. No further clearing of the site has been undertaken, and since then, the site has

Problem/Threat	Objective	Objectively Verifiable Indicators	Results
			 recovered well. The number of temporary structures compared to 2013 was down on Green and Rabbit and other offshore islands. On Great Bird, the number of structures normally erected for camps was also down, but on that island, moveable barbecue areas, picnic tables and a vendor's souvenir stall have been installed on both beaches. While there was no clearing of habitat, this activity is a cause for concern as it invites other threats such as introduction of IAS. The team works closely with the touroperators on the management of their tables and grills. To detect vegetation biomass increase or stability, fixed-point photographs were taken and compared to periods before the islands had IAS removed. Though enduring a severe drought, it is indisputable that the vegetation has changed for the positive following the removal of IAS.
Nests and islands abandoned by WIWDs due to severe human	Island users know and comply with measures to minimise disturbance on Offshore	- 35% of the Antiguan public are aware of the importance of the WIWDs and their Offshore Island Habitat as part of our natural heritage and contributors to our tourism product.	- The population of Antigua is just over 80,000. The project team and partnering organisations (EAG, Department of Environment, Fisheries Division and the Community Development Division) were able to reach more than 35% of the population through various means including

Problem/Threat	Objective	Objectively Verifiable Indicators	Results
disturbance	Islands allow WIWD to remain	 80% of tour-operators are aware of the importance of WIWDs and their Offshore Island Habitat and discourage tourists from venturing into bird nesting areas. 60% visitors understand, and comply with, the need to stick to marked paths in order to reduce disturbance to wildlife Sport-hunters identified are made aware of the importance of WIWD 	community meetings, training workshops, field trips, newspaper articles, television interviews, one-on-one interviews (surveys), social media posts, distribution of educational material, participation in and hosting of fairs and television and radio interviews. - At least 80% of the tour operators are aware of the importance of the WIWD. The project team regularly interacts with the wellestablished tour-operators (Excellence, Wadadli Cats, Antigua Nature Tours, Paddles Kayak Adventure and Adventure Antigua) and make note of and meet newer operators. The project team observes that tours done on the islands, particularly Great Bird Island, are always led by the tour operators. This ensures that the visitors do not leave marked paths, and the project team has not had incidences of finding any tourists off the path. - It is very encouraging to hear most tour operators interact with the guests and give accurate accounts of the wildlife that can be found on the island, including WIWDs. Further, most are familiar with the work that must be done to keep the island clear of IAS. Unfortunately, it was observed that at least one crew for one company was still unfamiliar with anything ecological about

Problem/Threat	Objective	Objectively Verifiable Indicators	Results
Invasive Alien Species (IAS) negatively impact duck populations	Priority WIWD breeding sites on the offshore islands are kept free from harmful IAS.	 80% of Antiguan residents understand that IAS have a negative impact on WIWD and other native wildlife. Biosecurity monitoring protocols established. At least 15 offshore islands kept free from invasive rats and 	 the islands and it shows the team that more work must be done as the rate of turnover of crew can be high. The vast majority of persons visiting the offshore islands are visitors to the country. Based on the observations of and interactions with tour operators, it can be said that at least 60% of the visitors stick to established paths. All the sport-hunters known to the project team have either 'converted' to conservation or shoot at newly established hunting ranges or in Barbuda. Based on the sample of surveys done, the interaction with people who meet members of the project team on the street, the community meeting, the requests for field trips and presentations, the fact that the local media houses (ABS Radio and TV and Observer Radio) consistently approach us for interviews, and given the wide
		mongooses using methods that pose no risk to native wildlife.	distribution of educational material, we believe that at least 60,000 persons or 80% of the Antiguan residents understand that IAS have a negative impact on wildlife, even if not specifically WIWD. However, the project team has been mindful of the free movement of persons

Problem/Threat	Objective	Objectively Verifiable Indicators	Results
			into Antigua under the Caribbean Single Market & Economy (CSME) and the further opening of it doors to Caribbean countries ravaged by natural disasters. This means that the population has grown substantially within the last few years, and thus, the continuation of the educational outreach is necessary. Following the conclusion of this project, a GEF-funded IAS project has been approved locally, and there is a strong IAS education component in that project. The project team contains members of the CLP team and will build upon outreach done already to increase local awareness of and action against IAS. (See Activity 3.1 for details).

