BELIZE AUDUBON SOCIETY

ANNUAL REPORT 2023



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PROFILE

OUR HISTORY

The Society was formed in 1969 as a foreign chapter of the Florida Audubon Society and in 1973, became a completely independent Belizean organization. BAS is the longest standing conservation NGO in Belize charged with co-managing seven of Belize's most biologically and topographically diverse protected areas. BAS helped establish Belize's first protected area at Half Moon Caye, and now co-manages seven protected areas in partnership with the Government of Belize.

BAS is a membership organization with an elected Board of Directors. It is a registered NGO under the Non-Governmental Organizations Act of Belize 2000, and is a member of several international and local organizations.

VISION

Belize Audubon Society (BAS), is a resilient and transformative leader in environmental stewardship.

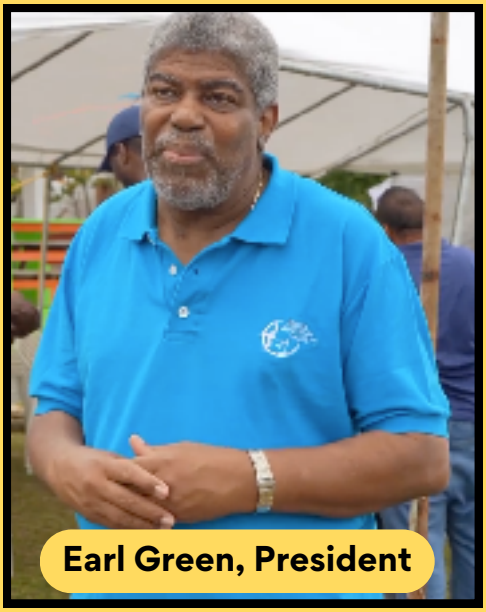
MISSION

Belize Audubon Society (BAS), is dedicated to promoting Belize's natural resources through sound environmental governance, ecological monitoring, stakeholder engagement and partnerships for the benefit of people and the environment.

PROUD MEMBER

The Voice of Belize's Protected Areas

MESSAGE FROM THE PRESIDENT


Earl Green, President

Dear Members, Supporters, Friends, Visitors,

The Staff and Board of Directors of the Belize Audubon Society take pride in presenting the 2023 Annual Report. These pages of text, photographs and pictures, can only describe a portion of a year-long period of activities carried out by the staff, doing what to them was routine.

As you sit in the comfort of your living room, imagine your-self on one of the patrols in the Cockscomb Basin. The staff conduct these patrols frequently, but the few sentences and the maps in the Annual Report cannot describe the difficulties of the trail, nor the risks and hazards encountered. The patrols conducted in the Light House Reef Atoll may appear to be less risky or hazardous. This is not so. While the land-based teams may have the support of the BDF, and the marine team is supported by the Belize Coast Guard, this is testimony to the risks our staff face. Patrols often find signs of illegal activities in the parks, which if nor followed-up, can escalate into the kind of illegal logging damage recently observed in the Columbia River Forest Reserve, or similar to the media stories of fishermen caught with large quantities of fish products harvested outside the season or from restricted areas. Monitoring for illegal activities is an activity that occurs throughout the year in all the parks.

The field staff are the face of the Society, those usually in direct contact with the public. But their achievements and success could not be accomplished without the team work and support of the administrative and technical staff. Their efforts to source funds to enable to Society to fulfil its mandate is ever becoming more difficult. Competition for funds is increasing as other entities become involved in natural resources management in Belize. This is compounded by the fact that emerging national and international regulations make it more cumbersome to access funds. Continually increasing operational costs due to inflation and other external market forces cannot be overlooked among the reasons why fund- raising is increasingly difficult. Adaptive management has now become the practice, taking different forms. From the application of smart technology to support patrols and reporting, to the regular belt-tightening to finance activities with decreasing funds in the face of inflation. The Board of Directors appreciated the proactive approach utilized by the Executive Director and her staff to enable the BAS to realize its mission.

The past year saw significant achievements including commemoration of the legacy of Alan Rabinowitz Research Centre through the facility located in the Cockscomb Basin Wildlife Sanctuary. A new management strategy is now introduced for the CBWS, resulting from the initiative of Protected Areas Director Shane Young and his team. This is an initiative to improve management efficiency while generating more income to reinvest in the park. The year also had its sad moments. While the staff of the Cockscomb Wildlife Sanctuary were closest to him, all had to deal with the sudden passing of the Site Manager, Nicasio Coc, after a relatively short illness. His employment with the Society spanned twenty-two years of growth and development, and he will long be remembered for his dedication to conservation.

MESSAGE FROM THE PRESIDENT

After reading the 2023 Annual Report, you will realize that your support is well deserved. Your support and the work of the staff helps to preserve these protected areas for the coming generations, ensuring that all visitors enjoy a rewarding experience. Please share the report with a friend or a stranger, and encourage them to become a Member.

The Staff and Board of Directors of the BAS assures all that the protected areas we manage are in good hands, and the commitment to achieve that balance between people and the environment is just as strong at fifty-four years of age.

Sincerely,



Earl Green

BOD & ADMIN STAFF

BOARD OF DIRECTORS

PRESIDENT
Earl Green

FIRST VICE PRESIDENT
Kevin Geban

SECOND VICE PRESIDENT
Vacant

FIRST SECRETARY
Rasine Gillett

SECOND SECRETARY
Janelle Chanona

TREASURER
Simon Reardon-Smith

DIRECTORS
Randal Taylor
Mariana Ancona
Francis Canto Jr.
Olivia Carballo-Avilez
Shajira Martinez
Ishmael Quiroz
Virginia Burns-Perez

IMMEDIATE PAST PRESIDENT
Ernest Raymond Sr.

ADMINISTRATIVE STAFF

EXECUTIVE DIRECTOR
Amanda Acosta

FINANCE DIRECTOR
Jose Luis Lopez

FINANCE COORDINATOR
Estellita Wade

HUMAN RESOURCES COORDINATOR
Yael Perera-Bowen

RESERVATIONS & GIFT SHOP COORDINATOR
Delia Noble

OFFICE ASSISTANT
Ryan Chan

STAFF

PROTECTED AREAS
Shane Young, Protected Areas Director

TERRESTRIAL
Johny Tzib, Protected Areas Manager (Cayo Parks)
Roberto Rivero, Protected Areas Manager (CBWS/VPNM)

Guanacaste National Park:
Steven Coc, Assistant Site Manager
Reynaldo Sho, Park Ranger

St. Herman's Blue Hole National Park:
Artexeres Sho, Assistant Site Manager
Raphael Choc, Assistant Site Manager
Pedro Bol, Park Ranger
Transito Jimenez, Park Ranger
Edgar Batz, Park Ranger
Alfonso Baptist, Park Ranger
Leonardo Chiac, Park Ranger
Yanik Moh, Park Ranger

Cockscomb Basin Wildlife Sanctuary:
Nicascio Coc, Site Manager
Deyri Oseguerra, Assistant Site Manager
Salustino Peck, RM Officer/Park Ranger
Mario Bolon, Park Ranger
Samson Tzub , Park Ranger
Jose Cerritos, Park Ranger
Selvin Bol, Park Ranger
Valentino Pineda, Park Ranger
Kelvin Cal, Park Ranger
Luis Navarro, Park Ranger
Cayetano Bol, Park Ranger
Marta Sho, Housekeeping

MARINE
Marty Alvarez, Protected Areas Manager (HMCNM/BHNM/CTWS)

Half Moon Caye Natural Monument & Blue Hole Natural Monuments:

Ramon Aguilar, Site Manager
Mordicayo Mis, Assistant Site Manager
Carlos Perez, Park Ranger/Boat Captain
Marcello Cal, Park Ranger
Michael Sabal, Park Ranger
Alex Clotter, Park Ranger
Robin Magana, Park Ranger
Brandon Cowo, Park Ranger

Crooked Tree Wildlife Sanctuary:

Derick Hendy, Site Manager
Terique Gillett, Park Ranger
Walter Perriott, Park Ranger

RESEARCH & MONITORING:

Dominique Lizama, Conservation Programme Director

Gabriela Ugarte, RM Officer, Marine
Reinaldo Caal, Assistant RM Officer, Marine
Chang-Hong Tsao, RM Officer, Terrestrial

ENV. EDUCATION & COMMUNICATIONS:

Dareece Chuc, Environmental Education & Communications Director

Lucito Ayuso, Community Liaison Manager
Miguel Sho, Environmental Education Officer
Jose Sanchez, Communications Officer

PROGRAMS

1

MEMBERSHIP



2

FINANCE & OPERATIONS



3

RESEARCH & MONITORING

MARINE & TERRESTRIAL



4

ENVIRONMENTAL EDUCATION & COMMUNICATIONS



5

PROTECTED AREAS MANAGEMENT



BELIZE AUDUBON SOCIETY

LOCATION

BELIZE AUDUBON SOCIETY CO-MANAGED PROTECTED AREAS



Main office
16 Taiwan Street,
Belize City, Belize

CREATING A BALANCE BETWEEN PEOPLE & THE ENVIRONMENT

PROTECTED AREAS MANAGEMENT



CO-MANAGEMENT DUTIES

Under the current 5 year interim agreements BAS is able to demonstrate its conservation principles through the management of seven protected areas.

Objective: To maintain the integrity of species, ecosystems and ecosystem services

I. Conduct effective surveillance patrols and enforcement.

II. Maintain tourism infrastructure and visitor safety.

III. Address threats to conservation targets.

IV. Maintain strong partnerships with public management entity, government agencies, and co-managers.

V. Build capacity among community members, enabling them to actively participate in protected areas management.

VI. Provide sound monitoring and research used inform public perceptions and management decisions.

92%

Staff assigned to protected areas

8%

Administrative and technical staff

HIGHLIGHTS IN PROTECTED AREAS MANAGEMENT

Strengthening resource protection through partnership with enforcement agency - Belize Defense Force.



Belize Audubon Society and Belize Defense Force Sign MoU to Protect Cockscomb Basin Wildlife Sanctuary

BDF/BAS sign MoU

The Belize Audubon Society and the Belize Defense Force have formally signed a Memorandum of Understanding (MoU) outlining their cooperative efforts to conduct patrols within the Cockscomb Basin Wildlife Sanctuary.

The Cockscomb Basin Wildlife Sanctuary, spanning 127,000 acres and including the Victoria Peak Natural Monument, is characterized by ridge crests, hills, and river flood plains, all adorned with tropical broadleaf evergreen forests. Initially established for its high concentration of Jaguars, the sanctuary's importance transcends the protection of this species.

BAS continued to participate in quarterly inter-agency meetings hosted by the Belize Defense Force in 2023. This relationship resulted in the signing of a Memorandum of Understanding (MOU) between the BDF and BAS for deep jungle patrols.

Inauguration of Dr. Alan Rabinowitz Research Center



The inauguration of the Dr. Alan Rabinowitz Research Center and legacy celebration service was held at Cockscomb Basin Wildlife Sanctuary (CBWS) on August 11th, 2023. The legacy celebration service was done in remembrance for the late Dr. Alan Rabinowitz who passed away in August of 2018; brining together friends, family and work colleagues to celebrate both their personal and professional reflections on Dr. Alan Rabinowitz. Dr. Rabinowitz was the driving force behind the establishment of the Cockscomb Basin with his pioneer jaguar research conducted between 1982-1984. His jaguar research work laid the foundation for a presentation to the Government of Belize leading to the establishment of the World's First Jaguar Preserve, known as the Cockscomb Basin Wildlife Sanctuary in 1986.

After Dr. Rabinowitz's passing, a group of friends generously donated funds through the wild cat conservation organization, Panthera, for the construction of a research center at CBWS in his honor.



His legacy will continue through this center, as we envision it will attract researchers from around the world and spark even more interest from local scientists/students from our universities to contribute to national data on tropical forests and ecological studies.



The cremated remains of Dr. Alan Rabinowitz was laid to rest at CBWS at the entrance of the Balum trail, where he first discovered his love for wild cat conservation.

The facility is equipped with the necessary amenities such as a laboratory, conference room, kitchen, restrooms, and bedrooms.

Derick Hendy is BTB's frontline Hero of the year Awardee 2023



Photo courtesy BTB

Derick Hendy is no stranger to BAS and the surrounding communities of the CTWS. Derick started his journey in conservation over 25 years ago. Moving up the ranks from park ranger to now Site Manager, Derick is an avid birder, wildlife enthusiast and enjoys working with children and youth through various environmental education programs.

Derick was awarded the Belize Tourism Board's Frontline Hero award for his outstanding role as a frontline personnel at Crooked Tree Wildlife Sanctuary. The Award was presented in person to Derick by **Minister of Tourism, Hon. Anthony Mahler**. His prize included cash and a weekend tour package at a local resort.

BAS Board of Directors and staff are extremely proud of Derick and applaud him for his passion and commitment to the sustainable management of Crooked Tree Wildlife Sanctuary.

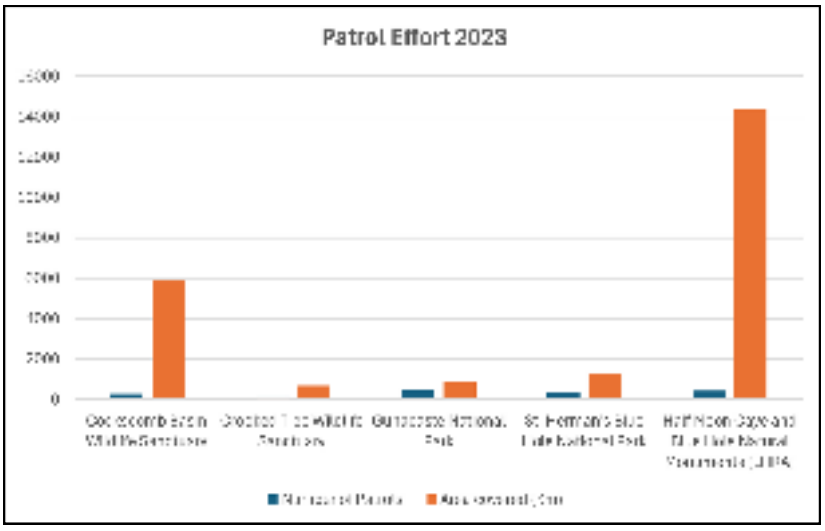
View the video here and learn more about Derick and the Award.

PATROL 101



The enforcement rangers and the Protected Areas Managers work together to plan and implement strategic patrols on a daily bases. A patrol indicates presence within the protected area and as such is an important component of resource protection. Depending on site, night-time patrols may be required. Patrols are recorded using the Spatial Monitoring and Reporting Tool (SMART) and are grouped into six categories.

