



ANNUAL REPORT MANGROVE ACTION PROJECT

FY 2018



Letter from the Executive Director

2018 was an eventful year for MAP, both in terms of programmatic strategy and structure. We began expanding our outreach and the influence of our restoration programs, as well as bringing our educational curriculum to new locations around the globe.

Mangroves have recently gained significant prominence within the broader conservation scene, thanks in large part to the recognition of their abilities to aide some of our world's worst ecological crises, ranging from climate change to the problem of how we will continue to sustain a seemingly ever-increasing population (much of which will be concentrated along coastlines). There is now a concerted effort to overcome and hopefully reverse the trend of global mangrove loss – and MAP intends to be at the forefront of this endeavor.

This year, MAP increased the prominence of its “Community-based Ecological Mangrove Restoration” (CBEMR) method by consulting for Wetlands International in Africa. In Thailand, our network of CBEMR communities was further strengthened, and alternative livelihood programs that encourage healthy mangrove forest interactions – such as beekeeping – were successfully introduced. Additionally, our demonstration CBEMR restoration sites have come to full fruition.

Our *Marvellous Mangroves* educational curriculum was introduced to a further two countries – Suriname and French Guyana, bringing the total number of countries in which it has been implemented up to 15, with over 2,500 teachers and 250,000 students now having taken part in the curriculum worldwide.

MAP also became an official member of the Global Mangrove Alliance, a joint grouping of international NGOs which are all working on mangrove conservation worldwide. The group has announced an ambitious goal of increasing global mangrove cover by 20% by 2030 – a goal which MAP hopes to help achieve. Through this partnership, MAP hopes to gain new partners in the fight against global mangrove degradation, and to expand its best-practice methods to new arenas.

In September 2018, Dylan Skeffington became the new acting Co-Executive Director of MAP, sharing the role with Alfredo Quarto until the end of the year, after which he would take on the role of Executive Director in 2019. Dylan replaced Sara Lavenhar in the position after having worked at another NGO that focused on the socioeconomic aspects of environmental conservation. He was brought on to capitalize on the work of Sara Lavenhar, with the idea of helping MAP in its transformation into a more expansive and influential player in the global mangrove conservation scene.

During her tenure as executive director, Sara was able to transform the internal structure and organization of MAP, overseeing some much-needed modernizations to a more digital platform, as well as helping to fundraise and organize for future projects, including beginning to transition MAP into a new role as an important global resource for mangrove issues. We want to thank her for her service to the mangroves worldwide!

Mangroves have only recently (and finally!) found themselves at the center of the global conservation movement. However, MAP has been at the forefront of mangrove issues for more than two and a half decades. During that time, we have been able to advocate for mangrove forests globally, and to develop best-practice programs using the latest science and also incorporate coastal communities, NGOs, scientists, and governing bodies into the endeavor of preserving our world's vital mangrove forests. We have been out in the field and seen first-hand what works, and what doesn't.

In the near future, we aim to bring this cumulative experience and knowledge to full fruition by helping other organizations to implement these methods, and to expand our own base in doing so.

For further information on our programs and on how you can get involved, please visit our newly revamped website at www.mangroveactionproject.org.

Sincerely,



Dylan Ross Skeffington

Executive Director,
Mangrove Action Project



Alfredo Quarto

International Program Coordinator,
Mangrove Action Project

Highlights of MAP's Work in 2018

“Community-Based Ecological Mangrove Restoration” (CBEMR)

CBEMR Consulting

BORNEO – In February, MAP CBEMR lead trainer Dominic Wodehouse visited the site of five abandoned shrimp ponds located in Balikpapan, Borneo. He advised MAP's potential partners on the logistics he envisioned needed to restore these ponds. The project may commence sometime in late 2019 or early 2020. With over half a million hectares of abandoned shrimp farms worldwide – the bulk of which may well be in Indonesia – it is important that we commence the needed work to effectively restore some of this otherwise lost mangrove area back to productive wetlands. We at MAP are hoping to have this opportunity to lead these efforts to restore the mangroves via our Community-Base Ecological Mangrove Restoration approach, and use this work in Borneo to further promote our best practice techniques for restoration.