Communication & Application of Results

Members of the project team have communicated the results of the project in several different fora. One member of the original project team, Natalya, and new member, Shanna, sit on the Technical Advisory Committee. Natalya and Shanna have shared their findings there. The TAC meets monthly and discusses current and future projects being undertaken locally. Besides the ability to share project work, the team has the ability to find out about and advise on any project that may affect WIWDs and other birds in the area. As an example, the Department of Environment's Sustainable Energy Project intends to install wind turbines within NEMMA. The project team brought attention to the TAC, the fact that the turbines must be bird-friendly.

Data collected from biodiversity surveys are provided for input into the national Environmental Information and Advisory System (EIMAS) so that it can be more easily utilised in decision making processes within the Government structure.

Natalya will attend the BirdsCaribbean International Conference in July, 2019 and will meet with the WIWD working group to discuss work being done in Antigua and to learn from colleagues working to conserve birds in other countries.

Monitoring and Evaluation

- Surveys were conducted to determine their level of awareness concerning the existence of and conservation efforts for WIWDs. The level of feedback outside of the surveys was also taken into account. Results from the surveys indicate that though many persons from across the country are familiar with some offshore islands, particularly Green and Great Bird, primarily the only persons that know about WIWDs are those living in communities bordering or within NEMMA. This is strange as WIWDS can be found at sites across the mainland. However, this result may stem from the fact that persons living in or near to NEMMA have an intimate knowledge of the sea and offshore islands found there.
- Habitats that were maintained or improved during the project indicated the effectiveness of educational outreach on the local population. With the exception of illegal, indiscriminate clearing of land on Rabbit Island, it could be said that the

- offshore island habitats improved or were maintained during the execution of the project.
- Maintaining 13 islands free of IAS during the project period, while identifying the presence of invasive rats on two, is an indicator of the effectiveness of the biosecurity and biosecurity training.
- The wide array of persons across the local population (teachers, children, tour operators, fisherfolk, community members, ministers of government and even external donors) familiar with our work and easily able to identify WIWDs and their regular habitats, is testament to the effectiveness of the educational outreach component of this project.

Achievements and Impacts

- Passing of the Environmental Protection and Management Act (EPMA) 2015. The historical passing of the EPMA marked a pivotal point in how our country viewed nature and wildlife. After years of persecution across the region (hunting, habitat loss and predation by IAS) The WIWD earned its deserved protected status under the EPMA.
- An Informed Society: The strong educational component of this project ensured that the general public was strategically confronted with the natural aspect of Antigua and Barbuda, through the project's work to conserve a unique duck which many persons had not initially heard of, and of which many persons had never seen. There was a new 'thing' to be proud of a rare bird that had survived on our shores. Having the Director of Agriculture specifically remark on his new found knowledge of local wildlife thanks to our work, as well as having the Minister of Health & Environment open one of our meetings showed that our work had affected every tier of society.

Here is an excerpt from one of Jepson Prince's monitoring sheet: It is with great pleasure that I write this down. I love to see when they (WIWDs) are landing and they put their 'landing gear' out. When they have landed, I love to see how they cruise on the water and the ripples this creates.

Jepson is a volunteer who began to monitor WIWD after becoming aware of our work and meeting with the team.

Closer relationships with our stakeholders: Our project caused the team to work very closely with local fisherfolk as we worked to gain their trust. We also had to work with several tour operators who supported us with subsidised prices for our transportation. As we worked hard to raise awareness about NEMMA and its importance to us in an undeveloped state, and as we worked to get Antiguans, Barbudans and other residents to become informed about nature, our team forged

many close relationships with private landowners, Mill Reef Club, and key government divisions, departments and units, particularly the Department of Environment, the Fisheries Division, the Ministry of Education and the Community Development Division.