1. **Surveillance** patrols focuses on monitoring and observing activities within the protected area for visitor safety and prevent illegal activities.
2. **Research and Monitoring patrols** are specifically used to collect data for field-based research and monitoring ongoing within the protected area such as bird monitoring.
3. **Joint patrols** are done collaboratively with enforcement agencies such as Tourism Police Unit, Belize Defense Force and Belize Coast Guard.
4. **Clearance patrols** are conducted to maintain clear pathways, trails and boundaries within the protected area.
5. **Reconnaissance patrols** are conducted to scout new areas not previously covered.
6. **Search and Rescue patrols** conducted with the help of search and rescue experts to recover person/s that have been reported missing or are in danger within the protected area boundary.



HMCNM & BHNM are the only sites that conduct night patrols. These are done with the Belize Coast Guard.

The site with the most recorded patrols was GNP with 462, followed by HMCNM & BHNM with 442 patrols, while CBWS recorded 298 patrols for the year. The most common categories of patrol recorded were **surveillance** and **clearance** patrols.







MARINE:
HALF MOON CAYE & BLUE HOLE NATURAL MONUMENTS



PUBLIC RESOURCE USE & MANAGEMENT



At the forefront of public resource use management are the rangers and staff posted at Half Moon Caye. They are tourism ambassadors as they provide important information to guests and ensure visitor satisfaction. They are promoters of environmental stewardship, in their care for the island, the current infrastructure and its surroundings.

Throughout the year the staff are tasked with guest briefings, collection of park fees, maintenance, giftshop sales, keeping the island clean, and ensuring that guests adhere to the regulations of the protected area.

Sustainable Tourism Plan (STP)

The development of a Sustainable Tourism Plan for the HMCNM and BHNM commenced with a series of consultations and workshops in July 2023. The participation of key stakeholders of LHRA is integral to the process. This new approach to tourism planning takes a bottom-up approach that recognizes the importance of the tourism sector and the role of the tourism stakeholders. In addition, it is not dependent only on biodiversity indicators, but uses social and economic indicators to determine carrying capacity, and linking these indicators to quality of the visitor experience.

The STP development is being done in collaboration with Zoe Walker, of Wildtracks. Participants included, National Biodiversity Office, Belize Tourism Board, and the Belize Fisheries Department. The tourism sector included tour operators from San Pedro, Caye Caulker, Belize City, Turneffe Atoll, Dangriga and Hopkins. Together they worked to develop strategies that aimed at safeguarding and enhancing these identified values, thereby benefiting both tourism stakeholders and biodiversity conservation efforts.

MARINE:

ENFORCEMENT

Surveillance and enforcement is one of the core management functions of the two protected areas management. This is achievable due to the alliance between the Belize Coast Guard, who accompany BAS rangers on daily patrols and provide vital service as patrol support, and security.

The trained BAS enforcement unit goes above and beyond to ensure surveillance are conducted in a strategic approach within Area 7 and throughout the greater Lighthouse Reef Atoll seascape.

Enforcement rangers covered a distance of **14,332.62** km within Area 7, specifically within and around Half Moon Caye, Blue Hole and the greater Lighthouse Reef Atoll (Long Caye, Hat Caye, Saddle Caye, and Northern two Cayes). During surveillance patrols staff encountered, 322 commercial fishing vessels, 2060 commercial fisherfolk and carried out 30 successful arrests, in addition to aiding in a vessel grounding that occurred at Aquarium dive site within Lighthouse Reef in November.



Under sized conch seized by rangers at LHRA



Patrol track for 2023- LHRA

PROCECUTION STATS:

- Largest fine: $55,900 for out of season undersized market clean conch, 1,118 pieces (September 30th on night patrol);

- Pending matters before the court: 6 cases, for undersize market clean conch: fishers from Chunox Village.

PATROLS	AREA COVERED (KILOMETERS)	ILLEGAL ENTRY	Joint Patorls with Fishersies Department
442	14332.62	6	2

# OF ARRESTS	# WARNINGS
30	38

TERRESTRIAL:

CROOKED TREE WILDLIFE SANCTUARY



Staff at the CTWS work towards the protection of the resources and play a key role in visitor management and patrols within the sanctuary and its adjacent landscape. They assist the R&M staff with data collecting in the field such as water level readings, bird point count and carry out various environmental education (EE) related activities. Staff maintained active presence in the CTWS landscape through various EE activities including school outreach, Bird clubs and summer programs used to impart knowledge and foster interest in conservation.

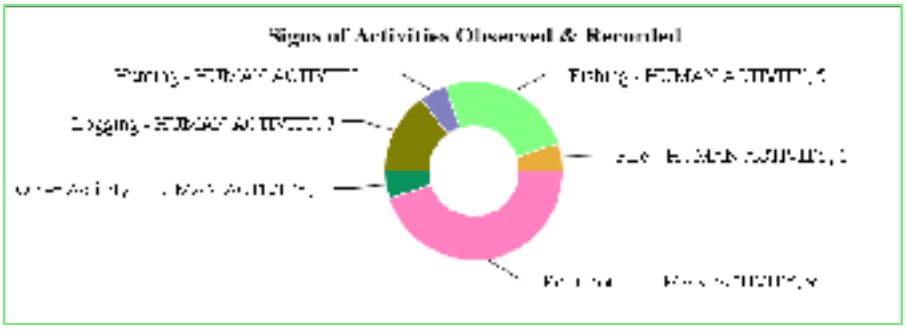


Throughout the year the PA and community outreach staff worked towards improving stakeholder relations and participation in the management of CTWS. This was done through various meetings and informal chats with key community members. The goal was to organize a Local Advisory Committee to provide an avenue for full participation in decision making and improve communication between BAS and stakeholders. Results of these meetings and discussions have already began to show improved participation from fishers and the support of the Village Council. BAS plans to continue working with the community and the National Biodiversity Office (NBIO) to formalize an MOU to foster a community based approach for the sustainable management of the CTWS.



SURVEILLANCE DUTIES:

Throughout the year 84 surveillance patrols took rangers across the CTWS landscape via boat and foot covering 667.53 Km. Human activities recorded within the CTWS are show on the chart below. These are reported to the GOB.



TERRESTRIAL:

COCKSCOMB BASIN WILDLIFE SANCTUARY AND VICTORIA PEAK NATURAL MONUMENT

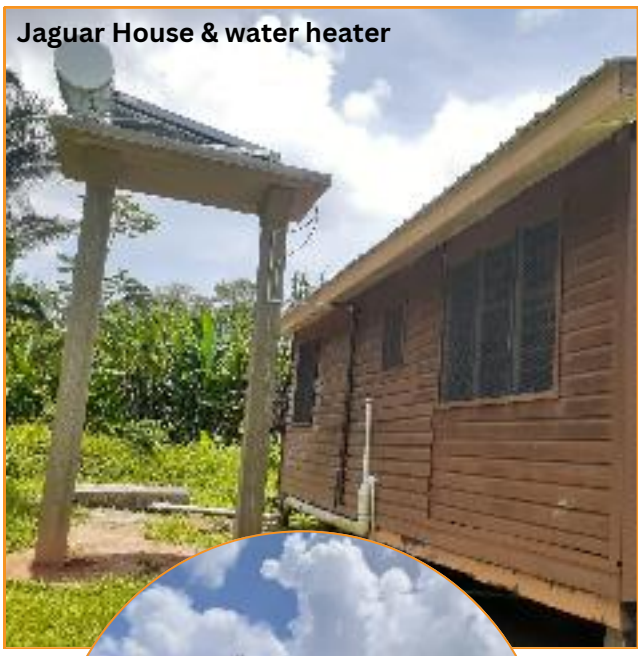


CBWS staff welcoming visitors

Park staff are actively involved in visitor management and upkeep of the accommodations on site. Visitors to the site enjoy camping, birdwatching, hiking, wildlife viewing and river tubing. In 2023 over 2400 visitors enjoyed river tubing at Cockscomb, while another 8,000 explored over 19 nature trails including hiking to the Ben's Bluff and Tiger Fern waterfall. Cockscomb received over 12,000 visitors this year of which 10,000 were foreigners.

In addition to visitor management duties, staff on site provide support for research and monitoring and environmental education and community outreach activities.

When staff are not occupied with visitor meet and greet, they are leading infrastructure related projects. This year several infrastructure projects helped to improve visitor experience and tourism services at Cockscomb. Here are a few highlights.



Jaguar House & water heater



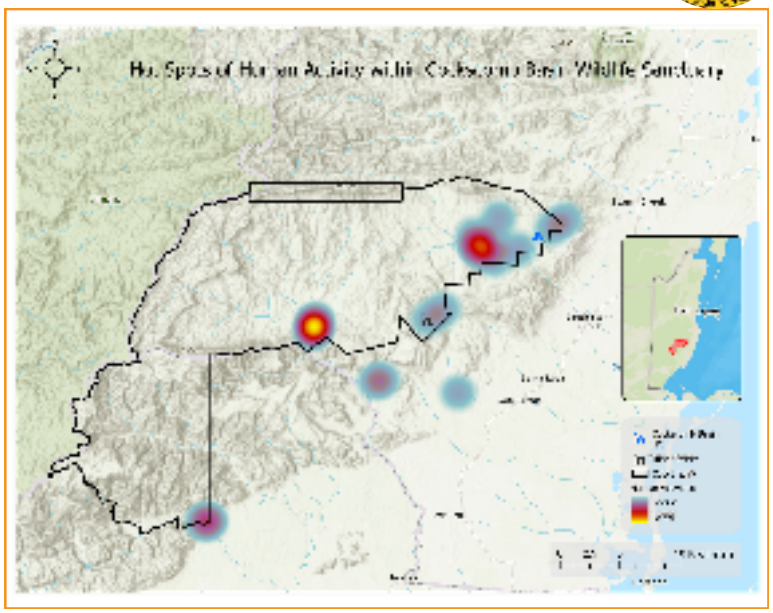
Bird watching tower

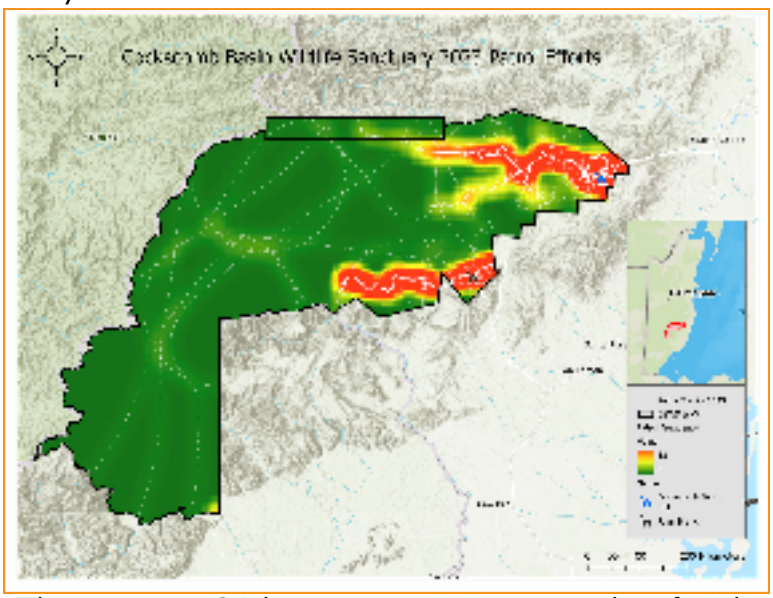
1. Construction of Birdwatching observation tower on the Royal Flycatcher trail.
2. Safety ropes and rescue equipment installed on the Victoria Peak Trail.
3. Directional Signs, trail-head maps and visitor information signs printed and installed.
4. Roof of Jaguar House repaired & water heater was removed from the roof and placed on separate structure.
5. Furniture for kitchen procured.
6. Construction of the Dr. Alan Rabinowitz Research Center and accompanying new parking lot.
7. Repairs to 12k campsite restrooms
8. Repairs to Juan Branch staff post
9. Installation of safety signs, ropes and trail improvements on Tiger Fern Tail.

TERRESTRIAL:

ENFORCEMENT

Prior to 2023, illegal activities were only observed and reported in the Mexican Branch area of CBWS. The enforcement team focused patrols in the above-mentioned area which resulted in an arrest that subsequently decreased the number of illegal activities in that area to almost zero. Rangers continued to monitor the Mexican Branch area in 2023 and again there were no signs of any incursion.

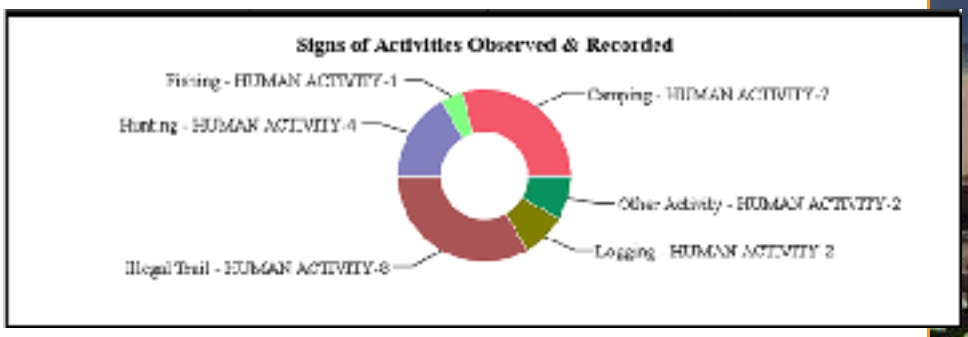




In 2023, patrol efforts were significantly increased which resulted in the identification of new areas of concern. This is a result of the strategic enforcement inclusive of several reconnaissance in areas that are thought to be easily accessible based on their geographical location. This year, there were **4 recorded** human encounters in the Bladen/BFREE and Sale Si Puede areas.

There were **21** human activity records of either hunting, fishing, logging, illegal farming, and hunting camps in areas near the South Stann Creek River. A total of **298** foot patrols covered an area of 5,865.70 km within CBWS.

Two aerial surveillance and one jungle patrol were conducted with BDF in 2023. Human activities observed during patrols are highlighted in the chart below.

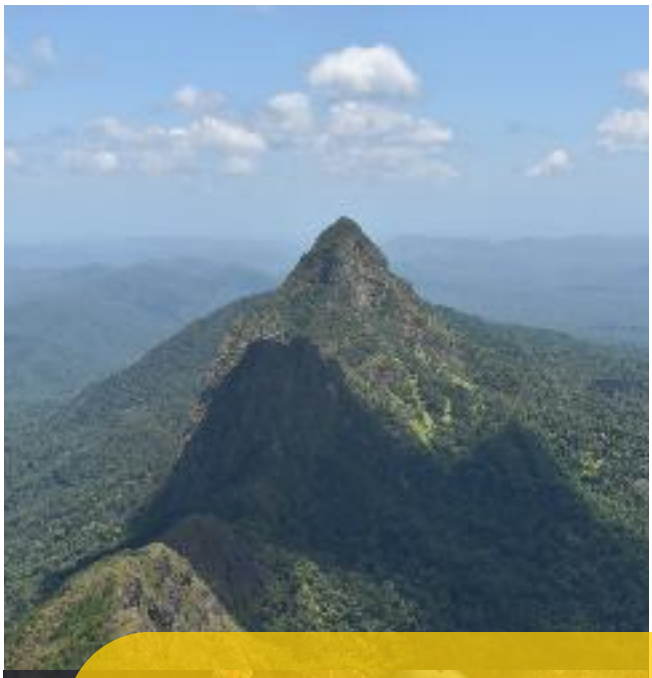




Juan Branch (pictured top-right) ranger post continues to play an important role in resource management and protection. Having presence at this particular location has helped to deter illegal activities within known hot spots at CBWS.