MAP's Mangrove Conservation & Restoration Project at Thung Yor, Thailand



THAILAND - Thung Yor is a small village located in Krabi Province, in the southern region of Thailand. Some of the village area is mangrove forest which is connected to the Andaman Sea by tidal streams. Most of the villagers' main occupation is in agriculture with a supplementary livelihood from coastal small-scale fisheries. Due to their dependence on fishing, the villagers have placed a priority on the conservation and restoration of mangroves. The community joined MAP to undertake a CBEMR project with the objective to restore two hectares of abandoned shrimp ponds back to mangroves. The site consists of three ponds as seen in the image above with little or no tidal exchange, especially pond #2 and #3 which were waterlogged with few

mangrove seeds entering the ponds. Overall, the conditions were not suitable for mangrove growth. Pond #1 remained very wet as the pond drained through the sluice gate and by the time the pond was drained the area was starting to come back up due the semi-diurnal tides (2 high & low tides in a 24 hour period). The community wanted to rehabilitate the mangroves, but the traditional planting method would not work in this situation due to the disturbed hydrology. MAP introduced the concept of Community-based Ecological Mangrove Restoration (CBEMR), which was a completely new approach for the community, but they trusted MAP and are determined to learn. Under the CBEMR approach, the priority will be to restore normal tidal flushing so as to facilitate better mangrove growth.

CBEMR Training with Wetlands International in Senegal



SENEGAL – In April, Wetlands International and Mangrove Action Project completed a two-week Community Based Ecological Mangrove Restoration (CBEMR) field summit in Saloum Delta, Senegal. The workshop was brought about after an exploratory visit to Guinea Bissau in 2017 by MAP'S co-founder, where Wetlands International realized the

great benefits of implementing CBEMR in their region, and invited MAP to come to Senegal to lead a CBEMR training workshop in the Saloum Delta region of Senegal.

Wetlands International, Africa and MAP completed a two-week CBEMR field summit in Saloum Delta, Senegal. Week one was a mix of training and field trips. Topics included the reasons for planting failures, mangrove benefits focusing more on the obscure features such as water cleaning, relevant mangrove biology and ecology, species zoning, measuring spot heights, the importance of hydrology and how CBEMR uses all of these factors to facilitate natural regeneration. With removal of mangrove stressors and improvements of hydrology and topography a bio-diverse ecosystem can be re-established. The second phase of three days focused on more practical issues – for instance, the reduction of demand for mangrove wood. At the end, members were joined by Ibrahima Thiam, Regional Director for Wetlands International Africa who presented certificates for participants and many thanks from the MAP trainers for the host NGO's help and logistics efforts. (You can see some photographs of the training [here](#)).

One reason the mangroves in the Saloum delta are particularly imperative is that West Africa is ranked high on the list of regions threatened by climate change. Severe drought, massive

deforestation, unsustainable agricultural practices, and poor watershed management have left much of West Africa dangerously vulnerable to sea level rise and extreme weather events provoked by climate change. Restoration and conservation of the region's wetlands, especially their mangrove ecosystems, is a vital part of disaster mitigation and coastal protection strategy proposed for the region.

Following this workshop, Alfredo Quarto and Ibrahima Thiam of WI, Africa co-authored an article that was published in the FAO's magazine, NATURE & FAUNE Volume 32, Issue 1 entitled "Community-Based Ecological Mangrove Restoration (CBEMR): re-establishing a more biodiverse and resilient coastal ecosystem with community."

Empowering CBEMR Ambassadors!

