



Ya'axché Conservation Trust



Annual Report 2021

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Acronyms

BNR	Bladen Nature Reserve
CBWS	Cockscomb Basin Wildlife Sanctuary
COL	Community Outreach and Livelihoods
FD	Forest Department
GSCP	Golden Stream Corridor Preserve
GCFC	Green Creek Farmers' Cooperative
IAF	Inter-American Foundation
ICCA	Indigenous Community Conserved Areas
IDB	Inter- American Development Bank
IUCN	International Union for Conservation of Nature
MGL	Maya Golden Landscape
MMM	Maya Mountain Massif
MMNFR	Maya Mountain North Forest Reserve
PAM	Protected Areas Management
PAs	Protected Areas
SMART	Spatial Monitoring and Reporting Tool
TFCG	Trio Farmers' Cacao Growers
Ya'axché	Ya'axché Conservation Trust
YFE	Ya'axché Farmers Expo
YICE	Ya'axché Institute for Conservation Education

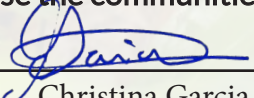
Message from the Executive Director

The year 2021 was a bit more promising for Ya'axché. There were certainly more partnerships developed as well as funding opportunities emerging despite the COVID 19 pandemic. Although there were unprecedented challenges, we still saw an interest from partnering University Groups to visit the Maya Golden Landscape through our study abroad program hosted by the business arm of the organization, YICE. Despite the many COVID-restrictions that were placed with travel, YICE still hosted three university groups. The visit came at a very good time especially with the community groups that we work with since they were without any tourism activities as a result of the low influx of foreign visitors coming to Belize. The two years of low tourism activities allowed the Ya'axché staff to dedicate time to build capacity of community groups to get them better prepared to host future university groups. This entailed customer service, entrepreneurship, basic tour guiding, catering and leadership skills. In light of future prospects and further enhanced partnerships with these University groups, Ya'axché will continue to work with the farmers and women's group to ensure quality service to these guests.

In addition to working with these University groups, the program staff at Ya'axché was busy implementing project activities. Initially, we thought it would have been a challenge to enter the communities given the high fear of virus exposure; however, we saw a demand from community members especially the farmers and beekeepers requesting more technical visits from extension officers and the desire to be involved in our programs. We increased the number of participant beekeepers from 18 to 29 with involvement of more women. We also expanded the beekeeping activities to the community of Aguacate. The integration of additional agroforestry and inga-alley cropping farms were also expanded given that there was more interest from farmers to transition into a more sustainable agriculture practice. This also synergized with the activities of the Science Program where these very same farmers participated in the set-up and monitoring of wildlife utilizing camera traps. The collaborative efforts resonated well with understanding the dynamics of wildlife in an agroforestry system while ensuring that these farmlands are contributing to the overall maintenance of biodiversity and ecosystem services. Further to that, the Education and Outreach team also shared the results of these important findings to various youths and conservation groups within the communities. Although there were no classes, the team still found creative ways to get the message out. Some of the avenues utilized to share information were Facebook posts and lives, radios and YouTube videos premiere.

In regard to Protected Areas Management, patrols continued to happen despite an increase in illegal activities within these PAs. Various inter-agency patrols as well as joint efforts with the Forest Department were carried out successfully. The use of technology such as SMART and drones made work a little bit easier since the precision of information collected was more accurate and useful as it helped a lot with strategic and effective patrols within certain hotspot areas of the reserves. The time used to collect the information also helped in identifying certain capacity needs. In 2021, the entire ranger team participated in training sessions such as special constable, case-filing and prosecution, usage of drone technology, and jungle combat. Ya'axché will continue to build internal capacities of our ranger team as they continue to safeguard these important protected areas.

We are grateful for the unwavering support received in 2021 especially from our donors, University Groups, Staff, Board of Directors, Forest Department, the relevant government agencies and of course the communities in the MGL. We look forward to another year of success.


Christina Garcia
Executive Director



Strategic Plan

The work carried out by Ya'axché is guided by a strategic plan that sets out the goals of the organization and the means to achieve them.

The strategic plan for the period 2022 to 2024 was finalized in December 2021. The new iteration of Ya'axché's strategic plan delves deeper into an integrated management approach for forest conservation and governance in the Maya Golden Landscape.

Vision statement of the organization

Harmony between nature and human development for the benefit of both.

Mission statement of the organization

Ya'axché is a Belizean organization which aims to maintain a healthy environment with empowered communities by fostering sustainable livelihoods, protected area management, biodiversity conservation and environmental education within the Maya Golden Landscape.

Organizational values

Ya'axché works with ...

Integrity

Respect

Professionalism



Mainstreaming Integrated Forest Management Strategies

The year 2021 was a transitional year for Ya'axché in its strategic planning process; the pace was set for the revision of the organizational 2018-2020 strategic plan. The IAF and IDB-supported projects have contributed to Ya'axché's strategic planning process which allowed for an evaluation of the progress that has been made under the main overarching programs. Ya'axché's programmatic work is guided by three main pillars (our programs). These are the Community Outreach & Livelihoods Program, the Protected Areas Management Program, and the newly endorsed (2021) Science Program. The organization takes on an integrated management approach by capitalizing the programs into its Sustainable Conservation Financing Initiative to ensure program sustainability.

As of 2019, Ya'axché's number of buffering, indigenous beneficiary communities in the MGL grew from eight (8) to ten (10) with the addition of San Jose and Aguacate villages. The uniqueness about this addition is the expansion of conservation values into areas where community management models can be replicated with organized groups.

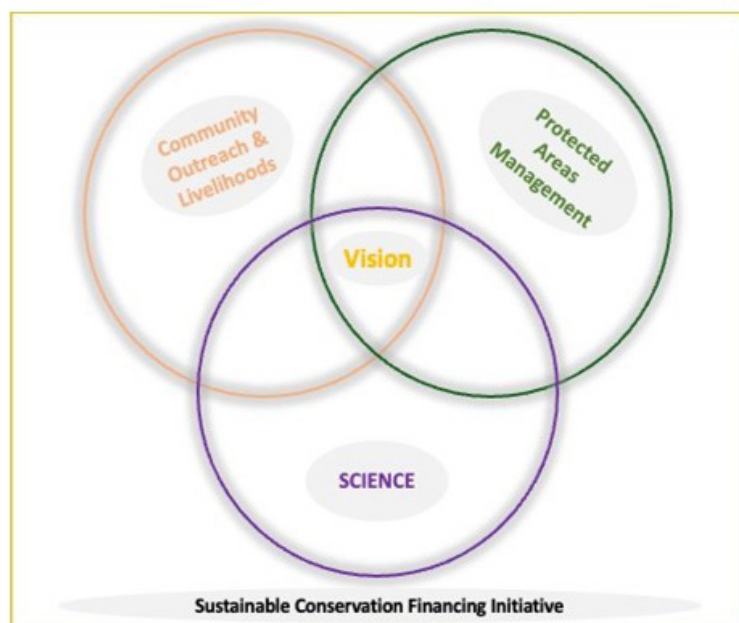


Figure 1. Diagram depicting inter-programmatic synergies for integrated forest management strategies.