With the annual financial support from the **Association of Zoos and Aquariums (AZA)/Rhode Island Zoological Society (RIZS)**, the facilities, equipment and ranger presence has improved.

VICTORIA PEAK SEASON 2023



Prior to the opening of the 2023 Victoria Peak (VP) expedition season in February, staff begin preparatory work to clean the 27 km trail system.

After the trail was cleaned, staff and experts from Belize Safety and Rescue Team (BISART) traversed the trail to conduct routine inspection of safety ropes, anchors and bolts along the high elevation portion of the trail and carried a rescue basket to leave at the 24km helipad in the event of an emergency.





NUMBER OF EXPEDITIONS **11**

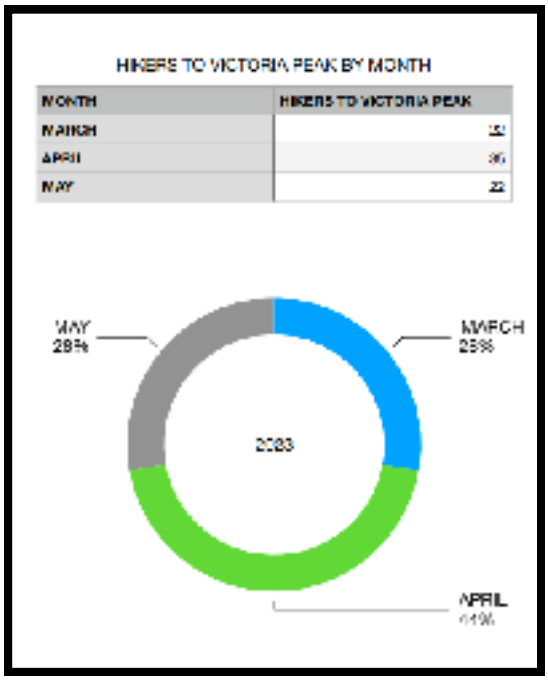
Number Hikers **74**

Number of tour guides **3**



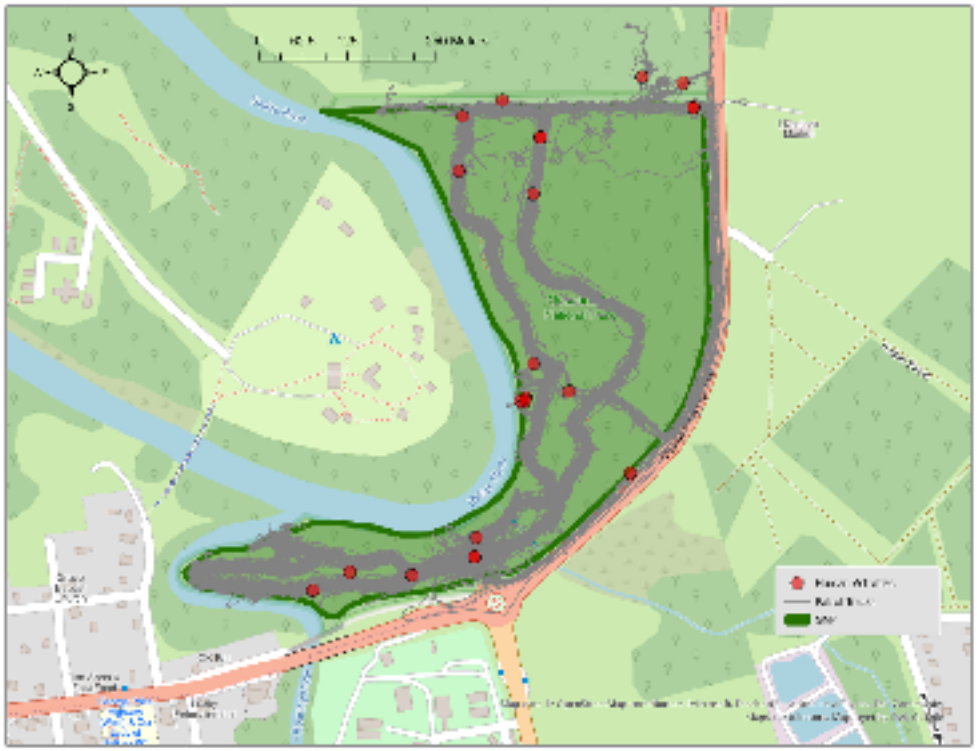
Thirteen tour guides and three staff benefited from a Rescue Evacuation and Mountaineering training held in January. This training was identified as a priority by BAS management and VP tour guides. Funding for the training was provided through the BIOPAMA project and the trainer was BISART personnel.

We are pleased to report that all 79 hikers that took on the VP challenge this year successfully summitted and retuned to base within 2-3 days without any injury. Peak time for this activity is the month of April.



TERRESTRIAL:

GUANACASTE NATIONAL PARK



GNP Location map, showing patrol tracks and human activities.

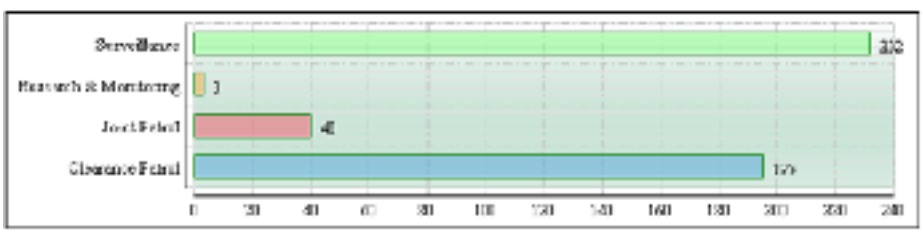
Human activities range from illegal entry into the park to evidence of foot-trails and hunting/fishing.

Strategically located at the entrance of Belmopan City, Guanacaste National Park continues to serve as a popular urban green space. Over 5,500 visitors stopped in this year to enjoy the nature trails and river views. Of those, 14% were Belizeans and another 900 Belizean primary school students visited the park, through our nature school program. Due to its popularity for visitors, the staff are kept busy with daily site duties including trail upkeep, patrols, guest hosting and assist with Research and Monitoring activities.

The most active trail at Guanacaste National Park is the Guanacaste Trail. This trail loops through the southern portion of the park and gives visitors access to an easy nature trail walk and great views of the Belize River and Roaring Creek from two elevated decks. The trail is very spacious in width, making it perfect for nature school tours. Another popular tail is The Living Cycle Trail located at the northern end of the park. Significant time was spent on upkeep of this trail to improve safety and enhance visitor experience. A section of the trial had to be rerouted to deter visitors from using a portion of the trail that had eroded.

ENFORCEMENT

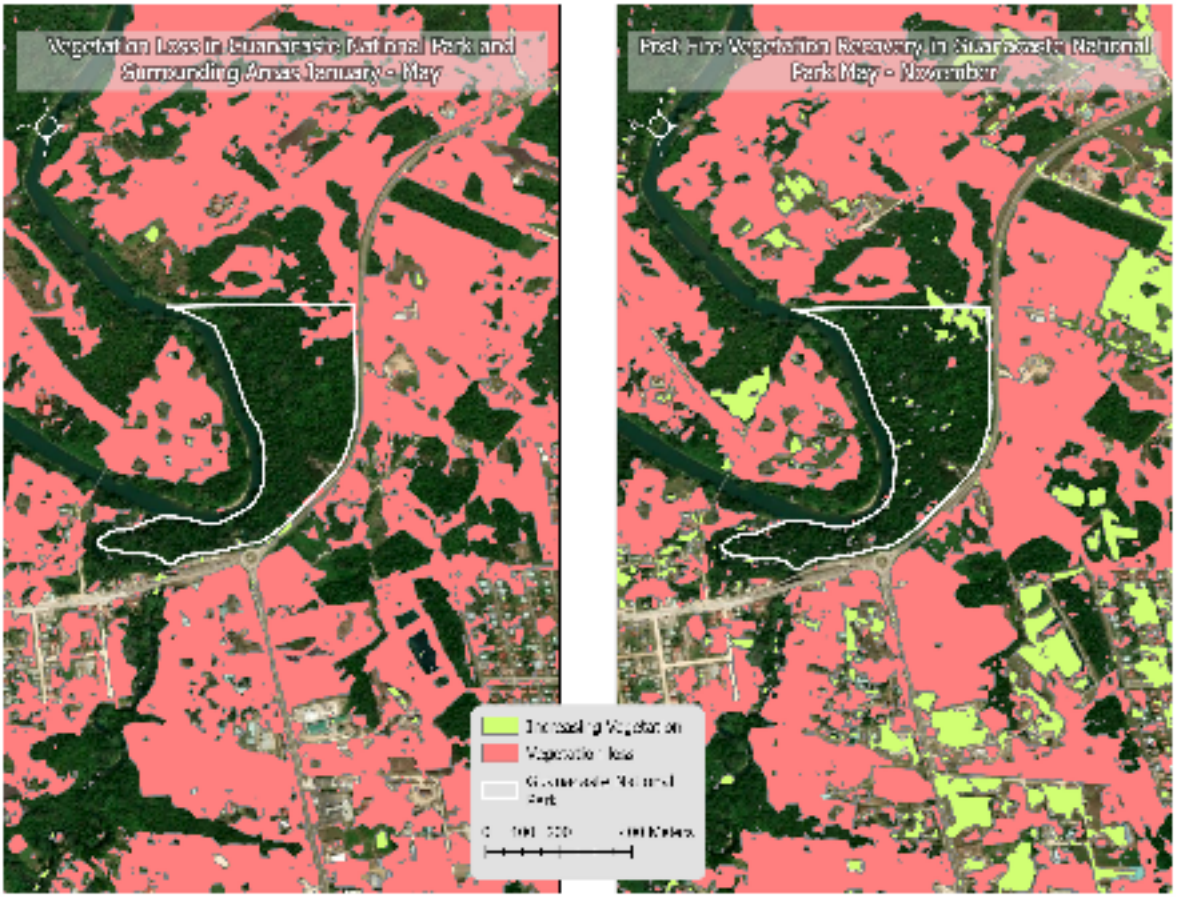
Patrols within the park take place on a daily basis with the assistance of the Tourism Police Unit. Patrols are done on foot and cover almost the entire 50 acres (see map above). Two-hundred and thirty two surveillance patrols were carried out and one hundred and ninety-five clearance patrols.



Patrols GNP 2023

TERRESTRIAL:

FIRE & VEGETATION CHANGE DETECTION



Natural disasters and fires continue to impact our work across the landscape in Belize. In April 2023, a small fire affected the Northeast portion of Guanacaste National Park. Park staff from SHBHNP and GNP with the help of the Fire Department quickly mobilized and successfully controlled the fire within a few hours. To better understand impact of fire and the change in vegetation, an analysis was done using satellite imagery. The imagery above illustrates the extent of vegetation loss from January to May.

Due to the fire in April, there was a loss of **0.975** hectares of vegetation. The other areas of vegetation loss are attributed to farming activities and development outside the park. The right side of the figure illustrates the regrowth of vegetation following the April fire. There was a recovery of **0.656** hectares of vegetation. This comparative analysis allows us to observe the park's ecosystem resilience and its ability to regenerate over time, despite the impact of the fire.



Rangers fighting fire at GNP

TERRESTRIAL:

ST. HERMAN'S BLUE HOLE NATIONAL PARK



SHBHNP is the most visited terrestrial protected area under BAS' care, with 23,245 visitors recorded in 2023. It is no secret why this park is so attractive to visitors, both local and foreign. The karst formations, the refreshing turquoise Blue Hole and the wildlife buzzing nature trails all make this an ideal stop for anyone looking for a day of adventure in the outdoors.

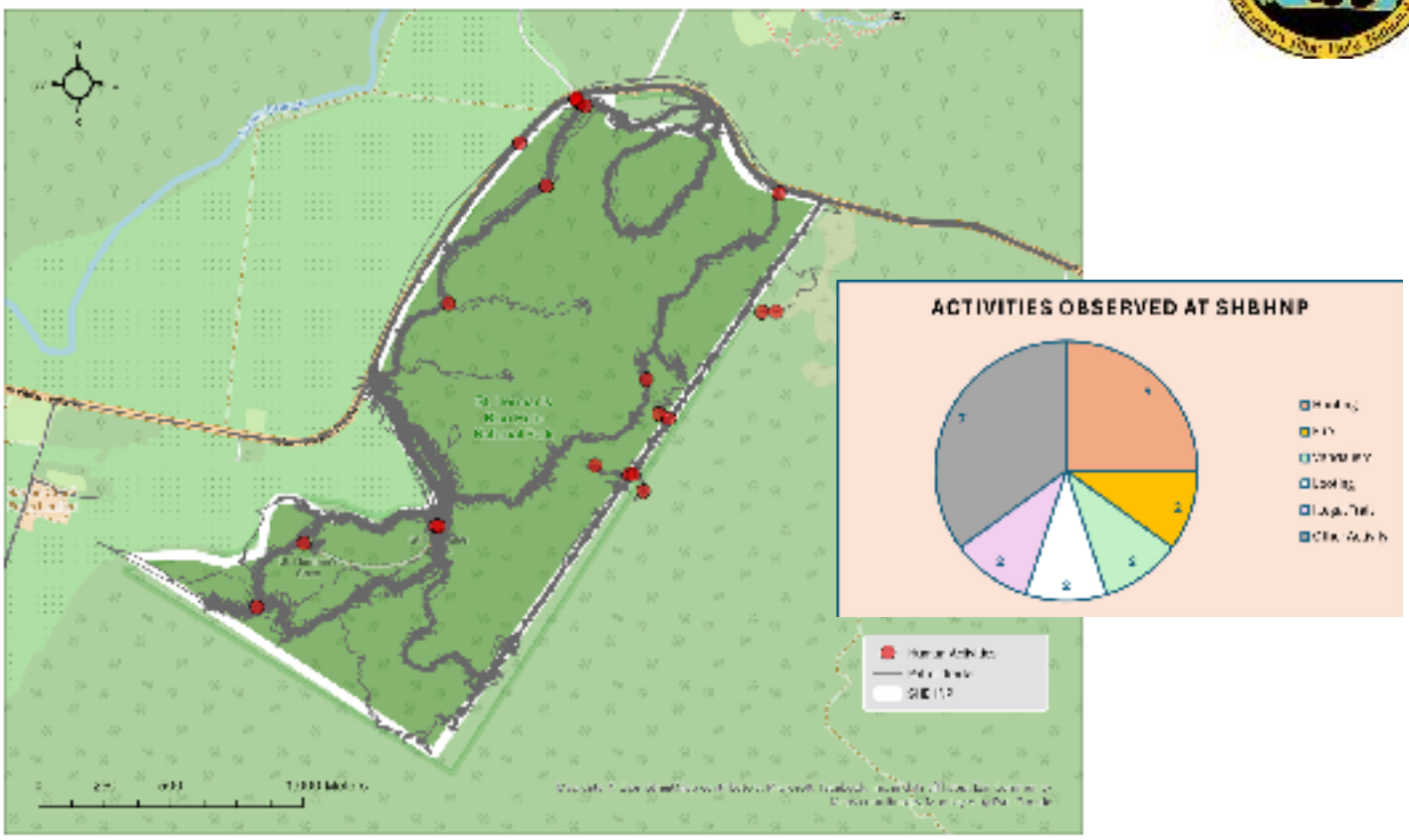
Similar to GNP, this means rangers dedicated a significant amount of time in visitor management and park upkeep duties. Not to mention the daily patrols, leading nature school tours and assisting with research and monitoring tasks and continued to provide support for stakeholder engagement.



