

### In This Issue

Anti-Poaching Unit Succeeds

Page 2

10,000+ Seedlings for Planting

Page 2

Formalizing Partnerships

Page 2

Red Bank - A Target Community

Page 3

Training in COVID Times

Page 3

Conservation Agreements in Vaca

Page 3

Discovering Maya Relics

Page 4

Macro Invert Study Finalized

Page 4

## Macaw Season Sees 18 Macaws



Biological monitoring at one of the main breeding areas of the scarlet macaws has been the tradition, and this

year was no exception. The Research Unit spent six months overseeing and protecting the nesting area. At the beginning of the season there were 14 nests and a total of 40 eggs; however, in the end only 23 eggs hatched and 18 parrots fledged and left the nest into the wild.

The bio-monitoring effort counted with the support of 20 volunteers that formed part of the citizen science program. For the second year this volunteer program has enabled for local people to participate in gathering wildlife information and supporting the protection of the species which is known locally to be endangered. Due to the conditions of COVID 19, several tour guides shared their time to assist. At the same time these volunteers learnt several skills in the field from bird watching, rappelling, data entry and outdoor living.

## Second Citizen Science Program Begins

River conservation has been a subject area instituted by FCD since its early beginnings as an organization. Over the last 20 years, several cohorts of community members from various villages in the Cayo District have participated in clean up campaigns, reforestation and public education. These efforts have helped establish a strong link at the community level for a sense of stewardship in the protection of the Mopan and Macal Rivers. The effort was extended into Guatemala, due to the fact that the Mopan River is shared by both countries, which resulted in the creation of a Binational Watershed Alliance.

The results of the community involvement have been stupendous, however, assessing the water quality of the Mopan River had never been done until now. Through the support of the GIZ Selva Maya, endorsed by the Department of the Environment, FCD has now jumpstarted a second citizen science program aimed at having volunteers collect data on a weekly basis about the river. This is a cross border initiative counting with the volunteer service of the FCD Environmental Youth Group and Todos Por un Mundo Verde members. Dr. Ed Boles has conducted a theoretical and



practical training, while in Guatemala, technicians from the Environmental agency are developing the training. This is a six-month project but the aim is to expand the data collection among other communities for an extended long-term period. Our anticipation is that the Cayo Watershed Conservation Alliance will replicate this initiative in 2021.

## Anti-Poaching Unit Succeeds



With support from Harvest Caye Conservation Foundation (HCCF), an anti-poaching unit was established at FCD which began patrols in June. This period coincided with the most active months when poachers

operate in the Chiquibul. These poachers come from as far as Izabal and Peten, Guatemala.

It was under this specific task that FCD was able to intercept poachers. Poachers have studied the terrain and have a first-hand experience in escaping from patrols. But FCD also has learnt to adapt to new strategies which proved to be effective. Using alternative navigation systems and known routes under the forest, the Unit successfully intercepted several groups of poachers. Many eluded the patrol units but persistency paid off with the detainment of a poacher who had with him seven macaws. The person was detained and processed in court with a charge of illegal possession of wildlife, assault of an enforcement personnel and illegal entry. The charges amounted to more than three years or over \$12,000.00 in fines. The macaws were subsequently treated at the Belize Wildlife Referral Clinic and moved to the Chiquibul for care and eventual release in the wild.

## 10,000+ Seedlings for Planting

Over 10,000 seedlings have successfully been raised and cared for by the Arenal Women's Conservation Group and are now ready for planting. This has kept the Environmental Educator and Extension Technician active in distributing the plants along the villages that are found along the banks of the Mopan and Macal Rivers. The communities that have received 300 plants each includes Arenal, Benque Viejo del Carmen, San Jose Succotz, Calla Creek, Bullet Tree, Cristo Rey, Santa Familia, San Ignacio and Santa Elena. These plants have included Mahogany, Cedar, Zericote and Tamarind.

Dr. Ed Boles notes that riparian forests are a most threatened ecosystem in Belize due to the deforestation rate. These forests help stabilize the banks of streams and rivers, serve as wildlife habitat, refuge, and corridors, provide nutrients to streams and rivers (leaves, wood, fruits), shade the water and provide temperature options for aquatic life, add submerged wood and leaf habitats to streams and rivers and filters sediment, pesticides, and nutrients from storm



water. Because of these roles, reforestation along the banks of denuded riverbanks is critical. The management plan for the Belize River Watershed produced in 2018 by the WWF and the University of Belize recommends the development of a Restoration Nursery Network and conservation of the River Commons as a mechanism for improving the quality of the mid reaches of the Belize River Watershed, thus we are glad to be part of those recommended interventions.

## Formalizing Partnerships



Every year at our Annual General Meetings FCD reports of the partnerships and support systems that enables for us to achieve conservation impacts. This time around, we are embracing more partnerships given the situation of COVID 19 in our midst.

A Collaboration Agreement was signed with the Maya Leaders Alliance and Julian Cho Society on the 9<sup>th</sup> of June.

The agreement, called the "Caring and Revitalizing of Maya Lands and Resources Initiative" is for FCD to support MLA/JCS with the development of a natural resources stewardship program that responds to illegal incursions, and build local capacity to protect the natural resources. It is agreed that the Parties will join efforts in the conservation of forested areas and its biodiversity especially in the ancestral lands used, occupied and enjoyed by the Maya people.

Another Memorandum of Understanding was signed with Panthera Wild Cat Conservation on the 14<sup>th</sup> of July. The agreement is established and agreed to for the purpose of developing a collaborative and constructive working relationship for matters related to information gathering and management of jaguars and their prey species in the Chiquibul National Park (CNP), Chiquibul Forest Reserve (CFR) and Vaca Forest Reserve (VFR). FCD is pleased to enter into these partnerships and actions are already underway in areas of capacity building, training and research.