THAILAND – In May, MAP hosted a Facilitation Skills Workshop that was funded by a newly established Lush: Fresh Handmade Cosmetics grant, for MAP's Community Based Ecological Mangrove Restoration (CBEMR) Community Network Capacity Building program. This workshop, which took place directly adjacent to a beautiful mangrove estuary in the town of Krabi, spanned four days at the beginning of May, 2018. There were 13 participants from five villages within MAP's CBEMR Network throughout four provinces in Southern Thailand: Trang, Krabi, Phang-Nga, and Ranong. MAP is developing this CBEMR Network, to emphasize building capacity for communities involved in CBEMR. [READ MORE](#)

MAP Thailand hosts Environmental Education at Ban Tha-Sanook, Thailand



THAILAND - On the 21st of June Mr. Udomsak Pariwatpan (Em), MAP-Thailand's Field Officer, and the new MAP Intern travelled to Phang Nga and Krabi Provinces for a jam packed two days of meetings and environmental education (EE). The focus of the trip was primarily on carrying out environmental education for school aged children, funded by the LUSH Charity Pot, but also included meeting with the principle and village chief about using the school as a one of two plastic free model schools in Thailand and visiting MAP's other project sites. The

environmental education class consisted of 21 students, aged 14, from a primary school in Ban Tha-Sanook, Phang Nga Province. Read more about the workshop at [this link](#).

Ban Nai Nang Apiculture Training Workshop

THAILAND - On July 1st, 2018, Mangrove Action Project and Nai Nang Apiculture Group hosted a “How to do beekeeping” training workshop for new communities interested in this supplementary livelihood. There were a total of 32 participant trainees who came from 3 different villages in which MAP currently has a mangrove restoration project – 12 people from Bang Kang Khao village, Sikao District, Trang; 4 people from Thung Yor village, Klong Thom District, Krabi; and 16 people from Kong Lu village, Muang District, Krabi. The workshop provided a great opportunity for Nai Nang trainers to disseminate some of their valuable knowledge and for other villages to learn about how the group has become so successful with their apiculture enterprise, with the hope of being able to replicate it in their own village. This livelihood-training workshop was kindly funded by the LUSH Charity Pot.



Four years ago the community of Nai Nang in Thailand started producing honey made from the mangroves flowers surrounding the village. Nai Nang villagers had already been involved in apiculture for some time but MAP helped provide material, technical training, develop labels, marketing and equipment support to take this project to the next level. The hives were incredibly successful, and the community sells around 300 kilos of honey each year! The story doesn’t end there! A nearby village, Ta-Sanook, showed keen interest in beekeeping as an alternative livelihood. When members of each community met, it became evident that something exciting could begin here. Soon, villagers from Ta-Sanook undertook a day-long training under the supervision of the experienced leaders from Nai-Nang village. They demonstrated beekeeping techniques, shared beehive construction methods and gave important recommendations for producing honey. At a second training, the women of Nai Nang taught their sisters at Ta Sanook the craft of making value added products such as shampoo, conditioner and hand soap.

Mangrove Restoration in El Salvador Beginning to Bear Fruit

EL SALVADOR - Sometimes, progress means helping nature do what it does best. This seems to be the case for a once-barren 200-acre piece of land surrounded by lush mangrove forests in El

Salvador. The most extensive remaining mangrove forest in Central America is located in the Bay of Jiquilisco in the Lower Lempa region of El Salvador. At 632 square kilometers, the Bay of Jiquilisco is El Salvador's largest wetlands complex and protected area, designated as both a Ramsar Wetland of International Importance and a UNESCO Biosphere Reserve, a nesting habitat for birds, and a breeding ground for sea turtles. Unfortunately, El Salvador has lost 60% of its mangrove coverage since 1950 and continues to lose mangroves at a rate of 681 hectares (just under 7 square kilometers) each year (MARN 2014). Climate change, deforestation, pollution, large-scale agricultural development, and over-exploitation of natural resources continue to threaten this critical resource. This loss threatens the livelihoods and safety of the communities and wildlife that depend on the health of this ecosystem for their survival. You can read more at [this link](#).