By 2020, Ya'axché had strengthened two (2) concrete types of community-led management approaches: one within a state protected area (MMNFR 936-acre agroforestry concession) and the second being coined as an Indigenous Community Conserved Area (GCFC 2,500 acres of conserved lands). Both examples have the replicability and scalability capacities that greatly contribute towards the fulfilment of the sustainable development goals that align to the programmatic work of the organization. The strengthening of the COL program is directly supported by the PAM and Science programs, ensuring that the integrated management strategies remain effective.



Figure 2. Science rangers collecting data for the integrated online database.

The Science program has complemented both the PAM and COL programs to understand the research and monitoring that occurs within and around protected areas in a mosaic of disturbed and undisturbed lands with different land use practices. With the expansion of climate-smart management practices to improve sustainable farming in the MGL, a greater understanding has grown to know about soil health and productivity. Sixty farms have been selected to document the variations of practices of adopting an integrated farming system. The research has led to soil testing to determine the soil health status of farms to be able to guide farmers on the possibilities of nutrient-enrichment practices, such as the integration of Inga alley cropping. Biodiversity monitoring of 19 farms in the MGL also corroborates the rich diversity of small to large mammal species that benefit from the eco-friendly practices in farmlands, simulating a natural standing forest and functioning as corridors within the MGL. Connectivity is achieved by observing a high diversity index in farmlands with integrated forest management approaches that reflect on the impacts of sustainable farming, and contributing towards biodiversity conservation.

The Science program also leads the propagation of endangered trees species at Ya'axché's nursery which has achieved the reforestation of an area within the MMNFR that was cleared during the Covid19 pandemic. The ongoing tree species monitoring, camera trap surveys, native pollinators research and bird monitoring contributes to the second iteration of the State of the Protected Areas Report. This has been a monumental undertaking, branching off from the annual Biosynthesis reports. With over 10 years of data collection, Science has grown to be a solid component of Ya'axché's work for evidence-based decision-making for the management of protected areas. Research and monitoring in farmlands also contribute to informed decisions when working with community beneficiaries that integrate solutions for food and water security, and biodiversity conservation. From a landscape vantage point, the Science works extends into 3 protected areas and into farmlands of 13 buffering MGL communities offering insights into trends in biodiversity and productivity within farming systems.

Communities	CSA	BR&M	HJC
Big Falls	x	x	x
Bladen	x		
Golden Stream	x	x	
Indian Creek	x	x	x
Medina Bank	x	x	x
San Miguel	x	x	
Silver Creek	x	x	
Trio	x	x	
Aguacate	x		x
San Jose	x		
<i>Other</i>			
Mafredi	x	x	x
San Antonio	x	x	
San Pedro Columbia	x	x	x
<i>Key Points</i>			
	2016 - BR&M start in 5 farms		
	2020 - Organized groups adopting an ICCA management model		
	2015 - Agroforestry concession management model; 2019 - BR&M start in cacao plots		
	2021 - Expansion from 5 to 6 communities		

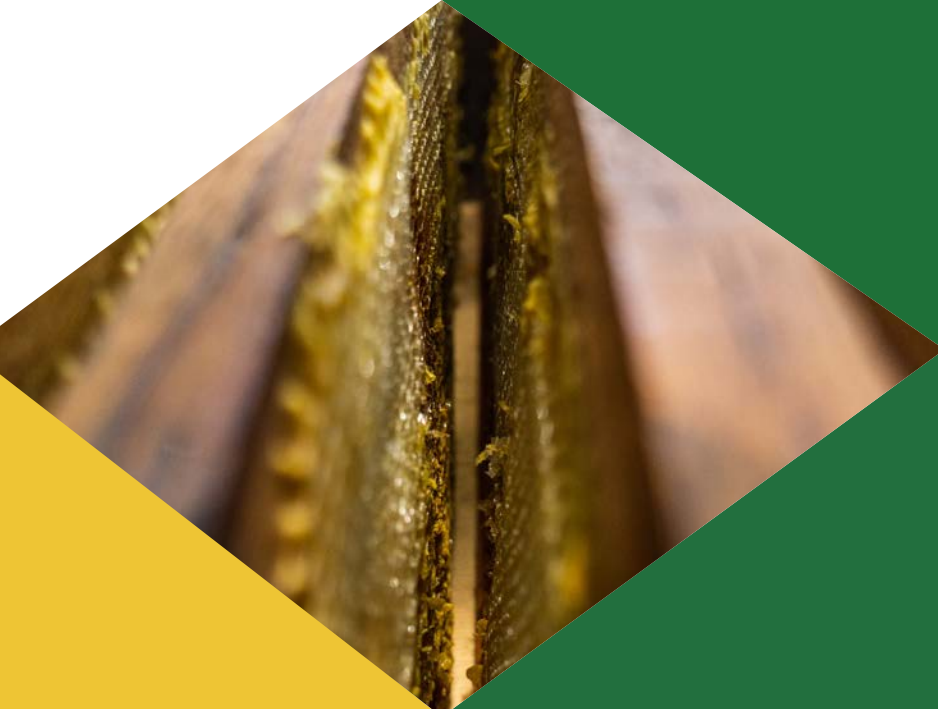
Table 1. MGL communities buffering Protected Areas adopting integrated management strategies.

The PAM Program kicked started the concept of online databases through SMART where it has embraced innovative technologies that contributes to management effectiveness of protected areas. Over the past year, team consultations have contributed to the development of an integrated database for forest management, combining the COL and Science aspects of the organization's work. This further consolidates the many years of efforts into synchronizing at a higher level the overarching programmatic activities. At the landscape level, the monitoring of vegetation cover in the MGL remains largely intact at over 95% of the 770,000 acres of the 'conserved' area. Reforestation efforts are prioritized in areas where clearance has encroached into protected areas, which sets precedence to monitoring overtime and understand the regenerative capacities of a disturbed area under threat from illegal logging and clear cuttings for agriculture. Surveillance and management presence remains constant to deter illegal activities threatening natural resources and biodiversity within PAs.

The 2021 assessment of our strategies places us roughly at over 85% of achievement from an operations preliminary review. The organizational review of its strategic plan has been endorsed for the 2022-2024 period, diffusing into the 5 core objectives. In its 24th year as a grassroots organization with increasing impacts in the MGL, it has come at an opportune moment in time to cement a milestone with an innovative Strategic Plan that ecnpompases integrated forest management strategies for conservation and livelihood improvements in the MGL. Through our development capacities, Ya'axché continues to be a trend setter by maintaining momentum with the different initiatives and strategies that guide the work from the national/regional level down to the local, grassroots context. More importantly, the work on the ground has been able to guide policy making upon dialogue with state actors (externally) and program strengthening (internally) as the organization moves into its next 3 years under its same mission and vision.