## Red Bank - A Target Community

### Vision:

FCD envisions healthy terrestrial ecosystems that are sustainably managed for Belize and the region.

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Last year a survey to quantify the number of scarlet macaws in Belize was undertaken in various parts of the eastern and western Maya Mountains. One key area for the survey was the community of Red Bank, where the FCD Research Unit got the support from community members

and learnt of their struggles in protecting the macaws that travel there for feeding. It appears that removal of feeding areas and hunting are affecting the population of macaws in that part of the eastern Maya mountains. To curb the situation, the FCD staff recommended the establishment of a closer linkage to those communities; activate a public awareness program and reclaim areas already deforested through reforestation.

Mr. Florentino Sub, who has a local tour operation for macaw observations and a Bed and Breakfast facility, has been a strong advocate for the protection of these birds; therefore, we knew that he would be a key person for any community conservation effort. As a result, on the 16th of June, FCD provided seed funds to Mr. Sub to be used for collecting, caring and planting of trees that will help improve the feeding grounds of macaws in the area of Red Bank. The Belize Electric Company Limited has made this effort possible.

With staff taking additional precautions and the area not busy with visitors it has been the ripe time for staff training. FCD's Tourism Enterprise Manager, developed and taught Las Cuevas Research Station and Research Unit staff on principles of Visitor Care and Satisfaction.

Both Research and Las Cuevas staff are frontline personnel who tend to visitors either at the research station or at the field where macaws breed. Visitors in these areas either stay for hours or days to experience the Chiquibul wilderness, and we have realized that for them to have a wonderful experience then proper care and satisfaction will make their trip an unforgettable event. The Adventure Travel Conservation Fund (ATCF) has provided an opportunity for our staff to get training, with the anticipation that in the near future FCD will be able to develop a continuous

## Training in COVID Times



stream of financing derived from visitation of the majestic ecosystems and iconic species of the Chiquibul Forest.

## Conservation Agreements in Vaca



Conservation agreements are a form of establishing a formal commitment between FCD and a second party to assist in conservation efforts while obtaining a mutual benefit that helps each gain from the partnership. In the Vaca Forest Reserve there is a vibrant conservation

agreement program being developed, that has the potential for expansion and systematizing a community stewardship program.

Food security and family well being are at the centre of each family unit discussions due to the COVID 19 situation. Therefore, in the Vaca as we progress into sustainable livelihood initiatives, the opportunity for establishing a formal commitment has become more acute and possible. Seventeen conservation agreements have been signed since June of 2020. Twelve women and three men from Arenal have engaged in nursery management and agroforestry production, while two other men in the Vaca plateau have signed into a model agroforestry farming system. In each of the agreements, FCD has agreed to support farmers with seed funds and extension services, while the farmers have agreed to utilize green technologies and support the protection of the Vaca Forest Reserve through a reduced human footprint, and taking measures for the prevention of forest and land degradation.

## Discovering Maya Relics



Scientists in the late 1980s who studied the Chiquibul Caverns mapped over 55 km of passageways. The Chiquibul Caverns as a system was divided into 4 areas, and major archaeological discoveries were made on each section of the cave. The discoveries continue to this day.

The work of the FCD Karst Management Unit is to monitor the conditions of the Chiquibul Caverns and inventory any cave and archaeological features including new cave entrances, sink holes, shafts and maya relics. Over the recent weeks, the Karst Unit has come to discover new cave entrances and in one cave in particular there were a dozen large *ollas* (pots) found. Many of them were yet intact which makes it an impressive discovery since in most cases the pots are found destroyed. These features are documented and compiled to demonstrate the importance of this region, and to better comprehend the complexity of the Chiquibul caverns. Analysis of the data which ultimately can help guide management has been a serious limitation for FCD as we avidly keep on accumulating records. But this is soon to change. The US Department of the Interior-International Technical Assistance Program has identified three Cave Management experts to assist in supporting the Karst Unit.

## Macro Invert Study Finalized

Freshwater macroinvertebrates are commonly used as biological indicators to monitor changes in water quality. These changes are reflected in community composition and abundance. For the third time, FCD has undertaken research using these biological indicators. To do this, 38 sampling sites were distributed covering four sub-basins in the Chiquibul Forest, namely the Macal River, Raspa River, Monkey Tail River and Southern Chiquibul River. The Chiquibul Forest, contains the head waters of the largest watershed in Belize, the Greater Belize River Watershed (GBRW). The GBRW has a surface area of approximately 10,500 km<sup>2</sup> and the most populated watershed in Belize, accounting for 44% (125,098) of the national population. Belize City accounts for 48% of the population, followed by San Ignacio and Santa Elena (13%). In addition, the agricultural belt of the Central Belize River Valley is completely dependent on the GBRW resource for irrigation of crops.

All identified freshwater macroinvertebrate were classified to their respective Functional Feeding Groups (scrapers, predator, filtering collector, gathering collector, shredder) and Stream Invertebrate Grade Number Band Score Level 2 (SIGNAL 2). Each freshwater macroinvertebrate was



assigned to one of four categories based on their respective SIGNAL 2 Grade Score. The categories included: Very sensitive to pollution (Blue), Sensitive to pollution (Green), Tolerant to pollution (Yellow), and Very tolerant to pollution (Red), based on Chessman (2003). Overall, results indicate healthy state of streams in the Chiquibul Forest but it is important to continue monitoring freshwater macroinvertebrate composition and abundance.

### FCD Programs

Protection & Enforcement

Community Development

Bi-national Relations

Education & Public Awareness

Karst Management

Research & Monitoring

Landscape Management

Monitoring & Evaluation

Financial Sustainability

E-Bulletin Funded by:



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