- New wildlife stewards: Through our close working relationships with government agencies, we were able to train several committed volunteers who still continue with our team. There are five fully-trained biosecurity volunteers (Andelle Trotman, Grantley Edwards, Gita Gardner, Daryl George and Nathan Wilson) and five fully-trained WIWD monitors (Nicolette Francis, Shanna Challenger, Sophia Steele, Jepson Prince and Carmel Samuel). Further, because of Jepson's and Carmel's keen interest in monitoring WIWDs, and due to the strategic location of their jobs (both work on Long Island, a private, developed, luxury island that has a healthy population of WIWDs on it), they are able continually provide the team with current data on WIWDs found on the island. This source of information would have otherwise been difficult to procure as it requires special permissions to access the island to do conservation work.
- Restored WIWD habitat remaining free of Alien Invasive Species: Thirteen of the original 15 offshore islands remain free of invasive rats and mongooses. The project team is working closely with the Department of Environment and the Mill Reef Club to return the number of restored habitat to 15 islands, to step-up biosecurity on particularly susceptible islands, and to manage the islands for the benefit of WIWDs, other wildlife and people.
- The interest in Floating Classrooms and other Field Trips: Floating Classrooms were and still are heavily demanded. Following the support of this grant, The Sandals Foundation approached us to submit a proposal that would completely cover Floating Classroom costs for 2016. The proposal was approved for mid 2016 mid 2017.
- A source of Pride: In Antigua & Barbuda, conservation work is generally seen as a hobby pandered to by rich, expatriates. Members of our team have been praised and congratulated publicly for our work, bringing knowledge to the residents that Antigua & Barbuda is more than just beautiful beaches. Another expressed source of pride is that the team that is conducting this work, looks like every other Antiguan & Barbudan.

- Additional Support:

In addition to the great support provided by CLP, BirdsCaribbean provided the project team with technical advice, monitoring equipment, educational material and bird monitoring training. Their support, particularly their in-kind contribution far surpasses the \$5,800 listed in the original project document.

Other persons have taken great interest in our conservation work as well. Please see excerpt from correspondence from Mr Herbert Raffaele, author of the Birds of the West Indies Guide:

I appreciate the intensive work you are doing to promote conservation awareness in Antigua/Barbuda, especially with the challenges created by Hurricane Irma. To that end, I am writing to let you know that the Cape Cod Bird Club (CCBC), of which I am a board member, is starting up a small fund in support of bird conservation in the Caribbean. Needless to say, your work on the Barbuda Warbler, W.I. Whistling-Duck, and general conservation awareness immediately came to mind.

Capacity Development and Leadership Capabilities

The CLP training was most invaluable to the project team. The team continues to refer to the training material received particularly as we desire to give a poignant account of the conservation of WIWDs. All the team members have gained an appreciation for uses of the media in getting the story across. Through the training, they have also learnt how to be personable and speak the language that the citizens understand. Further, the team learnt that if links of importance are made between the object for conservation and the receptor's well-being, then it is easier to gain their support for conservation.

The team members also learnt to appreciate everyone for the knowledge they possessed, their willingness to learn and share, and most of all, to publicly acknowledge persons who do little things to conserve wildlife. These public acknowledgements are greatly appreciated and encourage support from these individuals, their family, friends and community members.

Natalya Lawrence has gained further confidence in leading teams, and continues to value the skill of patience in managing many different personalities that make up the team.

Section 3:

Conclusion

While the project did encounter some challenges, there have been unmistakeable strides made in increasing the awareness of citizens, within all demographics, about the existence of WIWDs and the need to conserve them and their habitat. This increased knowledge is evidenced by the change observed following interviews: Changes in knowledge and attitude. Further evidence includes the continual requests from the media houses and positive comments publicly made by senior members of government and government officials in particular.

While Antigua & Barbuda seeks to be environmentally responsible, it dances a difficult balancing act of finding the happy medium between development and conservation. Although the EPMA has been passed, international treaties have been signed on to, sustainable energy is now the talk of the day, and bans for plastic bags and styro-foam have been issued, the country must still find ways of bringing in investment. Thus the struggle to keep marine reserves such as NEMMA in a natural state continues. There were obvious struggles for the project team as they faced and dealt with the uncertainty of mass destruction of the Marine Reserve while all the relevant recommendations proffered by the ministries were ignored in the name of investment and job creation. Notwithstanding, the team and its partners continue their work to educate the public and to gain their trust and support.

During the project period, sightings of WIWD were low compared to past observations by members of the project team, and from data collected from the questionnaires – all persons who have seen WIWDs indicate that their numbers are lower on offshore islands than what they can remember. The next step for the project team is to determine why this is so, and this may just be the opportune time to incorporate banding into our monitoring.