**“Empowering communities,
Conserving Biodiversity,
Connecting the world.”**





Community Outreach and Livelihoods Program

An Overview of our Education and Outreach Efforts

2021 was indeed a very challenging year. The COVID 19 pandemic greatly impacted our ability to carry out the community outreach work; however, being the innovative organization that Ya'axché is, new approaches to community engagement were adopted. An impacted sector within the COL program was the school visits. These efforts seek to inculcate conservation principles in resources stewardship in children and youth of the MGL; however, schools were closed during this year. Students from primary and high schools in the MGL were still involved in our education efforts through virtual sessions. It was encouraging to see the participation of our youths in the 2 virtual presentations, Facebook lives and other virtual events that were organized with the assistance of our communications team. We did face some challenges in reaching out to all our youth in the MGL through this medium due to their limited access to technology including internet and devices.

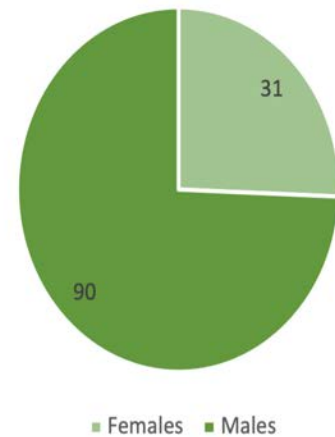
Additionally, the annual event, Ya'axché Farmers Expo (YFE) had to be held virtually as well given the restrictions on gathering imposed by the pandemic. Four (4) awards were given: Beekeeper of the year to Belinda Perez from Trio, Agroforestry farmer of the year, Martin Ack from San Miguel, Inga farmer of the year, Vicente Makin from Indian Creek and Organized Group of the year awarded to Green Creek Farmers Cooperative from San Jose.



Figure 3. School Visit in Trio Village.

Monthly meetings were carried out with 7 organized groups that we work with to ensure that livelihoods work is strengthened. These groups are Trio Farmers Cacao Growers from Trio village, which is comprised of 31 members, Green Creek Farmers Cooperative from San Jose with 30 Members, Aguacate Conservation and Development Committee from Aguacate, Mayan Arts Women's Group, Maya Rose Women's Group, Ancient Maya Women's Group and Marigold Women's Cooperative. Through these meetings, we coordinated the continued provision of the catering services to YICE ensuring quality control and the high standards that our guests have come to expect from us are met.

FEMALE VS MALE MEMBERSHIP OF ORGANIZED GROUPS



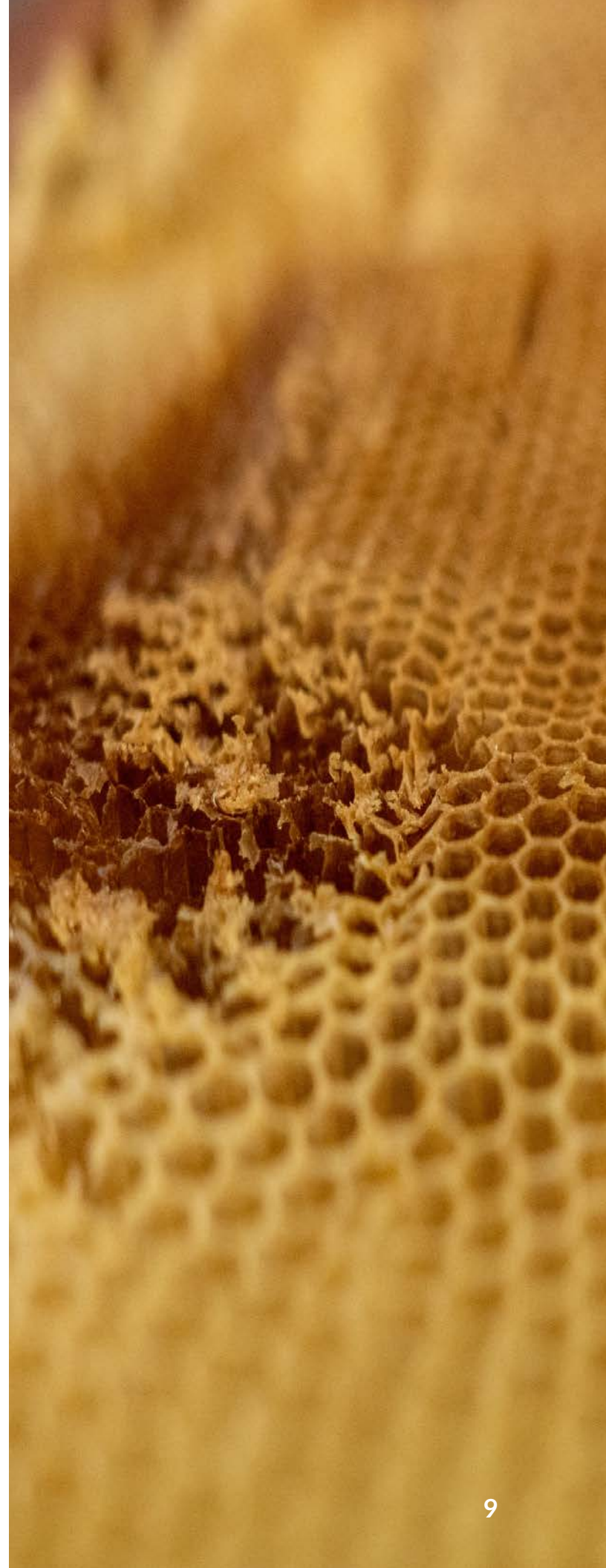
Graph 1. Gender analysis of organized groups.



Figure 4. Frame being inspected.

Investing in Beekeeping

The improving of livelihood through the strengthening of economic activities in the MGL has always been the propelling force in our community efforts. This year, with project support from IAF, funds were secured in the three-year project to strengthen our beekeeping program in the MGL. Eleven (11) new beekeepers were recruited from the MGL beneficiary communities. Twelve (12) individualized training sessions were carried out to develop the skills and knowledge in these new beekeepers. Introductory trainings were held at the beginner's level. Additionally, a total of 29 beekeepers were the recipients of subgrant funding in the form of materials support. The IDB project has also contributed to the acquisition of these beekeeping gear and equipment: suits, smokers, colonies, and other apiary management tools. In 2021, 2,300 lbs of honey was harvested from six (6) beekeepers in five (5) MGL communities.





Diversify the Inga-alley Cropping Climate-smart Practice

As the COL program diversifies and improves sustainable farming techniques in the field, five (5) fruiting trees demonstration farms have been established in 2021 utilizing inga as a shade and nitrogen-fixing tree. These are exotic fruit tree farms that are being monitored to gather information on how inga can be used in fruit tree orchards to maintain soil cover while improving moisture retention and improving soil fertility through the fixing of nitrogen back into the soil. We know that fruits are an important part of a healthy diet therefore this will allow these families to consume a more balanced diet and the excess will be sold to generate income. Two local exchange visits were held to encourage peer to peer sharing of knowledge and experiences in fruit trees farming which helped in the establishment of the above-mentioned demo plots.

Farmers continue to utilize their inga-alley cropping fields to plant corn, beans, and other vegetable to increase their yields whilst minimizing the use of fire and conserving their soils.