In addition, through a formal agreement with four local your guides, park visitors can enjoy the option of a guided tour or self-guided on any day of the week.

TERRESTRIAL:

ENFORCEMENT





Patrols play a crucial role in keeping safety and order, from clearance to joint patrols alongside the Tourism Police Unit (TPU) of the Roaring Creek branch. All patrols are conducted during the day and logged and recorded using the Spatial Monitoring and Reporting Tool (SMART). Rangers conducted reconnaissance and surveillance as their presence deters potential wrongdoers while keeping a sense of security for the visitors.

Additionally, to ensure visitor safety, rangers conducted daily clearance patrols of the St. Herman's Cave entrance, Lowland Trail, and Highland Trail before opening hours. The clearance patrols aim to check for fallen trees on trails, the water level inside St. Herman's cave, and any illegal activities within the park.

Special surveillance patrols are conducted within St. Herman's Cave, and Crystal Cave. These patrols focus on ensuring that archeological sites (caves) and tour guide regulations are being adhered to.

Signs of illegal activities primarily hunting has been observed in the park, however there has been no human encounters during patrols. This is probably because hunters are accessing the park during the night. This has been confirmed by rangers on site who report hearing gun shots in the night.

STAFF TRAINING HIGHLIGHTS

Training for staff is an ongoing process at BAS. With improvement in technology and strategic changes, training becomes a priority to enable staff to match these changes with new skills and knowledge.

Training needs are often identified during annual performance appraisals and can be key in helping staff improve areas of weaknesses or areas where new skills and training are needed. Consistent and specialized training, can be key to addressing workplace deficiencies and solving problems.



Staff at CAWC census training



Staff conducting bird banding training



CTWS Staff - SMART training



Staff attending basic forest ranger training



Basic search and rescue training



VP rescue & evacuation training

Trainings help to boost staff moral and leads to improved performance and efficiency in the workplace.

TRAINING LIST 2023

1. Spatial Monitoring and Reporting Tool (SMART)
2. Wildlife first aid response
3. Fire management
4. Basic Forest Ranger
5. Bird identification and banding
6. Wildlife Ambassador
7. Victoria Peak Rescue Evacuation & Mountaineering
8. Raptor watch - Raptor monitoring and identification
9. How to effectively conduct nature school tours- intro to nature interpretation and how to use these skills when conducting nature tours
10. Basic Search and Rescue
11. Enhancing media communication skills for Protected Area managers.
12. Central American Water Bird Census- methodology and water bird identification
13. Teaching methods and lesson planning
14. Introduction to Geographic Information System (GIS)
15. Atlantic Gulf Rapid Reef Assessment (AGRRA) Monitoring Protocol Refresher
16. Spawning Aggregation Monitoring Protocol refresher
17. Environmental Data Management
18. Data Analytics using R and Excel (certificate course)
19. Project Management (certificate course)
20. Monitoring & Evaluation for Wildlife Conservation (certificate course)
21. Research Data Sharing and Management (certificate course)

NUMBER OF TRAININGS	Number of staff	In house	External training
21	44	4	17

RESEARCH & MONITORING

Biodiversity and ecosystem monitoring remain as pivotal conservation tools used to inform protected areas management. Interest from external researchers to conduct studies within the protected areas remained at a high level; however, only one study was implemented. Three long-term monitoring studies with established partners continued in 2023.

Long-term Monitoring

Annual long-term monitoring of marine megafauna at Lighthouse Reef Atoll by Maralliance	Improving Natural Resources Management in Belize through Bird Monitoring using the Monitoring survival Over Winter protocol (MoSI) in collaboration with the University of Belize Environmental Institute	Long-term landscape- scale monitoring of jaguars, pumas and their prey in Belize in Cockscomb Basin Wildlife Sanctuary in collaboration with Panthera

MARINE

Long-term reef monitoring is important and can provide critical data to help marine protected areas managers, users and policy makers understand the health of the reef, their dependence on its health and well-being, and the economic and social consequences of reef decline. Marine monitoring is conducted within the Lighthouse Reef Atoll (LHRA).

Spawning Aggregation for Nassau Grouper

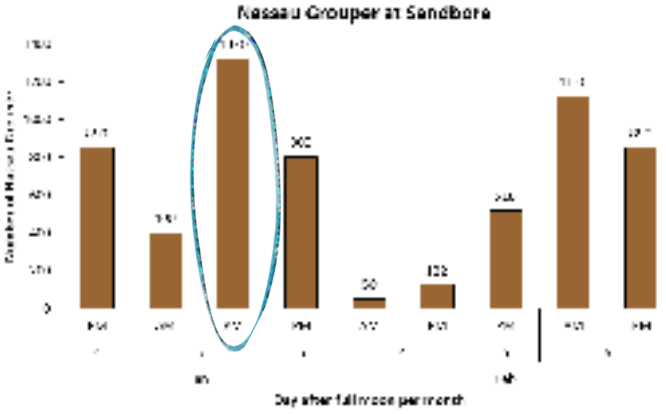
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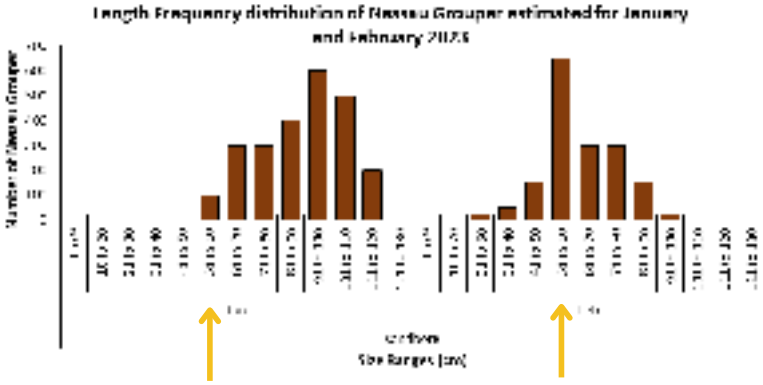
Sandbore continues to be an important spawning aggregation site within the Lighthouse Reef Atoll for the **critically endangered** Nassau Grouper (*Epinephelus striatus*). The site continues to have recordings of higher/promising count numbers. Monitoring at Sandbore is conducted Jan and Feb of each year.

Maximum count and estimated length of individual Nassau Groupers are recorded from the underwater visual census. The season's maximum count observed was in January on a PM dive, 5 days after full moon for a count of 1,320. Count is recorded for abundance and length for maturity. This observation is among the highest across the 13 SPAG sites in the country.

Sexual maturity is estimated at 50.8cm (4-5 yrs old).

95% were MATURE







Conch density survey

2

LHRA continues to serve as a thriving nursery ground for the Queen Conch (*Aliger gigas*). High demand is still resulting in the illegal extraction of juveniles and the black-market trade which continues to threaten regional populations. The conch fishing season opens on the 1st of October and closes on the 30th of June of the following year (closes earlier if quota is met). The 2022-2023's season ended early as quota was met and fishing season closed on May 14. The density is estimated at monitoring sites within the RZ and GUZ before and after the close of the fishing season. Science has indicated that Queen Conch is not reproductively mature (i.e adults) until their shell lip thickness is at least 10+ mm; and for a higher reproductive rate, density should be a minimum of 50 adults/hectare (Tewfik,2021). Fisheries regulations indicate that legal shell length is 178mm.



Key results:
Overall density in all three habitat types surveyed at samplings points across the LHRA was highest in the **sparse seagrass** within the RZ.

For both **pre and post seasons**, density of adult conch (lip >10mm) in the GUZ was far below what is required for successful spawning; however, the RZ had more than 50/ha. The GUZ had much higher density of juveniles for both seasons at 140/ha (pre) and 115/ha (post).

Overall, the results show that LHRA largely supports a juvenile population of the Queen conch.

Habitat types: (Dense seagrass, Sparse seagrass, Sandy



Lobster survey

3

In 2021, the legislation for this commercially important species was amended, whereby the season will now close on February 28 of each year. The closed season for Caribbean Spiny Lobster fishery is now from March 1st to June 30th in any year. Belize's closed season is also in accordance with the harmonized regional lobster regulation (OSP-02-09) implemented by the Organization for Central American Fisheries and Aquaculture Sector (OSPESCA). Survey is conducted within the RZ and GUZ.



Closing of 2022-2023 Fishing Season

23 sites were surveyed and **167** individuals were measured during the post season lobster survey conducted in March.



carapace length (CL)

61% (n=102) adults

adults/legal harvest at 3 inches CL



RZ or GUZ

>individuals encountered in the RZ accounting for 55% of the total.

♂♀

> males (60%) than females encountered in both RZ and GUZ.

Opening of 2022-2023 Fishing Season

24 sites were surveyed and **349** individuals were observed but only 326 measured during the pre season lobster survey conducted in June.

52% (n=105) juveniles, thus making vulnerable to fishing because majority were in the GUZ.

>individuals encountered in the GUZ accounting for 61% of the total.

> males (53%) than females encountered in both RZ and GUZ

***Replenishment Zone (RZ)=protected zone ; General Use Zone (GUZ)=open to fishing**

Seabird Census
@ HALF MOON CAYE NATURAL MONUMENT
4

The census on Half Moon Caye for resident sea birds (Red-footed Booby and Magnificent frigatebird) was conducted using a new method. Seabird monitoring across the Caribbean now uses drone instead of a transect method. Census was done March during the nesting season to capture both adults and chicks. The team conducted the census using both methods and it was concluded that data collected using drone approach is more reliable and efficient than transect survey.

A closer estimation is required to establish a range which will include birds that weren't sitting on the nest when images were taken; however, the current estimation is:



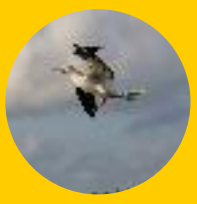
Drone flight approach

Magnificent Frigatebird



n=1346

Red-footed Booby birds



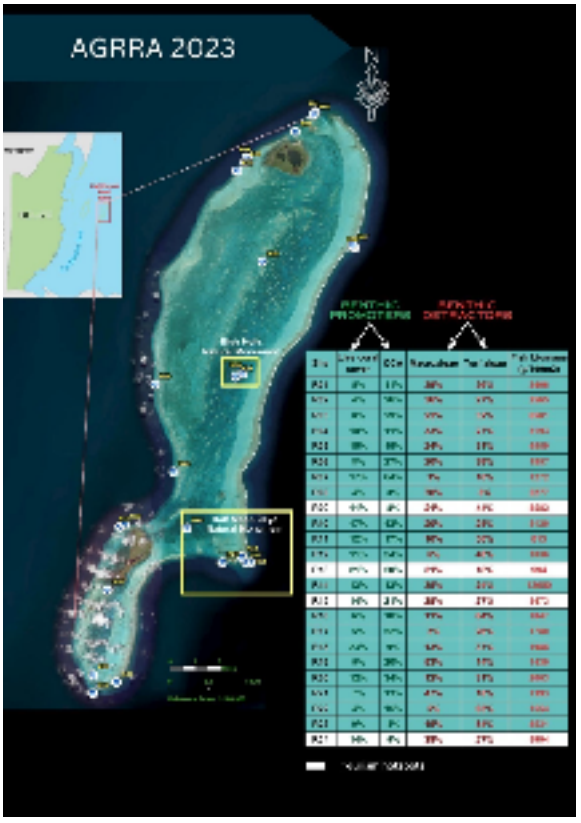
n=858



Reef Health
5

LHRA serves as an essential habitat for a myriad of marine species, supporting the livelihoods of coastal communities through fisheries, tourism, and shoreline protection.

Utilizing the Atlantic Gulf Rapid Reef Assessment (AGRRA) survey methodology, data was collected from 24 key sites within approximately 2,880 square meters of LHRA on all reef types. The assessment focused on evaluating **coral reef health, benthic composition,** and **fish biomass** to provide insights into the current state across the ecosystem.



The reef surface is covered by "promoters" – live corals and other organisms that promote their well-being and "detractors" – competitive organisms capable of overgrowing and displacing corals. *agrra.org*

live coral cover

benthic composition

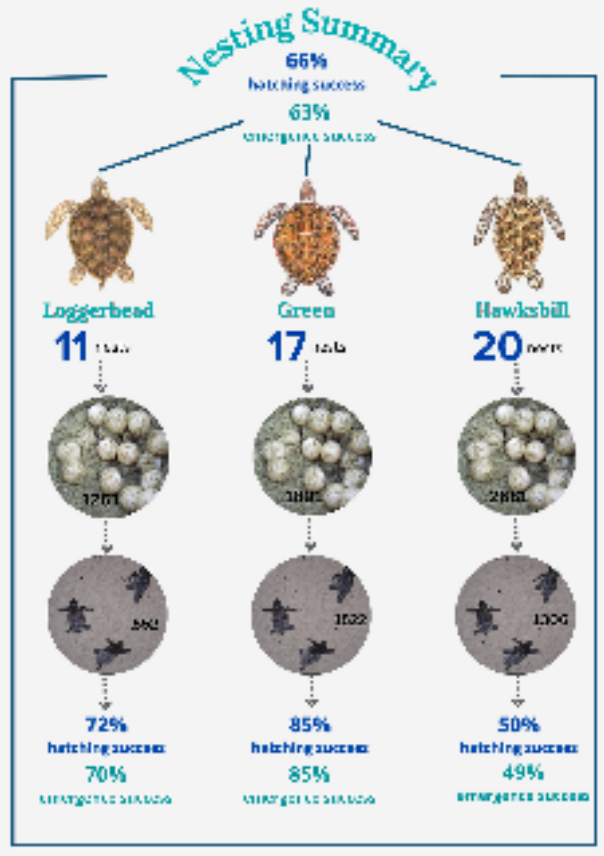
Focuses on diversity, condition, abundance, size-structure and distribution of the benthic community to understand the ecological interactions of important benthos including reef-building corals, crustose coralline algae, algae, and other sessile invertebrates. Live coral cover was low,but could be attributed to increased natural stress on corals over the last 2 years.

fish abundance & biomass

Focuses on abundance and composition of key fish species. Assessing size, abundance and distribution gives insight into understanding reef dynamics and impacts. Herbivorous fish (parrotfish) abundance was highest which correlates with an increased percentage of turf algae. Commercial species like Snapper and Grouper had low abundance.