Problems Encountered and Lessons Learnt

Problems

- Adverse Weather Conditions (Part 1) meant constant rescheduling of the activities had to be done and this was further complicated by the fact that team members had full-time work outside of the project which made rescheduling of some activities tricky:
 - Gusty winds made working on the islands tricky as there are some cliff areas.
 - Rough seas hampered travel to the islands. (The offshore islands are only accessible by boat).

- Adverse Weather Conditions (Part 2).
 - The country is facing the worst drought in our recorded history, now in its 6th year. (see:
 - http://www.antiguamet.com/Climate/DROUGHT_PRECIP_STATEMENTS/2016/D roughtPrecipStmt_Mar2016.pdfThe current drought, which started in July 2013, is the worst on record. It is now the longest drought on record, surpassing that of 1964 -1967. Of the 71 droughts on record, it has the greatest rainfall deficit of 1168 mm (46 in).
 - It is believed that this drought is a major contributing factor to lower numbers in biodiversity inventories, including that of WIWDs. (in previous years at a similar time of the year, greater numbers of ducks were observed while conducting other conservation work).

Photographic Data:

- Disappointingly, photos of WIWDs on the offshore islands were difficult to capture. The project team does have photos, but the ducks are quite skittish and fly away if approached. Thus, the higher quality photos captured during the implementation of the project were on the mainland, on a resort where the ducks are more accustomed to people.
- Fishers were initially wary of our presence, perceiving us to belong to an
 unpopular fisheries organization even when we sported project t-shirts and
 identified ourselves. Many were initially unwilling to speak to us, and few
 permitted us to photograph them.
- Low count numbers on some islands (Since 2015, the country has been in a drought crisis, the worst on record since five and a half decades ago. West Indian Whistling-ducks are wetland birds and though most of the offshore islands do not have wetland features, it is known that the ducks nest on the islands and forage and seek their water supplies on the mainland. With almost all the mainland wetlands being dried up, WIWDS were known to congregate in large numbers at three of the few remaining wetlands Potworks Dam and McKinnons Dam and Bethesda Dam (Prosper et al pers. Obs. 2016). During the project period, WIWD sightings on some islands were extremely low compared to sightings in previous years (Lawrence 2016 pers. Obs.). This was very frustrating for the team. A correlation was made between the weather and the lower sightings of WIWDS on offshore island.
- Disconnect from nature: Some residents were still unable to make a connection between healthy ecosystems and healthy lifestyles and even healthy ecosystems and improved tourism product. With development real and happening in a marine reserve, while some people vocalised their concern for nature, including WIWDs that make the reserve their habitat, a few were less understanding and arrogantly and ignorantly chided that the birds would find somewhere else to live.

Lessons Learnt:

- Have at least one person on the team with project management skills. The
 whole team benefitted from training provided by the CLP and this proved
 extremely helpful over the course of the project.
- Keep the relevant authorities informed and involved in project activities in order to garner their continued support.
- Be flexible. In our situation, it was often better to meet stakeholders on their job site than to get them to meet us in one central location. We initially planned for a large workshop but realized meeting fishers in their groups on the coast, or tour operators on their boats was very effective at this stage of our relationship with them.
- In preparing a proposal, be thorough, in all aspects. In listing assumptions, our team overlooked the possibility that the government could change, which it did, and all the related implications that came along with it:
 - Changes in the organization of Government Ministries.
 - A different manifesto with a different mission.
 - Re-establishing connections and building new relationships.
- Publicly acknowledge and thank those who voluntarily assist or support our conservation work.

In The Future

Team members, mentors and partners such as the EAG continue to assist in bringing attention to the destruction of fragile habitat in NEMMA by developers. Adding to the education and public awareness conducted under CLP, we hope to provide persons with all the facts, positive and negative, about the current development, empowering them to speak out and defend their right to intact healthy ecosystems that continue to provide valuable ecosystem services.

WIWD continue to be included in monitoring conducted by EAG with support from team members and data management continues to be improved so that it is more efficiently informs decision-making.

Greater attention will be paid to decision makers, Ministers in public awareness efforts as it is clear that they do not place sufficient value on the country's biodiversity.