Through collaboration with Friends for Conservation and Development, inga-alley cropping farmers in the MGL were able to host an exchange visit with four (4) farmers working in the Vaca Reserve, Cayo District. The objective of the visit was for them to see first-hand inga-alley cropping practice as a viable alternative to slash and burn and the other ecologic benefits that this type of farming provides. They enthusiastically asked questions and gathered inga seeds which they will be planting on their farms. It was rewarding to see the MGL inga farmers sharing their expert knowledge and experiences with their peers. New inga seeds were sown through this exchange visit which will continue to receive nurturing.



Figure 5. Agroforestry plot being established in Aguacate.

Expanding Cacao-based Agroforestry in Southern Belize

The adoption of cacao-based agroforestry as a climate-smart practice continues in our communities. Through GEF SGP funding, five (5) new cacao farms were established in Aguacate. These new farmers received introductory trainings in cacao agroforestry, including site selection and preparation, transplanting and care of saplings. They will be provided with future trainings following the cacao agroforestry curriculum. This document was developed to guide all our trainings and has introductory, intermediate, and advanced level lessons.

Trainings were also provided to the Green Creek Farmers Cooperative (GCFC) in the rehabilitation of their cacao fields. This field are among the oldest in the Toledo District and therefore much work had to be done to ensure that the farmers' livelihoods were not lost due to this rehabilitation exercise. The high incidence of diseases and the decrease in productivity required that such intervention be undertaken.

The MMNFR Agroforestry Concession

The cacao agroforestry concession continues to improve livelihoods of the members of the Trio Farmers' Cacao Growers (TFCG) and the Trio community through income generation from the sales of cacao beans. In 2021, a total of 54,602 lbs of wet cacao beans were harvested. The COL team continues to work closely with the members of the TFCG to improve the management of the cacao plots in the concession through individualized coaching and training in pruning, weed and shade management. Additionally, there is work being done to improve the record keeping of TFCG. Data forms have been developed and the members of the group have been trained in how to use these forms to improve the record keeping which is important for the growers to be compliant with organic certification requirements. Using color coded pegs plots have been marked based on the year of establishment. This is important to carry out more efficient quarterly plot assessments and accurate yield projections. These are important components that are geared towards making the members of the TFCG better able to manage the cacao agroforestry concession.



Figure 6. Broken Cacao Pod for harvesting.

Trainings & Exchange visits

A total of 12 trainings were held during this year. These focused on the three climate-smart practices namely, Inga-alley cropping, Cacao agroforestry and beekeeping. Some of these were individualized sessions given the restrictions on gathering due to COVID19. The rest of trainings were delivered using the farmers field school methodology of peer-to-peer learning. Three (3) exchange visits in inga alley cropping were held.



Figure 7. Cacao agroforestry plot establishment training in Aguacate.





Protected Areas Management Program

Sustaining Enforcement & Compliance Efforts

Despite the challenges posed by the ongoing pandemic, Ya'axché's enforcement and compliance teams increased their patrol coverage in remote areas of the reserves where little to no presence was possible during the first year of the pandemic. A total of 542 patrols were conducted within three protected areas. Based on this effort, there were 80 major observations of infractions committed with the most common infraction being illegal logging followed by illegal hunting.

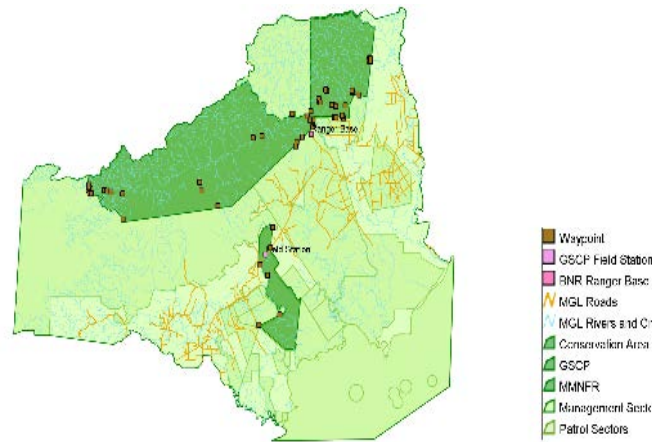
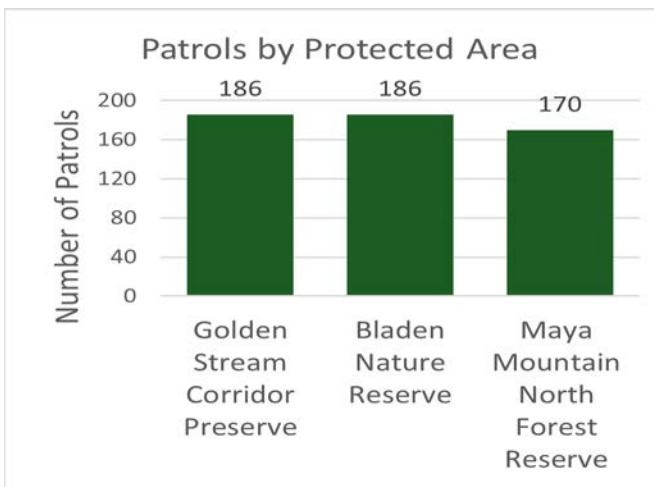


Figure 8. Map with infractions committed within the protected areas in 2021.

For the first time since our records have been established, transboundary incursions were detected in the western most boundary of the Bladen Nature Reserve (BNR) where the reserve meets the Columbia River Forest Reserve and the Chiquibul National Park. These incursions appear to be driven by the illegal timber industry where valuable timber species such as mahogany and rosewood are the prime targets.



Graph 2. Patrol effort by protected area.

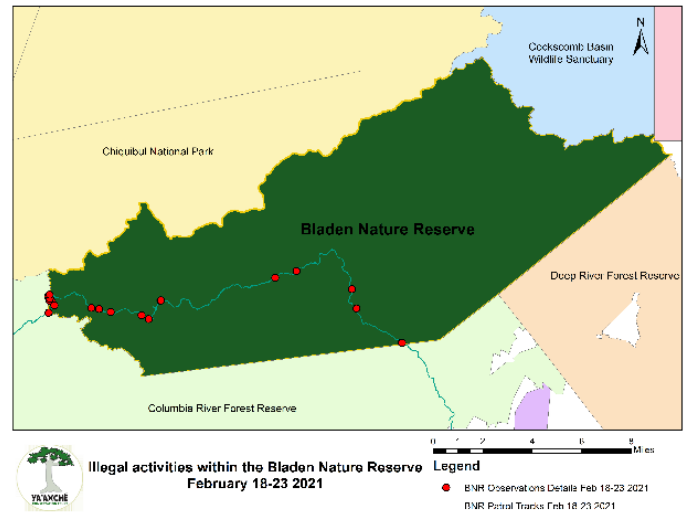


Figure 9. Map showing the transboundary incursions into western Bladen Nature Reserve.





Figure 10. Illegal mahogany extracted from western BNR.



Figure 11. Illegal rosewood extraction from western BNR.