Sea turtle nest monitoring

6





48 nests at Half Moon Caye

19 May-first nest
22 Sept-last nest



5833 eggs



3680 hatchlings

TERRESTRIAL

The forest and wetland ecosystems provide many services and functions for both wildlife and humans and as such, the interdependence must be monitored, particularly those areas that are protected. Monitoring within these ecosystems is conducted within the BAS terrestrial protected areas.

Waterbird Census

@ CROOKED TREE WILDLIFE SANCTUARY

1

BAS remains as the BirdLife partner in Belize and ensures that the Central American Waterbird Census (CAWC) is conducted annually. The five locations across the country were surveyed and resulted in 51 species and 1855 individual birds being recorded, which is a decrease when compared to last year. Of the 18 waterbird families observed, the top two bird families recorded were Ardeidae (Bitterns, Herons and Egrets) with 13 spp. and Scolopacidae (Sandpipers) with 10 spp.



The **Great Egret** was the most dominant and frequent species across the 5 locations. CTWS had the highest number of individuals (881) recorded from 24 species.

Besides conducting the CAWC, the EE and R&M staff provide environmental education to the community schools around the wetlands, emphasizing its importance for conservation during the celebration of World Wetlands Day.

Protected Area	Number of Species	Total Number of Individuals
Corozal Bay Wildlife Sanctuary	24	390
Crooked Tree Wildlife Sanctuary	24	881
Gales Point Wildlife Sanctuary	12	105
Gra Gra Lagoon	31	228
Hopkins Wetlands	18	251
BELIZE	51	1855

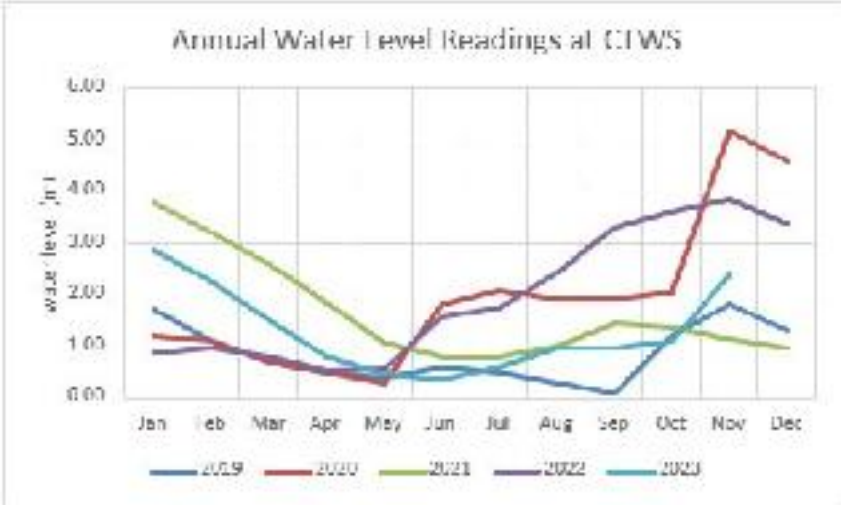


Water Level

@ CROOKED TREE WILDLIFE SANCTUARY

2

In general, monitoring water levels can have numerous environmental benefits and particularly so for the Crooked Tree Wildlife Sanctuary, which serves as sponge for excess water overflowing from the Belize River during flood events. The Metrology Office along with our rangers continue to monitor the water levels on a daily basis.



2023 displayed average seasonal readings for dry and wet seasons compared to 2022. The water level of CTWS was at the lowest for the months of June and July.

From our records, June 2023 had the lowest water level in the last 10 years. Dry seasons correlate in higher species richness for waterbirds.

2019 and 2021 was an unusually dry year across both seasons.

2020 and 2022, both had higher readings in the latter months of the year being in the rainy season and these months were compounded by heightened increase in rainfall and storm events.

Water Quality

@ COCKSCOMB BASIN WILDLIFE SANCTUARY

3

Monitoring water quality is important to ensure that it is safe for humans to drink, recreational purposes and as well to ensure it is safe for wildlife, and marine life. Water quality also help us to understand environmental impacts. Cockscomb Basin protects the headwaters of two main rivers--Sittee and South Stann Creek. Wildlife and people depend on the healthy and good quality of this valuable resource-**water**.

The **dry season** water quality monitoring at CBWS (4 sampling stations) was done in April as a follow-up to the wet season in 2022.



The **4 physical parameters** tested were:

- pH
- Total Dissolved Solids
- Salinity and
- Temperature

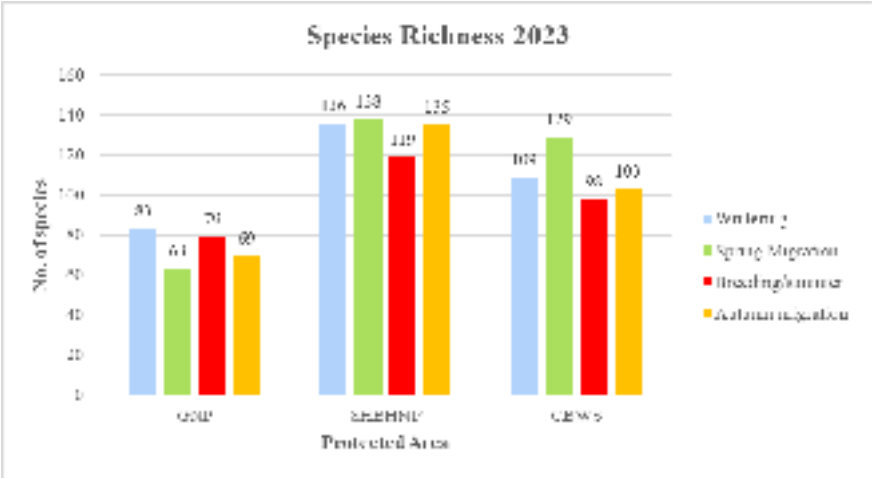
The readings were within the threshold for pH and below those for total dissolved solids, temperature and salinity. Thus, it can be concluded that the water at CBWS is suitable for freshwater organisms to survive and has a high standard for recreational purposes.

Forest Birds Surveys

@ ST. HERMAN'S BLUE HOLE
@ GUANACASTE NP
@ COCKSCOMB BASIN WS

4

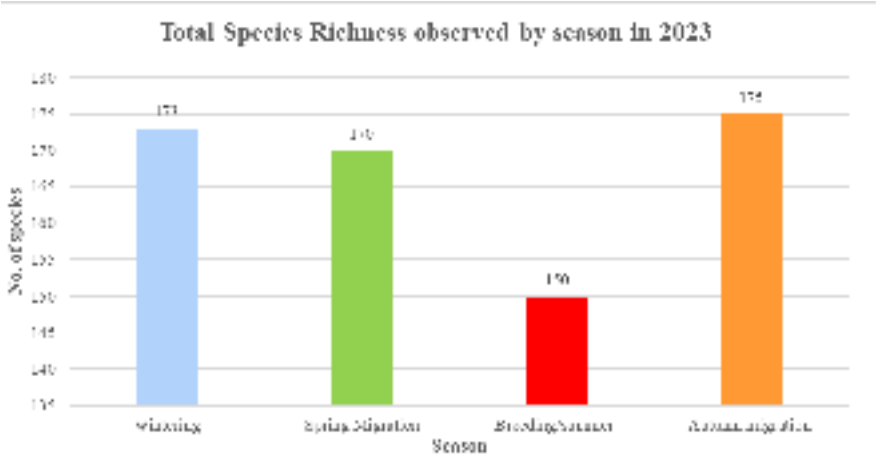
Birds serve as key indicators of environmental health and for BAS as a protected areas management organization; it's an indication of the health of our protected areas—the forest, wetlands and waterways.



SHBHNP had the highest species richness across all seasons.

Agricultural land adjacent to SHBHNP provided well suited foraging site for certain species of birds such as Seedeaters, Flycatchers, Pewee, Blackbirds, Doves, Egrets, Hawks, Wrens, Antbirds, Swallows, and Grassquit.

The transition between Autumn Migration to Wintering Season shows a similar species richness. However, the diversity decreases after Spring Migration when the migratory birds leave Belize.



Christmas Bird Count

@ BELIZE CITY
@ BELMOPAN
@ COCKSCOMB BASIN WS

6

Annually between Dec 15 and Jan 5, we participate in the National Audubon Society's Christmas Bird Count. We lead three count circles namely, Belize City, Belmopan and Cockscomb Basin. The staff also participate in counting birds at other circles across the country.

54 participants recorded **295 species** across the 3 circles!

Species Richness:

CBWS- 223

https://ebird.org/tripreport/186872

Belmopan- 187

https://ebird.org/tripreport/186873

Belize City- 204

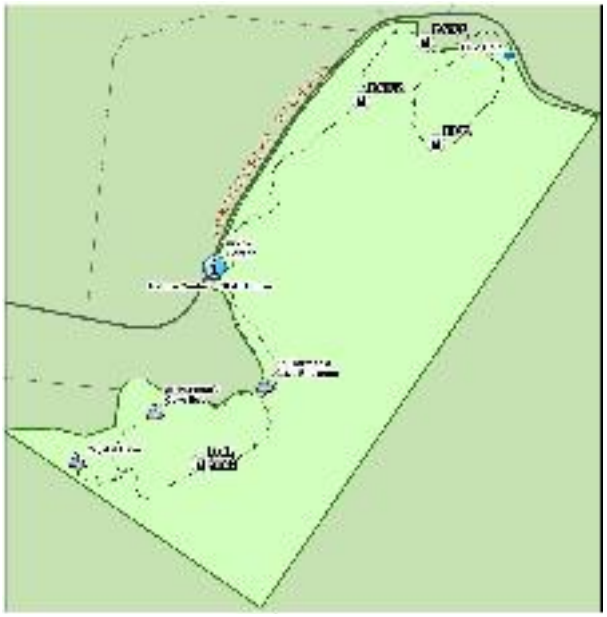
https://ebird.org/tripreport/186874



Mammal Presence
@ ST. HERMAN'S BLUE HOLE
5

Mammal monitoring was conducted at SHBHNP by the staff. Undoubtedly, mammals play an important role in ecosystems by providing/maintaining essential services and functions.

Although the site faced challenges and lost opportunities for data collection due to cameras being stolen, footage show puma, jaguar, white-nosed coati, great curassow, and white-lipped peccary were still in the park. **Puma** was the most dominant wildcat in SHBHNP.







KEY HIGHLIGHTS OF LONG-TERM MONITORING

The focus is on migrant species using Cockscomb Basin WS as wintering grounds, and checking health, fat content, feather condition, age, sex, weight, and site fidelity.



Key results 2021-2022:

- The 2021-2022 season marked the fifth year collaborating with UBERI; no monitoring was done 2022-2023
- of 68 species captured, 48 were migrants
- Highlight species only captured in Cockscomb were Golden-winged warbler and Rose-breasted Grosbeak

source: UBERI



Key results for CBWS over the last 5 years 2019-2023:

- 152 wildcats detected of which 56 were jaguars
- jaguar, puma and ocelots had highest detection rates
- >50% of jaguars detected were males
- CBWS supports healthy prey base of which white-lipped peccary, red-brocket deer and common, opossum were highest

source: Panthera

The focus is on the interdependency of wildcats and their prey species within the Cockscomb Basin landscape.



Focus is on marine megafauna at LHRA since 2007

Key results using 3 scientific research methodologies at LHRA:

- 2023 marked a record number, highest yet, of sharks tagged at LHRA over the last 20 yrs.
- Caribbean reef shark was the most frequently occurring species totaling 155 captures; Lemon shark was captured and tagged **only at LHRA**
- 1 Great Hammerhead was captured and tagged
- The average size of Nurse sharks was greatest at LHRA (Total Length=201 cm)
- Green and Hawksbill most sighted turtle species
- 2 Loggerhead turtles were satellite tagged at LHRA

source: Maralliance

ENIVRONMENTAL EDUCATION & COMMUNICATIONS



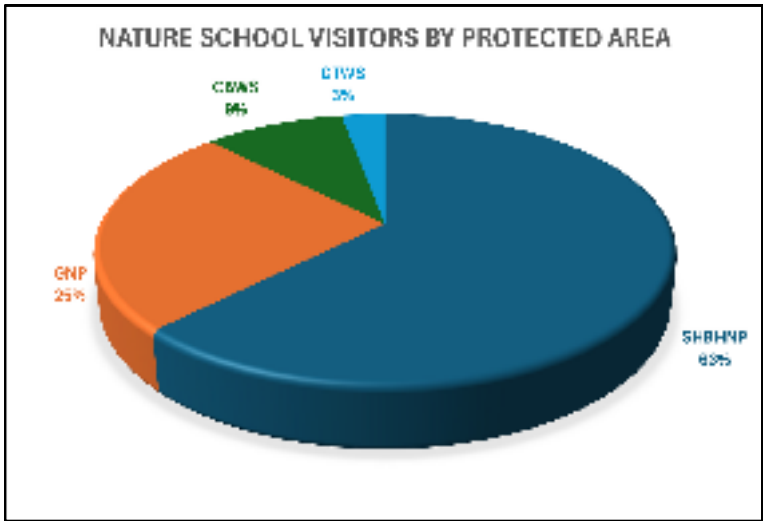
NATURE SCHOOL AT OUR PARKS

Four of our terrestrial parks continue to be used by schools from across the country to introduce children to nature conservation. This year park rangers welcomed over 3,500 primary school students from as far as Calcutta Village in Corozal to Independence Primary school in southern Belize. Nature school visitors benefit from a personal tour lead by park rangers who are knowledgeable of the unique ecosystems and natural attractions at the protected area.
Nature school season begins in February and peaks in the month of May, with the highest number of students visiting SHBHNP.

Nature school visitation stats for 2023 showed SHBHNP conducted 23 tours for 2,333 students. The total number of students who experienced a BAS co-managed site this year was 3,736. Along with the students, seven hundred and ninety-one parents visited and enjoyed the nature tours.