MAP and Villagers Explore "Forest Landscape Restoration" at the 2nd People and Forests Fair

THAILAND - This March, Mangrove Action Project (MAP) attended the 2nd People and Forests Fair at the Bangkok Art and Culture Centre. There were 19 non-governmental organizations, community groups and government organizations participating in this event organized by The Center for People and Forests, RECOFTC. This was a large event, with a diverse array of over 500 people, comprised of local villagers and tourists, as well as Bangkok residents and government officials. MAP representatives included nine people from four villages that MAP works with in the field, including Bang Kang Khao village, Trang province, Thung Yor and Nai Nang village, Krabi province and Tha Sanook village, Phang Nga province. This event was organized to provide a learning exchange between different groups, and to link a variety of communities from upstream to the sea through the Forest Landscape Restoration (FLR) network. The nine villagers expressed their excitement and hoped to bring their experiences and knowledge from this



Crowdfunding for Conservation

In September of 2018, MAP used its newly expanded online base to help raise funds to augment the apiculture project that was originated in Nai Nang through the crowdfunding platform of Global Giving. The extra funding brought in through the crowdfunding campaign allowed for Nai Nang and MAP to train two extra villages in the art of



beekeeping and the livelihood brought from the sales of the honey and its products. The village of Nai Nang has been so successful in its apiculture program that it has agreed to purchase all of the honey from the other villages involved in the program to supplement its own supply, and has begun conducting trainings for the other villages in how to market and sell their own products.

Marvellous Mangroves Environmental Education

Marvellous Mangroves Curriculum Celebrates 20 Years!

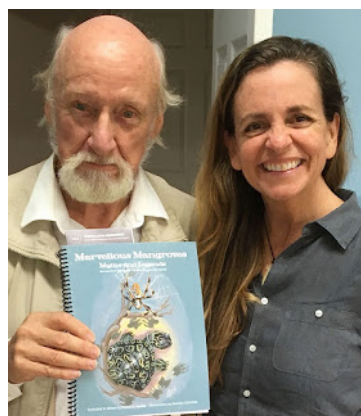
The award-winning Marvellous Mangroves (MM) curriculum educates children on the importance of mangroves and their ecological functions, teaching them about modern challenges and mechanisms for sustainability. MM training is an in-depth, hands-on, sciencebased conservation education program, which has not only been given to primary and secondary school children but also teachers themselves. The curriculum is already used in 15 countries by over 250,000 students and 2,500 teachers. Integrated with local and national curricula it encourages and facilitates students to spend time in mangrove forests, including participation in field studies, research and conservation. The empowering process for both students and teachers helps to create greener and healthier learning environment inside and outside of school. You can view [an overview video of the program here](#).

Marvellous Mangroves – In-Depth Ecotourism

USA - During the past two decades there has been a steady growth in mangrove ecotourism as more and more people discover the hidden beauties of the world's mangrove forests. As selected parts of the Marvellous Mangroves curriculum have been used to supplement the knowledge of the guides, the concerted focus of the October mangrove tourism workshops held in 2018 in Suriname have added a new dimension to the tour guide training process. MAP Education Director Martin Keeley joined forces with the United Tour Guides Association of Suriname (UTGS) and the Foundation for Development of Radio and TV in Suriname (SORTS) to hold two workshops. The first 3-day workshop was held in Coronie, home of the amazing Mangrove Education Centre, and the second in New Amsterdam, Commewijne, on the opposite side of the Suriname River to Paramaribo. In 2016 UTGS directors led by Errol Gezius and



Yves Tjon, together with Sherida Mormon of the NGO Advice For Innovation & Business Creation (ABIC) took part in a teacher/student MM workshop in Coronie as well as a one-day introductory tour guide mangrove workshop led by Martin Keeley. This began the drive towards a second series of workshops in July, 2017, which are part of the training of young eco-tour guides in the Coronie region of Suriname.



Mangrove Myths & Legends Books Donated to Cayman Islands Schools

CAYMAN ISLANDS - MAP's Education Director, Martin Keeley, donated copies of his book *Marvellous Mangroves Myths & Legends* to every Year 5 teacher in the Cayman Islands. Presenting the books to Catherine Childs, National Trust Education Officer, Mr. Keeley explained that the *Marvellous Mangroves* education program has been part of the school curriculum since it was first introduced to Cayman in 2001. "As we enter the eighteenth year of mangrove education in Cayman I felt that it would be great to add yet another dimension to this popular hands-on science education program," he said. Ms. Childs is responsible for delivering the program in Cayman's schools every year to all Year 5 students. The National Trust of the Cayman Islands considers it one of its most valuable learning tools, she says, and is able to continue delivering the program annually thanks to the support of the Caribbean Utilities Corporation (CUC), which has sponsored the program since its initiation.