In addition to transboundary incursions in the BNR there was a spike in illegal land clearing for agriculture within the Maya Mountain Forest Reserve (MMNFR). These clearings do not appear to be driven by pandemic induced pressures but rather by the illegal expansion of cattle ranches in the buffer areas of the forest reserve. Early detection was made possible through satellite imagery from Norway's International Climate and Forest Initiative which provides monthly mosaics of the forests of all the tropics. This information coupled with the use of Remote Piloted Aerial Systems was responsible for the successful prosecution of at least on major land clearing within the MMNFR.



Figure 12. Aerial view of illegal land clearing within the MMNFR.



Embracing Technology

With increased pressures on the protected areas the enforcement and compliance team has had to adapt to changing circumstances when addressing challenges. The use of technology in protected areas management has been on the rise and Ya'axché's goal in 2021 was to increase the use of disruptive technologies that greatly improve the efficiency and effectiveness of boots on the ground. The addition of remotely piloted aerial systems to our capacities was one major milestone for the organization. Although still in its infancy stage, the adoption of such technology will assist the team in surveillance patrols particularly in hostile areas where a birds eye view prior to patrol deployment greatly increases safety and security of teams on the ground.



Figure 14. Ranger entering data while on patrol.



Figure 13. Drone in use for surveillance patrols.

The refinement and improvements to Ya'axché's Spatial Monitoring And Reporting Tool (SMART) data collection continued throughout 2021. Advances in the development of SMART by the developers allowed the team to switch to the more user friendly SMART Mobile app which is installed now on all field devices. SMART mobile has greatly improved the efficiency of patrol data collection and has improved consistency overall. With new equipment acquired in parallel with the software, the enforcement and compliance team wrapped up the year well positioned to meet and exceed the expectations for the year 2022.



Science Program

Documenting Native Pollinators

Since 2016, with the addition of the first wildlife cameras in agroforestry farms, Ya'axché has continued to grow its research and monitoring in the farming landscape (farmscapes). This shift to the landscape outside of protected areas reflects the priorities of the organization to document biodiversity more holistically while collecting data to assist farmers and extension officers in answering questions about the conservation and livelihood benefits of smart agricultural practices.

In 2019, we reported the preliminary results of the first native bee inventory in the MGL. Bees are culturally important, sensitive to agricultural and land use changes, and important contributors to the pollination of crops and native plants. The inventory was extended through the dry season of 2021 to address the lack of data on bee fauna in southern Belize and determine the extent of healthy, intact ecosystems within and outside protected areas.

A total of 760 individual bees were captured between July 2019 and July 2021. To date, 52 species have been identified, belonging to 3 families, 13 tribes, and 27 genera (Table 1). Six (6) are potential new records for the country, pending taxonomic confirmation.

NATIVE BEE TAXA	Documented in the MGL 2019-21	Total Known in Belize
FAMILIES	3	5
GENERA	27	54
SPECIES	52	148

Table 2: The MGL inventory recorded approximately half of the genera and one-third of the bee species recorded for the entire country.

Most of the bees collected in the MGL belong in the family Apidae, tribe Meliponini. This is a diverse tribe of highly social stingless bees found throughout the tropics worldwide. Most Meliponine species nest within hollow trees or cavities in the ground, but many species are adaptable to human-dominated landscapes and can build nests in block walls.



Figure 15. The three most frequently encountered species were members of the stingless genus *Trigona*. *T. silvestriana* are known locally as drunken baymen.

Socio-economic classifications were assigned based on the ability of the bees to produce honey or other hive products for human consumption. The Mayan region of Mexico, northern Guatemala, and Belize is thought to be a place of intense stingless bee rearing activity in pre-Columbian days and is considered the birthplace of meliponiculture. Three commonly domesticated species are *Melipona beechei*, popular in the Yucatan Peninsula; *Tetragonisca angustula*; and *Scaptotrigona pectoralis*, frequently cultivated in Costa Rica and in Veracruz along the Mexican Gulf Coast. *S. pectoralis* has special potential in meliponiculture due to its low management requirements and high yields.



Through a partnership with Round River Conservation Studies (USA), the science program had support from student researchers to conduct a pilot study on associations between MGL native bees and floral blooms during the rainy season of 2021. Several stingless bee species were observed visiting native medicinal plants, placing further emphasis on the importance of these native pollinators in conserving local habitats and traditions.

The native bee work continues as Ya'axché explores further floral/habitat associations and assesses long-term trends for these ecosystem service providers.



Figure 16. *Melipona beechei*, popular in meliponiculture, is also a pollinator of *Ludwigia* spp., an herb used to treat skin infections.

Camera Grid Expansion Into BNR

A reserve with the highest level of protection, the Bladen Nature Reserve is considered a biodiversity hotspot in the Maya Mountain Massif (MMM), a core landscape which connects with other protected areas, subsequently extending the size of the Selva Maya Forest and the Mesoamerican Biological Corridor. Ya'axché began biodiversity transect monitoring in BNR in 2010. Ya'axché's embrace of new technologies over the years has led to the adoption of wildlife cameras into our suite of monitoring methods. In 2021, we deployed our first wildlife cameras in BNR.

Wildlife cameras have some benefits over other forms of monitoring: they are non-intrusive, they collect data 24-7, and in the case of wildlife with distinctive coat patterns, they allow for the identification of unique individuals. The BNR camera survey was conducted in an effort to document species richness and distribution during the dry and wet seasons in BNR. Repeated monitoring allows us to track the presence of different indicator species of mammals and birds that signify forest health, disturbance, prey base, and migration success.

Twenty-six (26) cameras were deployed at 13 stations in BNR, each approximately two (2) km apart and chosen for their proximity to existing wildlife trails. Following the schedule for Ya'axché's existing camera-trap surveys in MMNFR and the buffering farmscape, the survey ran for three months during the dry season and three months during the wet season 2021. In total, 21,461 wildlife photos were recorded in BNR belonging to 65 species (43 birds, 21 mammals, and 1 reptile).



A rare species not usually seen on camera is the northern Naked-tailed armadillo (*Cabassous centralis*), which was detected in one camera station in BNR during the wet season. *Cabassous centralis* is considered Data Deficient by the International Union for Conservation of Nature (IUCN), but habitat destruction in its range is advancing and may soon justify its classification as Vulnerable. In Belize, *Cabassous centralis* was first recorded in 1978, when a dead specimen was found on an unpaved highway in the south near the southernmost edge of the MMM. In 2014, a second specimen was sighted for the first and only time on wildlife cameras in Cockscomb Basin Wildlife Sanctuary (CBWS). This first, independent sighting in BNR presents additional information for the armadillo's existence in the MMM. We can infer that the MMM provides suitable habitat for this rare species to continue to survive in the conserved landscape without human interference.



Figure 18. Male jaguar J3M, known as “Jedi Jaguar Gerry,” was spotted traveling between wildlife cameras in BNR and in the MMNFR concession in 2021



Figure 17. Independent sighting of a Northern naked-tailed armadillo in BNR during the wet season.