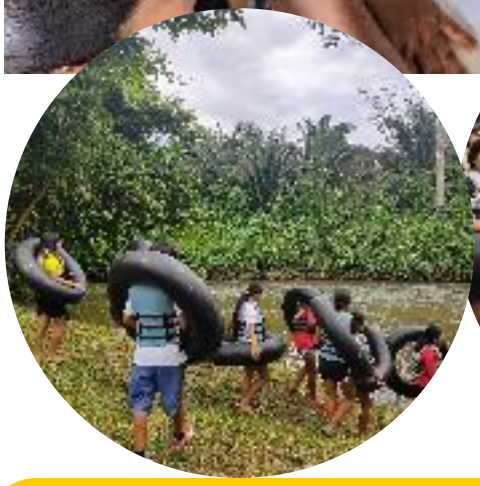
Students on tour at SHBHNP



Park rangers from SHBHNP and GNP were trained in nature interpretation in January to prepare them for hosting school groups.

AWARENESS CAMPAIGNS









WATER CONSERVATION & PROTECTED AREAS

Five water conservation workshops and river tubing adventures at Cockscomb Basin Wildlife Sanctuary successfully engaged over **80** people from four communities in the buffer zone of CBWS. The participants came from youth groups, Maya Women's Group, Red Bank Christian School teachers, Scarlet Youth Empowerment Organization, Santa Rosa Youth Empowerment Organization and Georgetown Youth Group.

The BAS EE program seeks to empowered participants with knowledge during a half day workshop and fostered a sense of responsibility and appreciation for nature through experiential learning in the outdoors.
The river tubing and hiking activities provided a unique experience and strengthened the connection between the participants and their knowledge of the ecosystems at CBWS.

The key takeaways from the workshop included understanding the local water cycle and its impact on ecosystems, implementing water-saving techniques for personal and community benefit, and recognizing the linkage of water conservation and biodiversity and how it impacts human well-being.

This campaign was funded under the BIOPAMA project " Improving management models at four of Belize's highest priority protected areas."

JAGUAR AWARENESS

Working together to save the Jaguar, an ambassador for the Americas -Maya Forest-





Click to view Maya Mopan school visit to the zoo

Maya Mopan Government school Standard III students had an opportunity to participate in a field trip to The Belize Zoo, where the students got to meet a jaguar in real life and learn more about its importance and the conservation efforts ongoing in Belize.

In early 2023, the EE staff launched a Jaguar awareness campaign targeting six communities in the landscape of CBWS. This campaign was funded by the World Wildlife Fund (WWF) under a larger regional project, aimed at increasing awareness and appreciation of jaguars. For this particular campaign, our goal was to increase awareness and appreciation of jaguars, their habitat, and their prey among the communities that buffer the CBWS. Here are a few of our campaign activities implemented over a six month period, impacting over **800** people.



The campaign had targeted activities for children, youth and community residents. One of the tasks included a pre and post survey of a sample of the community members and primary school children to determine level of knowledge, attitude and perception of Jaguars.

- School presentations, field trips to Cockscomb and formation of four jaguar clubs at targeted schools.
- School Fairs - participated in 2 school fairs
- Youth and Adult workshops at CBWS
- House-to-house chats in George Town Village
- Community Movie night - in 2 communities



Four community and school murals were painted in collaborated with local artists. The murals serves as a reminder of the beauty and value of the jaguar and their habitat. Red Bank Christian School & Maya Mopan Government School were gifted with school signs to increase visibility of their school and reminded students of the importance of Jaguar conservation.

GREENING ACROSS BELIZE











Another **300** hardwood trees and **200** shade trees found homes in various communities and backyards this year as we celebrated another Earth Day with Greening Across Belize. The Belize Tourism Board provided additional funding to purchase of 200 shade trees for the annual activity. These trees were gifted to schools and community groups in 10 communities buffering protected areas and the general public. Trees were distributed in April at the office in Belize City and Ganacaste National Park.

Staff participated in the UB Environmental Club's Earth Day tree planting and partnered with BTB and Love FM to participate in 2 school presentations at Biscayne Government School and Hope Christian Academy under the Civic Pride Campaign. Schools were gifted with Belize Flags and four shade trees planted with the students in the school yards.



Special tree planting initiatives were done in collaboration with **eight schools** and one community group. The Red Bank Scarlet Youth Empowerment Organization continued to enhance the trees along the Creek (branch of the Swasey River) that flows through the community. Forty trees were planted, namely pole-wood and mahogany with the assistance of fifteen community members.

WORLD WETLANDS DAY

Celebrated under the theme "It's time to for Wetland Restoration". The Education and R&M staff teamed up to teach 183students at four primary schools buffering the Crooked Tree Wildlife Sanctuary about wetlands and water quality. Demonstrations using wetland models was used to show the power of wetlands for flood control and water purification.



Trees were also planted with four of the schools targeted in Celebration of World Wetlands Day 2023.

REEF PROTECTOS



As part of this transformative initiative, the 2021 to 2023 cohort of 15 (4 females and 11 males) created a series of videos called “Reef Protectors in Action,” shedding light on critical topics such as mangroves, plastic pollution, coral reefs, seagrass, and climate change. The inspiring videos featured local students and Reef Protectors from Copper Bank Village, Chunox Village, and Sarteneja Village. These dedicated young individuals explored various protected areas, including Half Moon Caye and Blue Hole Natural Monuments, Turneffe Atoll Marine Reserve, Bacalar Chico National Park and Marine Reserve, and the Corozal Bay Wildlife Sanctuary. They also received crucial guidance from the Sarteneja Alliance for Conservation and Development (SACD), emphasizing the significance of mangroves in marine ecosystems.

The Reef Protectors Program’s overarching objectives include stimulating an enabling environment for youths from fishing families, instilling a deep appreciation for marine conservation and environmental protection.

“Building knowledge and understanding, managing perceptions, and engaging fishing communities of the Northeastern coast of Belize towards improved stewardship of marine resources”, project supported by the Belize Marine Fund - MARFund’s Small Grants Program , not only allowed BAS to expand its impact through the Reef Protectors Program, but also strengthened our environmental education program through capacity building for staff in teaching methods and video editing/ development.

These newly acquired skills will enhance staff to better design awareness campaigns and be effective in community engagement. In addition to the training, some important equipment were procured for the EE program. Given the training and equipment, the EE program can continue to reach children, youth, and communities through immersive and hands-on experiences.

BIRD CONSERVATION & AWARENESS









Through various citizen science events this year, students, teachers and the public were encourage to participate and learn about bird conservation locally and around the world. Two of our bird citizen science events:

- **Great Backyard Bird Count**
- **Urban Birdwatch**

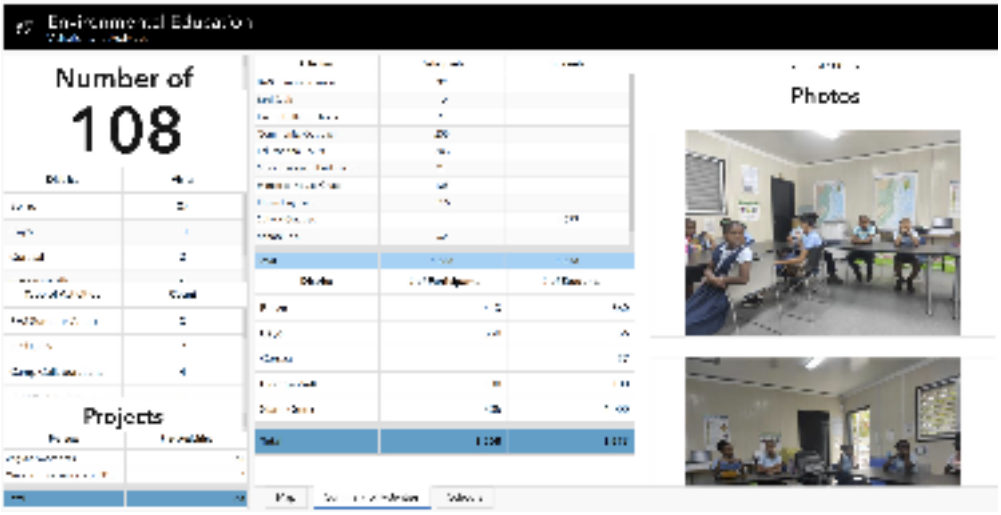
Urban Bird watch took staff to six locations, Belize City, Orange Walk, Corozal, Belmopan, Dangirga and Independence Village during the months of October and November. Belize City had the largest turnout of 53 participants followed by Corozal with 19 participants. A total of 132 people participated.

While the Great Backyard Bird Count in February had the participation 23 Scouts and 43 high school students from the Ladyville Technical High School Birding Club.

ENVIRONEMNTAL EDUCATION OUTREACH DASHBOARD

Environmental Awareness in school across the country continues to be a priority for us. The monthly invitations to schools is opportunity for us to share our work as protected areas managers and to instill environmental stewardship principles in children and youths. We also engage with teachers and adults from communities buffering protected areas. In 2023 the environmental education team began to use the GIS platform - survey 123 dashboard to digitally record our outreach efforts. This digital dashboard helps the EE staff to conveniently record, analyze and visually display results.

Dashboards can be shared electronically as a reporting tool. In summary, 108 classroom visits were carried out in 2023. Total number of people reached through in person environmental education activities at schools was 1636.
Majority of these activities took place in the buffer communities around CBWS and in Belize City.



CLICK FOR DASHBOARD

OPEN DAYS & EDUCATIONAL FAIRS

CELEBRATING REEF WEEK







EU IN BELIZE FAIR AT BTB PARK



CELEBRATING INTERNATIONAL DAY OF JAGUARS

COMMUNITY OUTREACH

COMMUNITY ENGAGEMENT TO IMPROVE COMMUNICATION, COLLABORATION, AWARENESS & STAKEHOLDER RELATIONS

Boat to Boat outreach to fishers of the LHRA continued in 2023. These informal chats on board fishing vessels are utilized to share information with fishers and in return opens dialogue to address challenges and identify opportunities for collaboration. During the three boat to boat outreach this year information sharing focused on:

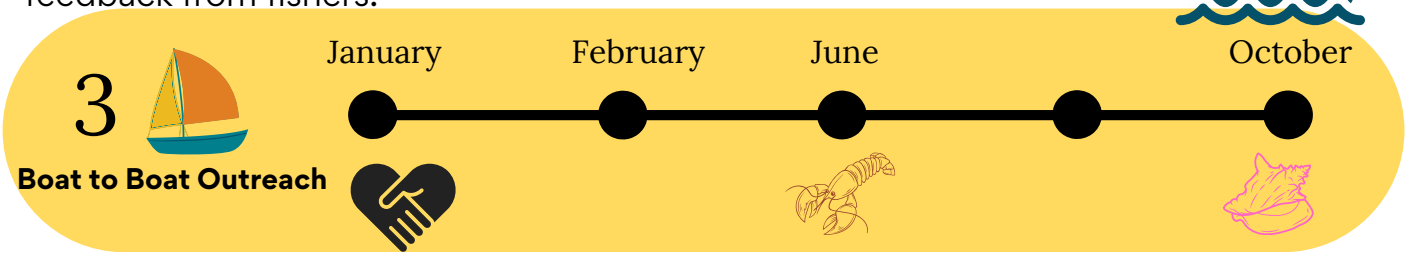
- Conch and lobster density per habitat for 2022
- Fisheries regulations
- BAS' community outreach activities
- Testimonials/interviews from fishers



Boat to Boat chats are lead by the community and protected areas team over 3- 4 days at sea, to locate fishing vessels working at LHRA. Permission is requested to board vessels and a quick 15 minute window is used to engage the fishers with targeted messages and conversations. Management decisions are influence based on feedback from fishers.

283 Fishers

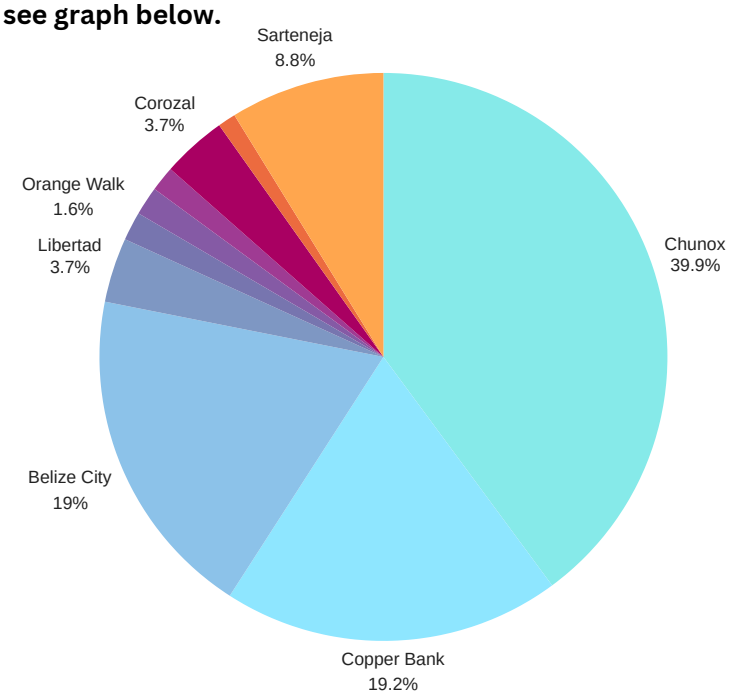






In 2023 a notable number of new entrance fishers were encountered. Of the 283 fishers only one female fisher was engaged.

Fishers encountered come from several communities - see graph below.



COMMUNITY OUTREACH

Four active Local Advisory Committees (LACs) in 2023

The Local Advisory Committee members play a key role in communicating the information shared in the meetings to the respective community they represent.



The LACs platform continues to build and strengthen relationships between buffer communities and BAS; discuss management improvements in PAs and provide valuable feedback and recommendations for the sustainable management the protected areas.

For example, at CBWS- signs were strategically placed around boundaries of PA and at LHRA demarcation buoys have been placed at strategic locations around HMC and BH aiding the tourism sector and deterring fisherfolks from entering the protected areas illegally.

Cockscomb Basin Wildlife Sanctuary and Lighthouse Reef Local Advisory Committees met quarterly this year. These meetings provided an opportunity for BAS and stakeholders to engage and to work together to address issues affecting shared resources.

Two newly formed Advisory Committees



Crooked Tree Wildlife Sanctuary Advisory Committee was established and the first meeting was held after a series of consultations to identify members for the committee. This LAC serves as a platform to build and strengthen relationships with BAS, NBIO, Fisheries Department and buffer community in charting a way forward for re-designation of the CTWS. A series of meetings with community stakeholder groups (specifically fishers) were held to sensitize them about fisheries regulations, licensing and surveillance and enforcement best practices; and an exchange visit with SACD is also in the pipeline to expose fishers and other stakeholders involved of the process currently being implemented by SACD for sustainable fisheries management.

St. Herman's Blue Hole National Park Advisory Committee was established and the first meeting held in October. The AC role is to provide advice and recommendations for the sustainable management of SHBHNP as guided by a Terms of Reference.

Issues and concerns tabled: identify reason for change in color of St. Herman's Blue Hole; the need for a cave policy and site specific certification for tour operators working at the park.

JAGUAR CONFLICT MANAGEMENT PROJECT IN PARTHNERSHIP WITH PANTHERA

In continuing efforts to address and better understand human jaguar conflict, BAS collaborated with Panthera Belize in implementing a Jaguar conflict management project.