Financial Report

Itemized expenses	Total CLP Requeste d (USD)*	Total CLP Spent (USD)	% Differe nce	Details & Justification (Justification must be provided if figure in column D is +/- 25%)	Proposed Spending (Preliminary Report Only)
PHASE I - PROJECT PREPARATION					
Communications (telephone/internet/postage)	400.00	394.12	-1%		
Field guide books, maps, journal articles and other printed materials	100.00	48.79	-51%	Field guides donated by BirdsCaribbean	Request reallocation to final to workshop?
Insurance					
Visas and permits					
Team training	60.00	47.24	-21%		
Reconnaissance	550.00	496.37	-10%		
Other (Phase 1)	300.00	276.84	-8%		
EQUIPMENT					
Scientific/field equipment and supplies	670.00	35.71	-95%	Change of some methods, 2. equipment donated by BirdsCaribbean and private entities	Request reallocation to the CEBF and to workshop?
Photographic equipment					
Camping equipment	490.00		-100%	Camping was no longer a requirement, due to survey methods employed	Request reallocation to final to workshop?
Boat/engine/truck (including car hire)	140.00		-100%	BirdsCaribbean provided all the material and thus the local team handled training.	Request reallocation to final to workshop?
Other (Equipment)	100.00	100.14	0%		
PHASE II - IMPLEMENTATION					
Accommodation for team members and local guides			·		

Itemized expenses	Total CLP Requeste d (USD)*	Total CLP Spent (USD)	% Differe nce	Details & Justification (Justification must be provided if figure in column D is +/- 25%)	Proposed Spending (Preliminary Report Only)
Food for team members and local guides	1,000.00	1067.63	7%		
Travel and local transportation (including fuel)	8,050.00	8657.47	8%		
Customs and/or port duties	100.00		-100%	Customs and port duties included in the cost of printing (line 23)	
Workshops	675	1291.40	91%	Reallocation requests from Underspent Budget lines	
Outreach/Education activities and materials (brochures, posters, video, t-shirts, etc.)	1,300.00	1632.61	26%	Customs and port duties including in the cost of printing	
Other (Phase 2)					
PHASE III - POST-PROJECT EXPENSES					
Administration	690.00	642.07	-7%		
Report production and results dissemination	375.00	305.40	-19%		
Other (Phase 3)					
Total	15,000.00	14,995.79			

Section 4:

See sample of appendices below, others can be retrieved from this <u>link</u>.

Appendices



Figure 1: West Indian Whistling-duck Promotional Sticker Produced Under the Project



Figure 2: Infographic Produced Under the Project



Figure 3: Members of the project team and advisor discuss methods of surveying Whistling-ducks



Figure 4: Students about to set off on a Floating Classroom



Figure 5: Project team member engages local fisherman to talk about Whistlingducks



Figure 6: Project Team Member conducts biosecurity monitoring on Green Island.



Figure 7: Trainee learning about keeping Whistling-ducks safe from Alien Invasive Species



Figure 8: Project Team member speaks to school children about offshore island wildlife including West Indian Whistling-ducks.



Figure 9: Project Team member conducts point counts from the sea



Figure 10: Project team member conducting Whistling-duck "Fly-over Counts"



EAG TALK

The Caribbean Duck



West Indian Whistling-ducks on our offshore islands. (Photo courtesy of Nick Hollands)

By Natalya Lawrence

ftentimes, when I give presentations at schools, I am amazed at that wealth of knowledge that fifth and six graders possess. We may have serious discussions on a range of topics from the different species of dinosaurs that existed, to the mating rituals of snakes.

However, I am also consistently disappointed that many of these same students are oblivious to the wildlife that surrounds us here in Antigua & Barbuda. They think that a trip to the zoo in the US is an exciting experience, but have never even heard of or seen our offshore islands, our own living wildlife sanctuary. I recall an occasion when I took students

bird-watching and one girl came back from using a spotting-scope and confidently reported that she just observed a bald eagle! It was clear that much educational outreach is still needed.

Over the last few months, with support from the Conservation Leadership Programme (CLP) and the Mohamed bin Zayed Species Conservation fund, a small team of young conservationists have executed work that would safeguard our country's biodiversity, specifically on offshore islands. Our offshore islands are extremely important as much of our endemic wildlife retreat from the pressures of the mainland and call these islands their home. CLP supported a significant portion of this work, focusing on conservation of the vulnerable West Indian

Whistling-ducks.

The West Indian Whistling-duck is one of the rarest in the world and is only found in the Caribbean. Unfortunately, its habitat is now severely restricted and the duck faces many additional threats, including

Figure 11: Snippet from Newspaper Article written by a member of the project team