Jaguars were also encountered throughout the survey season. The conservation of jaguars is tied to protected areas due to their ability to support a wild prey base and provide refuge from direct persecution by people. In 2021, students from Round River Conservation Studies assisted in the management and analysis of the Bladen camera data to determine the number of individual jaguars present in BNR and the MMM. Comparing camera images from MMNFR and BNR between 2019 and 2021, they were able to distinguish four (4) unique individuals: three (3) males and one (1) female. Interestingly, one of the males was captured on cameras both in the MMNFR concession and in BNR during 2021, revealing that the jaguar is utilizing the MMM to move across the landscape. This pilot study will be expanded in future years of camera surveys as we detect new indi-



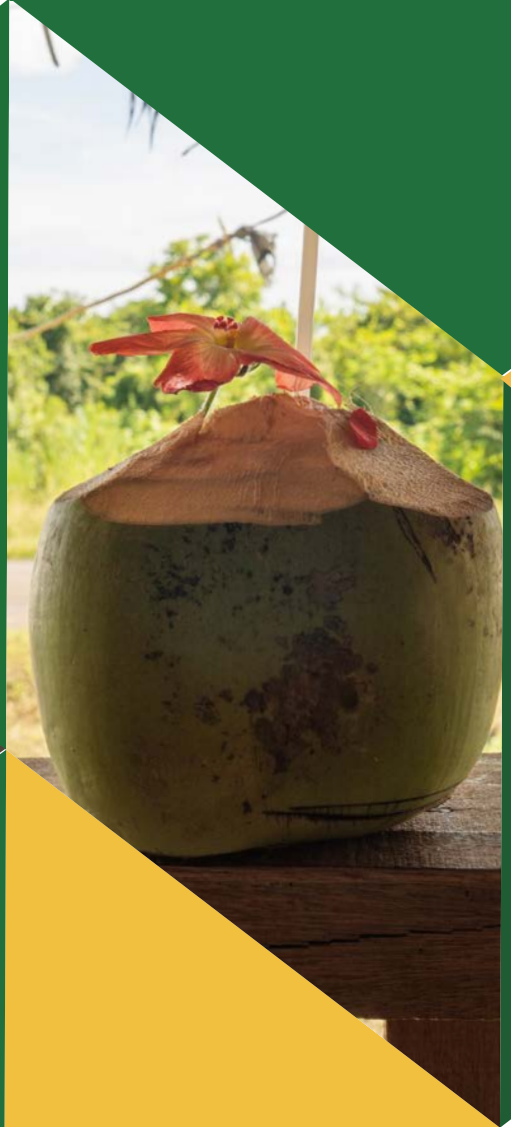
Human-Jaguar Conflict Sub-Program

The Human-Jaguar Conflict is a sub-program under Ya'axché's Science Program aimed at responding to calls from communities on jaguar conflicts across the Maya Golden Landscape (MGL). Nine calls on reports of jaguar attacks were made in 2021 from five communities of the MGL. A site visit was conducted to investigate and document available evidence of the predatory attacks. It was observed that the predatory attacks were mainly on livestock, calves, and domestic animals, predominantly dogs. Seven farmers implementing a jaguar-friendly farm received a foxlight (solar-powered predator deterrence lights) to continue preventing jaguar attacks on their farms. To document the activity pattern of jaguars and other wildlife around these jaguar-friendly farms, a pair of Moultrie camera traps were deployed in these seven farms. Preliminary results show that five wildcats, the jaguar, puma, ocelot, jaguarundi, and margay were detected by the camera trap alongside the prey base, which includes the Central American agouti, collared peccary, nine-banded armadillo, paca, forest rabbit, tayra, white-tailed deer, and white-nosed coati. Findings denote that these carnivorous and prey species continue to roam and inhabit the landscape fragmented with agriculture activities and communities in the MGL. An annual radio show was hosted at Sunshine Radio Station targeting the communities of the MGL to increase awareness on the importance of protecting jaguars and their habitat. The talk show also addresses the issues with human-jaguar conflicts and recommending mitigation strategies to reduce jaguar attacks. This radio show was also complemented by a social media online campaign which was launched in the months of November and December to commemorate Jaguar International Day.



Figure 19. Foxlight installed in pastures.





Sustainable Conservation Financing Initiative

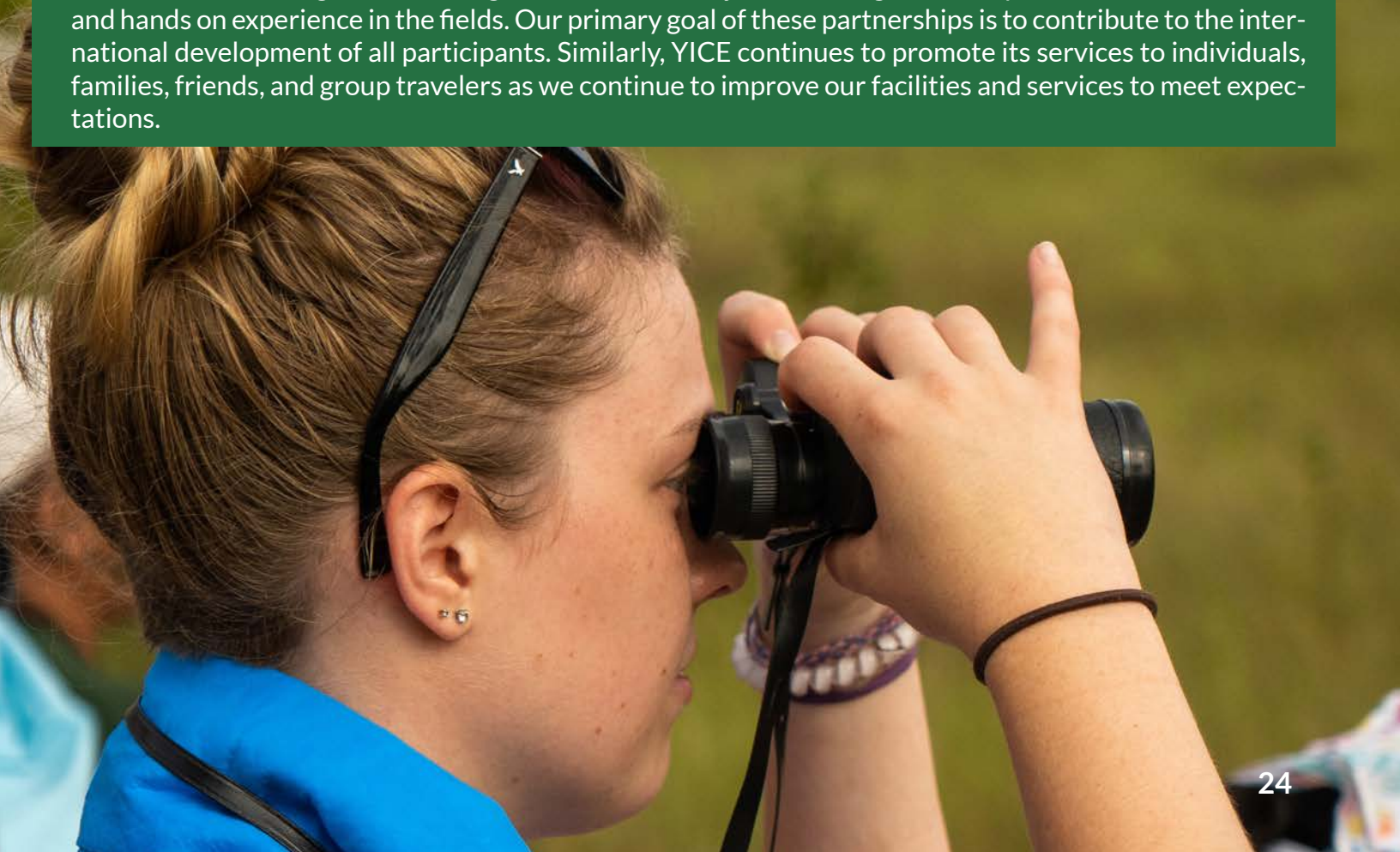
Growing Sustainable Financing Initiatives