Objective: Implement mitigation measures to deter Jaguar conflict near BAS co-managed Protected Areas.



PROJECT RECAP:

Site visits by community outreach staff and Panthera to four CBWS buffer communities (Maya Center, Maya Mopan, Red Bank and Santa Cruz area) and 3 buffer communities of CTWS (Crooked Tree, Biscayne and Maypen) to identify famers who have experienced Jaguar conflict on their farms, or residential areas in the last 3-4 years.





BAS staff & Panthera representative installing sensor lights at cattle farm

After the site visits, seventeen beneficiaries qualified for implementation of mitigation measures to deter jaguar conflict:
1.) Maya Mopan Piggery unit (15 members strong)
2.) One cattle farm in the Biscayne village
3.) One farmer in the May pen area.

Ø In total, 17 farmers benefitted from installation of cameras, sensor lights and ultrasonic sound devices to deter jaguar presence around their piggery unit and cattle farms.
Ø After installation, of equipment four monitoring visits were conducted resulting in no signs of jaguar or coyote presence were detected in the areas where wildlife conflict occurred.

Another beneficiary who experienced Jaguar conflict on his farmland in the area around Maya Center village was identified. This is an ongoing program and Panthera Belize will continue to follow-up and provide assistance to these farmers and monitor the effectiveness of the Jaguar deterrent interventions.

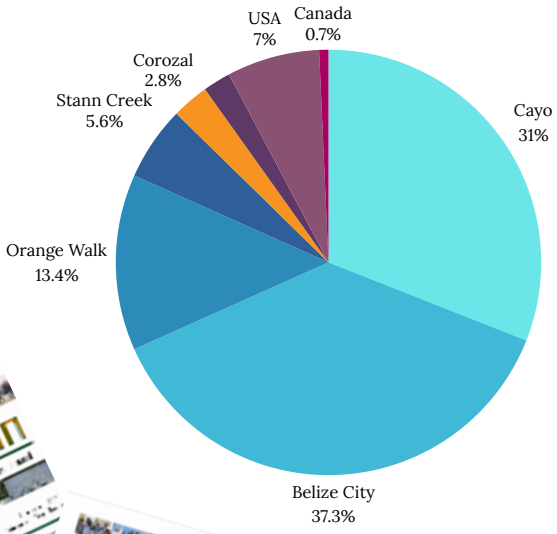
MEMBERSHIP & PUBLICITY

MEMBERSHIP UPDATE

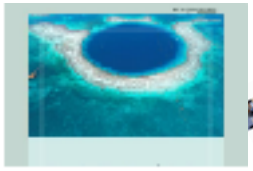
At the start of 2023 the active members stood at 186. The active members at end of December 2023 was 142 (in good standing). This year we welcomed 30 new members and 78 members renewed their membership.

Communication to members was done through email with three e-news shared and two electronic news bulletins produced and shared with members, partners and Donors. We encourage all to follow us on social media for more regular updates.

MEMBERS BY LOCATION











EXPLORING BAS PROTECTED AREAS

Our annual summer day trips to Half Moon Caye and Blue Hole Natural Monuments were a success. 180 people took the opportunity to visit these two protected areas and to experience snorkeling at the Blue Hole.

Another 25 supporters and members went on a 1 day field trip to CBWS. Participants enjoyed a day of hiking to Ben's Bluff summit and a refreshing swim in the waterfall.





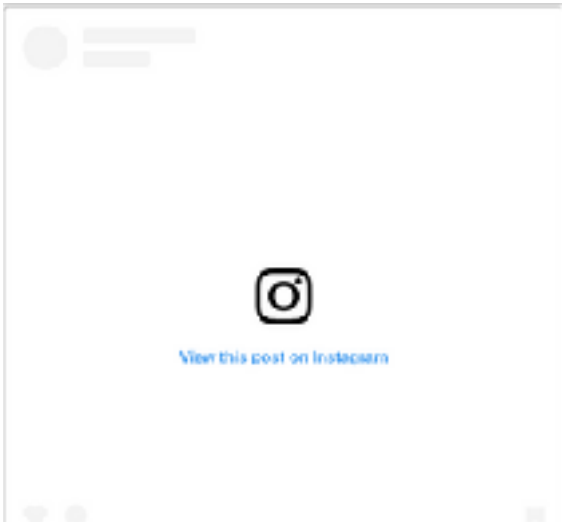
MEMBERSHIP & PUBLICITY

MARKETING OPPORTUNITIES

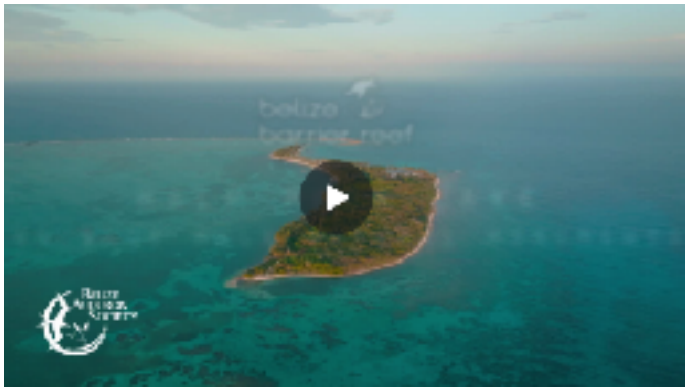
1.) HMC Promo video produced with the assistance of a volunteer Donald Sandoval (RockWire Visuals). This video was shared with BTB who further shared on their social media channels.

2.) A group of Belizean social media influencers and reporters were taken on a familiarization visit to CBWS and visit to the Maya Center Women's Group. These influencers in return produced promotional videos featuring their experience at CBWS. Wani Arzu, one of the influencers used TikTok comedy to share or educate with a youthful Belizean audience who may not watch traditional news. On TikTok, combined all influencers have over 100,000 followers. Wani Arzu is most popular having 53,300 followers and 1,400,000 likes. Channel 5 news reporter, Hipolito Novelo also published a news story on the visit to CBWS that aired on the local news.





S**ocial media influencer post**



HMC promo video

MEMBERSHIP & PUBLICITY

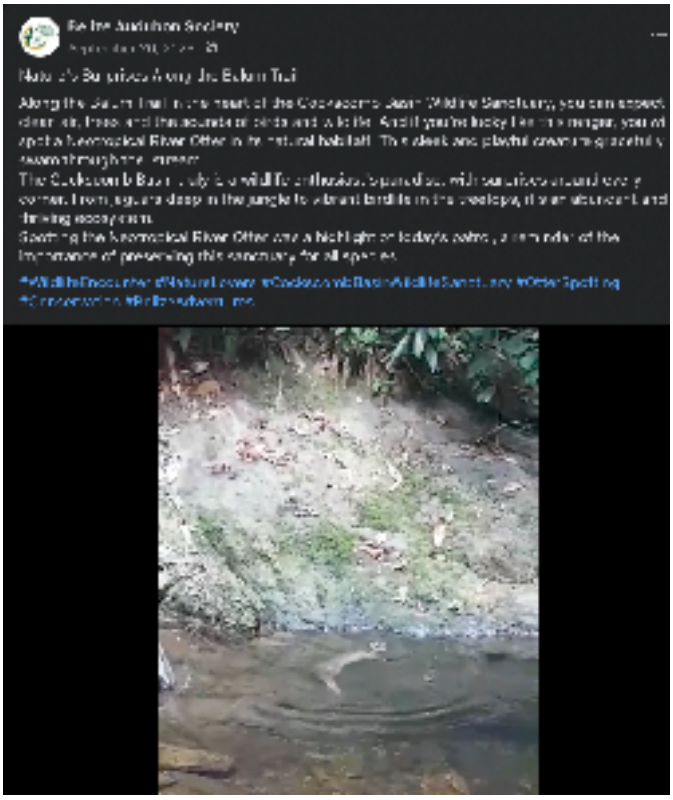
COMMUNICATION

The communications desk at BAS manages social media which includes Facebook, Instagram Linkedin and YouTube. In addition to responding to messages, the communications desk is responsible for the creation of videos, photos, advertisements and vacancy ads. This also includes alerts for the public when conditions are sub-optimal at protected areas.

Packaging of stories for the local media was found to be very effective this year with eight-teen stories packaged for local news of which fourteen were aired on channel 5, channel 7 and Love FM news. Some of our top stories in the media include James A. Waight Award, Greening Across Belize, our AGM, Derick Hendy BTB Award for frontline Hero, Birding summer camp in Crooked Tree and Maya Mopan School visits the Belize Zoo under our Jaguar Awareness campaign.

SOCIAL MEDIA :

This year the reach and use of social media continued to be used to our advantage for visibility. One post on Facebook in September featuring a River Otter captured on video at Cockscomb reached **1.6 mil** within 1 month, proving our potential to engage using social media.



Several of our posts on Face Book was picked up and shared by other social media news such as Breaking Belize News, Hot Off the Press, Channel 7 and 5 news, giving us a wider reach than expected.

SOCIAL MEDIA METRICS 2023	
FACEBOOK	
Reach	2,000,000
Profile Views	80,400
Content Interaction	48,000
Followers	10,100
New Followers	2,100
Like edition	9,931
Minutes Viewed	227,200
Shares	96
INSTAGRAM	
Reach	11,700
Profile Views	2,400
New Followers	225
Total Followers	1,140
YOUTUBE	
Videos	34

Check out our social media metrics for 2023 --of note we gained 2400 new followers on FaceBook and now up to 34 videos on YouTube. Our YouTube channel is a great platform to visit and explore some of our achievements through the years.

One of the useful tool now available on FaceBook analytics is the bench marking in Businesses. The metric only (through numerical) allows for monthly comparisons and is useful, only numerically to see how active we are in comparison to similar organizations in Belize. Currently, there are about 26 conservation organizations and related and Government Ministries on the list. BAS strives to post a minimum of 3 times a week. BAS published 75 pieces from November 9 to December 6, this double the number of post when compared to 2 similar organizations operating in country. When compared to the other 10 + conservation organizations similar to BAS that published between 5 to 15 on average.

MEMBERSHIP & PUBLICITY

37TH JAMES A. WAIGHT CONSERVATION AWARD PRESENTED TO MRS. CELIA MAHUNG



James A. Waight

CONSERVATION AWARD

The conservation award is a hallmark event of the conservation community that is held in the memory of one of the Belize Audubon Society's (BAS) founding member and first president, Mr. James A. Waight.

Mrs. Celia Mahung, was honored with the prestigious James A. Waight Award for conservation in a virtual ceremony on Thursday February 16th. The award is bestowed to individuals or organizations in recognition of significant contributions, nationally or locally, to the conservation and enhancement of Belize's natural environment. The virtual award show was shared via live stream on Facebook and YouTube. The press release placed on social media the day after the virtual ceremony had over 5000 views and BAS' YouTube and Facebook combined had almost 800 views.

MEET MRS. CELIA MAHUNG



Mrs. Mahung was an educator, who went from tutoring in a classroom to teaching an entire district, Toledo. Her commitment to education and empowering youth and women are strengths that Mrs. Mahung utilized at TIDE. Under her leadership, the multi-award-winning TIDE Freshwater Cup was established in 2007 and continues to be one of TIDE's flagship environmental education programs to this day. This program has impacted hundreds of children and adults in Toledo, supporting schools and teams in implementing environmental projects within their communities.

She led her team on many projects that promoted alternative lifestyles for people who depend on the natural resources for their livelihoods.

Other notable achievements under Mrs. Mahung's leadership include:

- Partnership with the Belize Fisheries Department in 2011 to pilot the Managed Access Program in the Port Honduras Marine Reserve as a way of improving fisheries management.
- The advanced status of TIDE's Fire Management program is also a testament to her dedication to being a pioneer in natural resource management. TIDE's fire team is now at the forefront of fire management in Belize, providing training and technical assistance to other protected areas and land management agencies.
- Under her leadership, TIDE was instrumental in the recent establishment of the Belize Marine Protected Areas Network.

MEMBERSHIP & PUBLICITY

54TH ANNUAL GENERAL MEETING



The 54th Annual General Meeting was held at the picturesque Crooked Tree Wildlife Sanctuary on Saturday, May 13th, 2023. The event proved to be a significant milestone for the BAS as members gathered for the first time in person since 2019 to reflect on the Society's accomplishments and strategize for the future. The highlight of the meeting was the presentation of the BAS Annual Report and Fiscal Report, providing a comprehensive overview of the Society's activities and financial performance throughout the past year.

Demonstrating their commitment to inclusivity, the BAS employed a combination of electronic mail and an in-person membership meeting to ensure widespread participation. As part of the proceedings, elections were held for Officers and Directors of the Board.

Following the Society's established nomination process, the positions of President, 1st Secretary, and four Directors were re-endorsed for a 2-year term through electronic voting. The post of 2nd Vice President remains vacant. Notably, Earl Green was elected as President, and Rasine Gillett as 1st Secretary. Additionally, the following individuals were elected as Directors: Ishmael Quiroz, Randall Taylor, Virginia Burns Perez, and Francis Canto Jr.

These elected officials will join the existing Board members for the 2023-2024 term, forming a diverse and dynamic team of individuals dedicated to the preservation and conservation of Belize's natural heritage. The current Board members include Kevin Geban (1st Vice President), Simon Reardon-Smith (Treasurer), Janelle Chanona (2nd Secretary), Shajira Martinez, Olivia Carballo-Avilez, Mariana Ancona, and Ernest Raymond Sr. (Immediate Past President).



MEMBERSHIP & PUBLICITY

AUDUBON GREEN GUARDIANS COMPETE IN THE LA RUTA MAYA BELIZE RIVER CHALLENGE

The Sho family lead by Rudolph Sho and his sons Rhuan and Roel, once again represented BAS in the Belikin La Ruta Maya Belize River Challenge canoe race, paddling under the Audubon Green Guardians banner. Full sponsorship for the team was provided by BAS including servicing support for the four days of the race. The enrollment of the team in the race was once again taken on as an opportunity to create awareness on the work of BAS in conservation and to support a popular sporting event.

The Association of Protected Areas Management Organization (APAMO) contributed towards the purchasing of team uniforms and safety gear. The BAS and APAMO communications team produced a video ad used on social media to promote the Green Guardians team.





Overall, the team did exceptionally well, placing 10th and 2nd in the Family adventure category. Because of their good performance, it drew a good amount of publicity from Love FM throughout the 4 days of the race. Love FM news reporter Dale McDougal also did a prerace story of the team with footage and information received from us. The BAS brand was recognized throughout the 4-day race with commentators prompted by the BAS name to encourage environmental messages and highlighting the role of BAS and APAMO for conservation and protected areas.





BELIZE BIRDING FESTIVAL RETURNS



The third BBF was held October 7th, 2023 in Belize City, at the Old Belize Pavilion. The festival commenced with the Belize City Urban Bird watch, followed by the official opening ceremony with keynote speaker, educational sessions for guides/tour operators, panel discussion and an exhibitor's segment to allow for marketing and promotion of local bird conservation actions and bird tourism in Belize.