Photo 17: Ya'axché Institute for Conservation Education: Adaptation for improved services

Ya'axché institute for Conservation Education (YICE) through its Ecotour Operator and accommodation services maintained its Gold Standard certification as it returned into hosting visiting groups and families at Golden Stream Corridor Preserve. It is of utmost importance that the health and safety of guests and staff is present in all its tour, accommodation, and transportation services. The national requirement and protocols in Belize continue to be adapted on our property and through all our services.

In 2021, YICE continued to build new relationships and collaborated with returning prestigious international partners to build and promote cultural, educational, and environmental conservation awareness in Southern Belize. Programs are designed to meet the objectives and goals of its partners both theoretical and hands on experience in the fields. Our primary goal of these partnerships is to contribute to the international development of all participants. Similarly, YICE continues to promote its services to individuals, families, friends, and group travelers as we continue to improve our facilities and services to meet expectations.



Nursery supporting sustainable farming

The Ya'axché nursery continues to grow, nurture, and deliver organically grown seedlings to support the sustainable farming practices in the Maya Golden Landscape. This year it supported farmers in several communities as far as Aguacate and San Jose villages. Every year we welcome customers from the different districts in Belize who are looking for quality seedlings to plant in their farms or backyards. The team continues to source high yielding seeds for timber, fruit, and spices to be able to supply to all interested individuals, farmers, and other projects across Belize.

The nursery also supported partnerships by delivering healthy seedlings to communities and primary schools who are involved in reforestation initiatives and growing fruit trees for improved food security and health nutrition. This year, the nursery team also assisted in propagating experimental forest species of trees that are monitored by the Science program. The trees grown are planted in degraded areas across the reserves managed by Ya'axché especially at the Maya Mountain North Forest Reserve. The outreach and support of the nursery continues to grow and is committing for increased propagation of varieties of trees each year to meet customer's demands.



Photo 18: Nursery seedling delivery.



Graph 3: Total trees propagated in 2021 to support projects and nursery customers

Improving livelihoods of community partners

YICE continues to support and empower its partners in the Maya Golden Landscape through capacity building opportunities, assessment for improved ecotourism services and formalizing agreements. As the pandemic continues to affect the services of partners, YICE team members with support of Ya'axché, continues to work with the farmers and women's groups in the MGL to become more educated and innovative as they transition into working in the post COVID tourism environment. Capacity building sessions for improved customer service and adapting COVID 19 safety measures has been a consistent topic. This way these partners can be prepared to provide services to international travelers with the highest health and safety measures while minimizing the effects on the experiences they provide through cultural tours and farm tours.



Photo 19: Capacity building workshop for women's group.

2021 was a year of assessing more farmers and women's groups interest and readiness to become engaged in the tourism industry as an alternative income generating opportunity. New farmers and women's groups were recruited, and partnership formalized through agreements. YICE will continue this process as it continues its growing interest in supporting community development, diversifying income generating opportunities to farmers and women and more importantly providing financial opportunities to these partners when they are obtained and secured.

Investing projects for improved management, development, and growth

The completion of the investment project through a small technical grant from the Biodiversity and Protected Areas Management Programme (BIOPAMA) 2021 has tremendously improved and developed Ecotourism Belize's facilities, tours, transportation, and accommodation services. Providing the adequate amenities and improved services to all visitors remains high priority of EcoTourism Belize. Through supporters such as BIOPAMA, provides EcoTourism Belize the opportunity to grow in its services, partners, and customers. Thus, can increase the number of visitors at the Golden Stream Corridor Preserve resulting in increased capacity to support better management and long-term sustainable conservation in the Maya Golden Landscape.



Photo 20: New Foton Tour Van for transportation services.



Photo 21: Bunkhouse veranda upgrade.

YICE team members continue to build strong relationships with both community service partners and customers to promote ecotourism service in southern Belize. Furthermore, the promotion of sustainable farming and providing support to tree planting initiatives through the nursery continues to thrive successfully. YICE has seen another year of productivity, development, and growth and hopes to continue providing the support to all its existing, new, and potential customers in 2022.

Funders and Partners

Ya'axché is grateful to its long-term institutional partner, Fauna and Flora International for its continuous support over the years and would also like to thank all those who have contributed to our work throughout 2021:

- ◇ Belize Nature Conservation Foundation
- ◇ BIOPAMA
- ◇ Canada Fund for Local Initiatives
- ◇ European Union
- ◇ GEF Small Grants Programme
- ◇ Global Giving
- ◇ Global Trees Campaign
- ◇ Global Best Practices Programme
- ◇ ICCO Cooperation
- ◇ Inter-American Foundation
- ◇ Inter-American Development Bank
- ◇ Milwaukee County Zoo
- ◇ Ministry of Sustainable Development, Climate Change, and Disaster Risk Management
- ◇ New England Biolabs Foundation
- ◇ Overbrook Foundation
- ◇ Protected Areas Conservation Trust
- ◇ U.S. Fish & Wildlife Services
- ◇ World Wildlife Fund

Partner Organizations

- ◇ Agriculture Department
- ◇ Association of Protected Areas Management Organization
- ◇ Belize Association for Privately Protected Areas
- ◇ Belize Audubon Society
- ◇ Belize Defence Force
- ◇ Belize Forest Department
- ◇ Belize Network of NGOs
- ◇ Belize Foundation for Research and Environmental Education
- ◇ Belize Police Department
- ◇ Belize Tourism Board
- ◇ Education First Cultural GmbH
- ◇ Green Creek Farmers' Cooperative
- ◇ Maya Mountain Cacao
- ◇ Maya Mountain Research Farm
- ◇ Oceana Belize
- ◇ Panthera
- ◇ Round River Conservation Studies
- ◇ Toledo Institute for Development and Environment
- ◇ Trio Farmers Cacao Growers
- ◇ University of Belize - Environmental Research Institute
- ◇ University of New Mexico

Members

Ya'axché would like to extend a heartfelt thank you to all our members who support our work through their kind monetary contributions!