The objective of the event is to connect birders, nature enthusiasts, tour operators, hotel/ecolodges/resorts, guides and organizations with a bird conservation agenda to market and strengthen the appreciation for Belize's spectacular natural beauty, biodiversity and promoting its almost 600 resident and migrant bird species.



The BBF 2023 planning and organizing committee comprised of founding members BAS, Belize Hotel Association, Belize Tourism Industry Association and Belize Tourism Board.

The keynote speaker, Katinka Domen, a journalist and author associated with the American Birding Association (ABA), delivered a powerful address focusing on representation and women in birding. Domen, who shared her experiences of how backpacking through Central America ignited her passion for bird watching.



Katinka highlighted in her key note address, "The majority of birders in the United States are women. The majority of people visiting bird watching festivals are women. But if you look at the website of the tour operators or even of the birding organizations, it is a very small minority of women there."

BELIZE BIRD FESTIVAL RETURNS



BAS had a booth at the festival with flyers, banners and t-shirts of bird-related marketing materials to highlight CBWS as a premier birding destination for tourism and educational purposes.

Highlights

- 153 participants
- 18 exhibitor booths
- 53 Urban Bird Watch participants
- 3 workshops
- 1 Panel discussion
- Networking Cocktail





The festival's workshops, led by figures such as Abidas Ash and Jesus Moo Yam, highlighted the significant contributions of experts in the field. Abidas Ash, an avian biologist associated with the University of Belize Environmental Research Institute (UBERI), shared insights into her crucial role in monitoring birds across Belize.



Jesus Antonio Moo Yam, a versatile wildlife photographer, tour leader, and ornithologist, recounted his experiences collaborating with major brands and birding magazines, captivating the audience with his journey that began with creating a community birding photo guide at the age of seventeen.

With the support of National Audubon Society, BAS was able to contribute $5000 USD towards the festival. The sponsorship contributed towards promotional materials such as banners, securing the event, host participants for the Urban Bird watch held on the morning of the festival

BELIZE BIRD FESTIVAL PHOTO HIGHLIGHTS

















PROJECT STORIES

With the financial support of the European Union and the Organisation of African, Caribbean and Pacific States through the BIOPAMA Programme

Maya Center Women's Group 35 years strong



BIOPAMA project team visit with Maya Center Women's Group







Sharing successes with visiting BIOPAMA project team

The Maya Center Women's Group celebrated their 35th year anniversary on November 25th, 2023. This was a celebration of a women led business, lessons learned, growth and successes. In September of 2023, the BIOPAMA project team visited BAS to get an in-person understanding of the projects achievements, challenges and lessons learnt. One of their request was to visit the Maya Center Women's group.

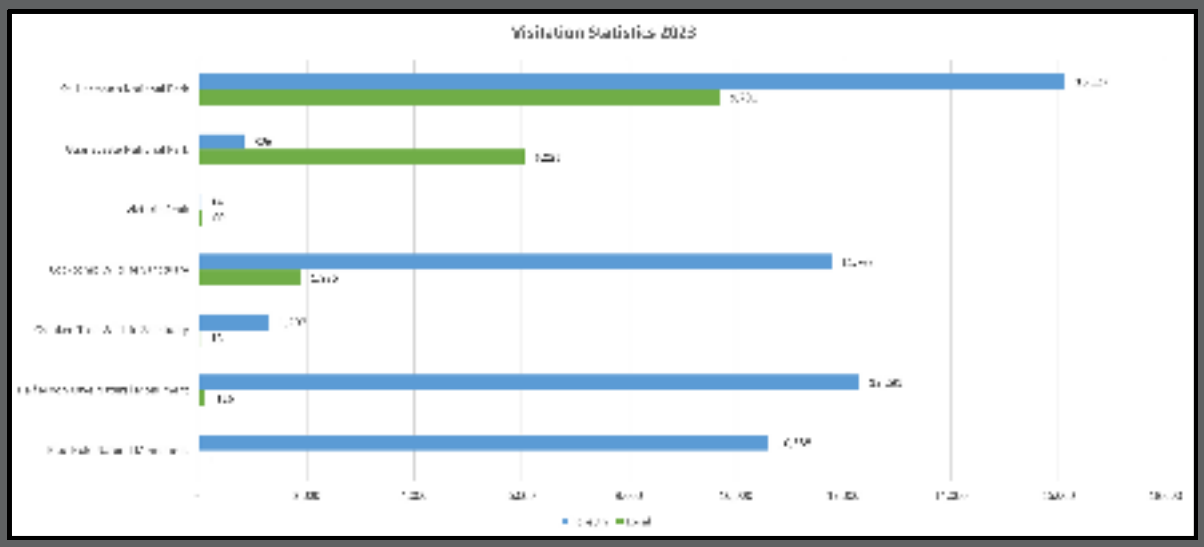
The 35 plus all women members continue to strive towards improvement and growth. Under the BIOPAMA funded project being implemented by BAS, the women benefitted through capacity building in sewing and a donation of 3 additional sewing machines. Ten members of the group completed level 2 of the sewing training; a skill they plan to use for income generation and diversifying products for their craft shop.

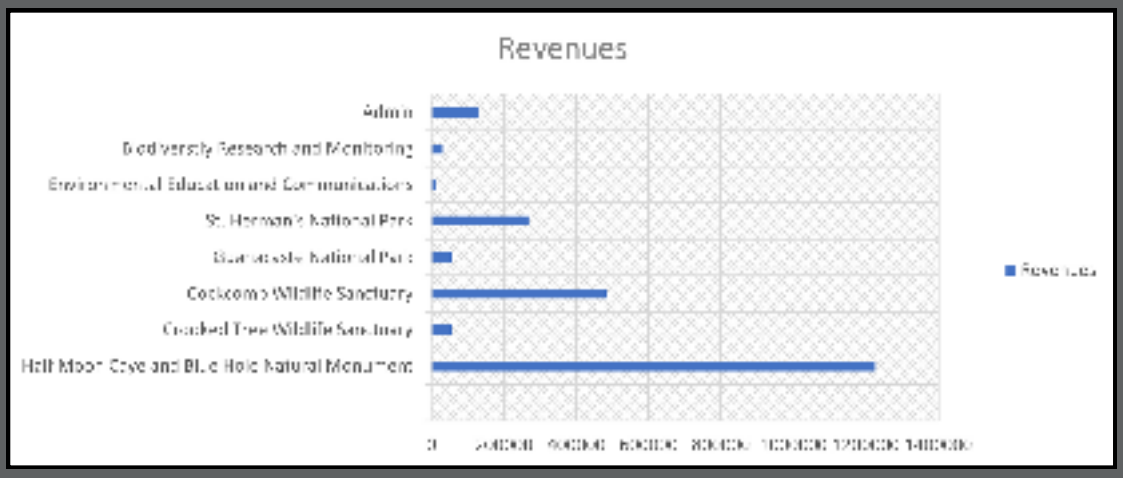
Showcasing their women led business through media influencers

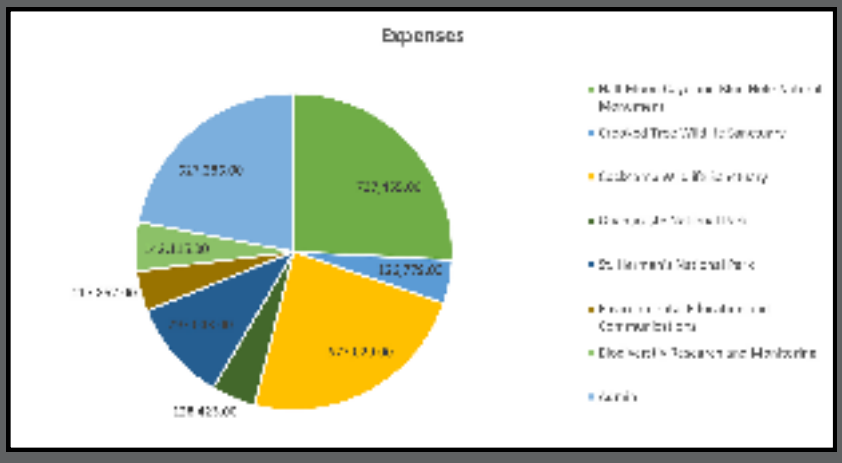
You can't visit Cockscomb without stopping in for a visit at the MGWG craft shop. Here the ladies spend the day interacting with visitors, market their hand-made crafts & services and market CBWS. So when BAS communications team took 6 local social media influencers and new reporters to CBWS for a tour, the MCWG was a must stop. The ladies shared their history, their love for community and services. The media visitors captured the stories using their own creativity and produced short videos, news stories, Facebook & TikTok posts. The posts were further shared by BAS for a combined reach of over 120,000 followers.

FINANCIAL STATEMENTS

The auditing firm PKF Belize has given their unqualified opinion stating no major issues were flagged within the auditing process for the year 2023. Thus indicating that we were financially stable as of December 31st, 2023. The charts presented below are a summary of protected areas visitation statistics; and income and expenditures. Visitation numbers are reflected because entrance fees are traditionally the largest income source for the Belize Audubon Society.







HAPPY RETIREMENT

At the end of 2023, Mr. Lucito Ayuso, BAS' Community Liaison Manager retired after 15 years of service. He was instrumental in being the lead in our community and livelihoods programs; and with his clam personality and jovial spirit he blazed a trail of respect and trust with stakeholders across the seven co-managed protected areas under BAS' mandate.

The board of Directors and staff extends our best wishes to Mr. Ayuso as he moves on to a new chapter of life.

Mr. Ayuso wrote a reflection of his time at BAS which was published in the December BAS Bulletin. *Here is an excerpt of his reflection highlighting his favorite achievement.*

"Reclining in my office chair on a wet, cool afternoon in November 2023, I started to reminisce the myriad of experiences that promoted successes, challenges, opportunities, and lessons learned while effectuating BAS' conservation work during my 15 years tenure as the Community Liaison Manager. Immediately, I realized that all those recollections I would put in three words: Listen, Respect and (Build) Trust!

My favorite game plan at BAS is the boat-to-boat strategy. I say so because myself and a colleague, Shane Young, the former marine protected area manager, came up with the idea and became the pioneers behind the grand design. I can proudly say, "It's our legacy".



Mr. Lucito Ayuso at Half Moon Caye Natural Monument

"The innovative Boat to Boat strategy kicked off in December 2012. Prior to 2012 BAS conducted many meetings with the northern fishing communities of Copper Bank, Chunox and Sarteneja. However, those meetings were not fruitful for two main reasons: ee never met the direct stakeholders (fisherfolks) we wanted to meet and meeting attendance was poor. Those two reasons were what sparked the idea of the boat-to-boat game plan. The goal of the boat to boat outreach was to meet fisherfolk one -on-one on their fishing vessels out at sea at the opening of the conch and lobster seasons. During these meet up at sea, fishers are given the opportunity to voice their issues and concerns and provide recommendations for the sustainable management of fish resources at Lighthouse Reef Atoll as well."

IN MEMORY OF NICASCIO COC

APRIL 11TH, 1969 - OCTOBER 16TH 2023



In October 2023, with heavy hearts we said goodbye to a friend, colleague and longstanding staff members Nicascio Coc. Mr. Nic, as he was affectionately known by his colleagues, passed away on October 16th after a sudden illness. He devoted 23 years of his life to a career in Protected Areas Management as the site manager for Cockscomb Basin Wildlife Sanctuary.

For over 2 decades, Cockscomb was synonymous with Mr. Nic. He conducted himself with high integrity and was honored to be associated with such a nationally significant protected area.

Mr. Nic will always be remembered as a versatile man who took on all of the demands of Cockscomb. On any given day, he would play the role of head ranger, environmental educator, front desk, construction supervisor, trail engineer, wildlife guide and mentor to his team.

Signs of his handy work and years of dedication are etched all over Cockscomb. His very first assignment when he was hired as a park ranger in **2001** was to develop a sign for the Victoria Peak Natural Monument. He recalls this was a challenge but with his training as a former teacher he quickly rose to the challenge and created the visitor information sign that still stands at the entrance of the Victoria Peak Trail. His own creativity, his own words, left behind to guide those who visit Cockscomb.

Mr. Nic continues to be missed by his family, friends and colleagues.

Rest in perfect peace Mr. Nic!

DONOR & PARTNERS 2023

NETWORKING ENTITIES

Association of Protected Areas Management Organizations (APAMO)
Belize World Heritage Advisory Committee
Belize Sea Turtle Conservation Network
Belize Coalition to Save our Natural Heritage
Belize Network of NGOs (BNN)
Debt for Nature Swap Oversight Committee
National Coral Reef Monitoring Network
Spawning Aggregation Working Group

PARTNERS

Belize Bird Rescue
Belize Defense Force (BDF)
Belize Fisheries Department
Belize Forest Department
Belize Metrology Department
Belize Marine Protected Areas Network (BMPAN)
Belize National Coast Guard
Belize Hotel Association
Belize National Fire Service
Belize Port Authority
Belize Tourism Board (BTB)
Belize Tourism Industry Association (BTIA)
Belize Police Department (Special Patrol and Tourism Police Units)
Buffer Communities of BAS co-protected areas
Chunox Fishermen Association
Copper Bank Fishermen Association
Corozal Sustainable Future Initiative (CSFI)
Coastal Zone Management Authority and Institute (CZMAI)
Department of Environment (DOE)
MarAlliance
National Biodiversity Office (NBIO)
Panthera (Belize)
BirdLife International
Scouts Association of Belize
Gulf and Caribbean Fisheries Institute (GCFI)
Sarteneja Alliance for Conservation and Development (SACD)
Toledo Institute for Development and Environment (TIDE)
Turneffe Atoll Sustainability Trust
University of Belize, Faculty of Science and Technology
University of Belize--Environmental Research Institute (UB-ERI)
Wlidtracks
Ya'axche Conservation Trust

DONORS

Belize Marine Fund
Belize Fund for a Sustainable Future (BFSF)
Debt for Nature Swap (Tropical Forest Conservation Agreement)
European Union and the Organisation of African, Caribbean and Pacific States through the Biodiversity and Protected Areas Management (BIOPAMA) Programme
European Union
National Oceanic and Atmospheric Administration(NOAA)
Manomet
Mesoamerican Reef Fund-Belize (MARFund)
National Audubon Society – Audubon Americas Program
Protected Areas Conservation Trust (PACT)
Panthera
Rhode Island Zoological Society (RIZS) and Association of Aquarium and Zoos (AZA)
Summit Foundation
World Wildlife Fund (WWF)

Photography
All other photos not captioned, ©Belize Audubon Society
Front Cover: Nicacio Coc & Roberto Rivero (staff) on patrol at CBWS
Back Cover: Victoria Peak Natural Monument, Cockscomb Range

ANNUAL REPORT 2023

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