YA'AXCHÉ CONSERVATION TRUST

STATEMENT OF COMPREHENSIVE INCOME

YEAR ENDED 31ST DECEMBER 2021

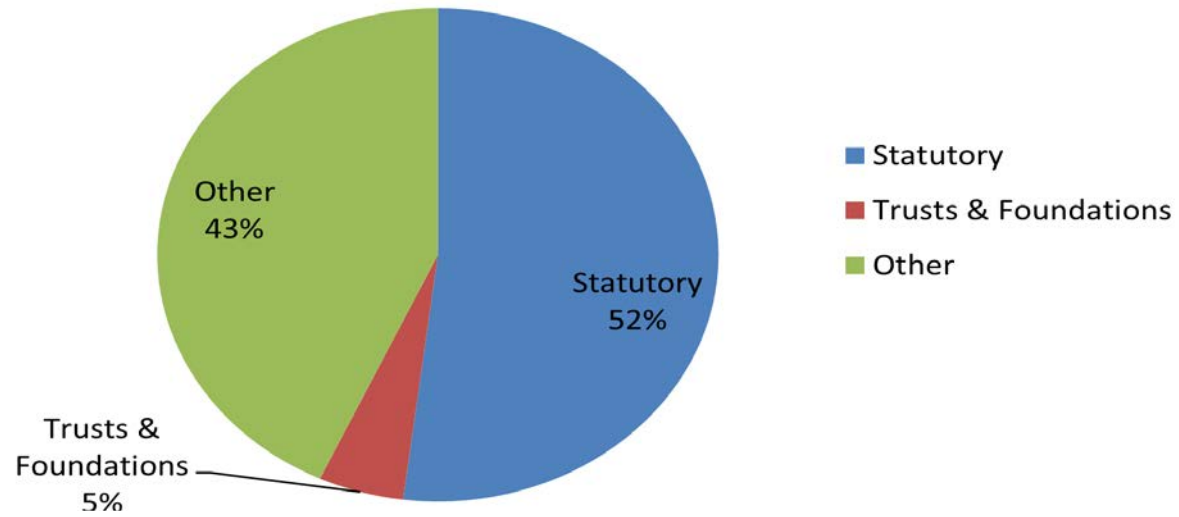
All amounts are expressed in Belize Dollars

INCOME	2021
Grant Receipts	\$2,218,199.16
Other Income	\$ 41,894.84
EXPENSES	
Salaries, wages, and allowances	\$ 968,805
Training and development	\$ 2,522
Legal and professional fees	\$ 597,260
Severance Provision	\$ 22,761
Depreciation	\$ 76,334
Materials and Supplies	\$ 32,665
Workshops	\$ 26,528
Ya'axché Farmer's Expo	\$ -
Eco Tourism Belize	\$ 44,601
Advertising and Promotion	\$ 1,784
Communication	\$ 18,381
Building, Equipment Maintenance and Repair	\$ 2,654
Travel and transportation	\$ 13,087
Office expenses and equipment	\$ 34,709
Field Supplies and equipment	\$ 159,702
Vehicle, fuel, maintenance, and repair	\$ 92,740
Dues and subscriptions	\$ 3,995
Nursery and garden	\$ 16,560
Interest and bank charges	\$ 4,880
Loss on Disposal	\$ -
Other Expenses	\$ 12,661
Total Expenses	\$ 2,132,629
NET INCOME/(LOSS) FOR THE YEAR	\$ 127,465

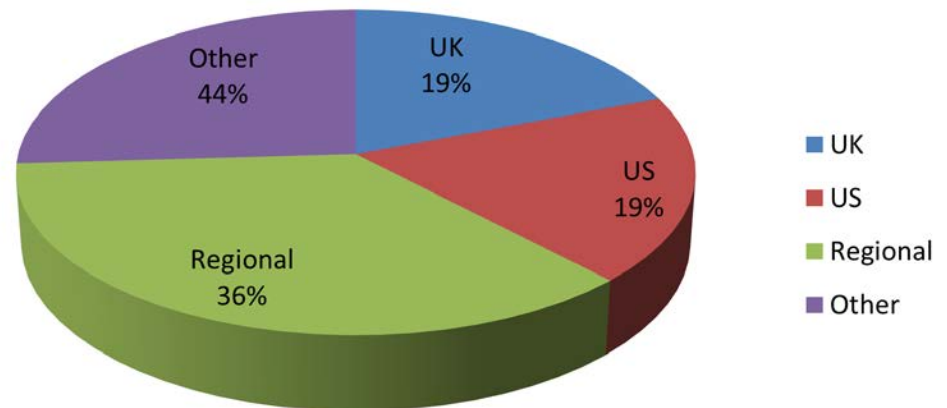
Source of Funding



FUNDING SOURCE 2021



GEOGRAPHIC ORIGIN OF FUNDING 2021



Staff

The list below represents staff members (pass and present) that have contributed to Ya'axché's achievements throughout 2021. As of December 2021, Ya'axché employs 35 full time staff. Volunteers/Interns, indicated by an asterisk (*), fill key positions in the organization.

CORE & Administration Development		Development	
Christina Garcia ^L	Executive Director	Megan Lopez	Development Manager*
Marvin Vasquez ^L	Operations Director	Diana Mai	Development Officer*
Ivanny Oliva ^L	Finance Director	Marketing and Communications	
Dianne Gomez	Finance Manager	Nathaniel Castillo	Marketing & Communications Officer
Amira Palma	Administrative Assistant	Sayuri Tzul	Marketing & Communications Officer
Community Outreach & Outreach Program			
Gustavo Requena ^L	Community Outreach & Livelihoods Program Director		
Julio Chub	Community Liaison Manager		
Evarista Sho	Education & Outreach Officer		
Eugenio Ah	Sustainable Agriculture Coordinator (<i>Exited August 2021</i>)		
Elmer Burgos	Agroforestry Extension Officer (<i>Exited June 2021</i>)		
Erwin Tush	Agroforestry Extension Officer		
Estevan Assi	Agroforestry Extension Officer		
Ronaldo Coc	Agroforestry Extension Officer		
Protected Areas Management Program			
Said Gutierrez ^L	Protected Areas Management Program Director		
Marchilio Ack	Protected Areas Manager		
Florentino Chiac	Wildlife Conflict Officer		
Alex Vierod	GIS Specialist		
Hilberto Rash	Ranger Team Leader, specialized in navigation		
Vigilio Cal	Ranger, specialized in navigation		
Juan Cal	Enforcement Ranger		
Ramon Sanchez	Enforcement Ranger; licensed tour guide		
Delbert Pop	Ranger Team Leader, Enforcement Ranger		
Roberto Tzib	Enforcement Ranger		
Benjamin Cal	Enforcement Ranger (<i>Exited April 2021</i>)		
Israel Canti	Enforcement Ranger		
Marvin Pop	Enforcement Ranger		
Science Program			
Elizabeth Dorgay ^L	Science Director		
Oscar Requena Jr.	Research Officer (<i>Exited August 2021</i>)		
Anignazio Makin	Ranger Team Leader, specialized in freshwater monitoring		
Rosendo Coy	BR&M Ranger; licensed tour guide		
Gerasimo Coc	BR&M Ranger		
Andres Chen	BR&M Ranger		
Sustainable Conservation Financing Program			
Marcelia Assi ^L	Conservation Business Director		
Miguel Coc	Nursery Technician		
Petrona Coc	Housekeeper		

Ya'axché Conservation Trust
Phone: (501) 722-0108
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