Expanding Marvellous Mangroves Curriculum in Suriname and French Guyana

In the fall of 2018, MAP's Education Director, Martin Keeley, traveled to both Suriname and French Guyana to run workshops introducing his *Marvellous Mangroves* educational curriculum.

In Suriname, Keeley conducted a 3-day teacher training at Nickerie Teachers College, instructing future teachers on how to implement the curriculum to their future students. He also met with senior policy advisors and administrators in Nickerie, ranging from game wardens, to local TV executives, senior librarians, and school principals. He was also able to conduct a two-day workshop for students and teachers at the Galibi village school, which included a presentation on utilizing light source microscopes and hand lenses, as well as

presenting some of MAP's calendars and books to local village leaders. Work for the MM curriculum was begun in the local Karina language, and was adapted to local ecology and traditions.

Martin Keeley also continued the planning of the mangroves curriculum implementation into French Guyana. Before the year's end, he was able to liaise with Lucile Dudoigne of Kote Foret, who would be the lead partner group along with MAP for implantation of the curriculum in French Guyana. Keeley was also able to procure a grant from LUSH Charity Pot, through MAP's newly minted partner organization of Mangrove Education Project (whose programs are also run by Keeley), to implement the training of educators in the curriculum in French Guyana. By year's end, work as underway to translate and adapt the Marvellous Mangroves version created for Suriname to French for future implementation in French Guyana.

OUTREACH & AWARENESS-RAISING EFFORTS

MAP Raises Alarm Over Loss of Mangroves at Pitas, Malaysia

MALAYSIA - The Pitas development is a government initiative through state subsidiary company Inno Fisheries Sdn in collaboration with Sunlight Seafood (Sabah) Sdn Bhd, which is reported to entail a RM1.23 billion (c US \$320m) investment and the creation of around 1,500 shrimp ponds, with around 20% of the total funding coming from state sources. Yayasan Sabah's Inno-Fisheries is a government agency whose website states its mission as being "to uplift the quality of life of Malaysians in Sabah". Sunlight Seafood is one of the leading processors and exporters of frozen seafood products in Malaysia.

Local people, however, do not see the benefits. Noridah Samad, a local youth and a member of the G6 collective says, "Seeing our land being destroyed in the name of profit making, impedes us from sustaining our traditional livelihoods and culture. With the destruction of the 2,300 acres, many youths will never learn the ways of our grandfathers and traditional knowledge will be lost." Another local farmer and fisherman, also a member of the G6 collective, says that the shrimp farm developments over 2,300 acres have significantly depleted resources and affected the livelihood of subsistence farmers and fishermen in the area. Speaking at a press conference organized by Sabah Environmental Protection Association (SEPA) in 2015, he said: "We now have remaining about 1,000 acres of mangrove land which has a sensitive bio-system and hold our livelihood as well as traditional practices like traditional medicine, building materials and sacred sites. We are concerned that any further expansion of the farm into this land will permanently and completely destroy our source of income and livelihood on the very ground that we have lived on for eight generations now." (Read more [at this link](#)).

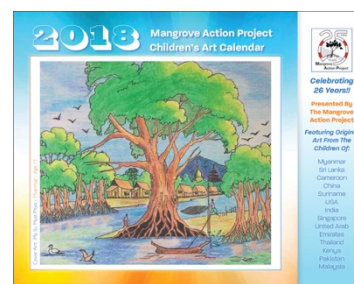
Newsletter & Social Media Expansion

One of MAP's perennial goals has been to increase general awareness of the value of mangrove forests and the imminent threats they face. To that end, MAP has continued to provide a bi-weekly newsletter to an expanding list of subscribers worldwide, providing updates on events, policies, and news related to mangrove forests. MAP has also been focused on growing its social media presence online, providing updates on MAP's programs as well as general mangrove information and occurrences.

MAP's Creative Director, Leo Thom, has continued producing high-quality videos and other media, several of which have gone viral, further spreading the message of mangroves across the digital world. [Click here](#) for a look at some of the latest videos on MAP's YouTube channel.

Annual MAP Children's Art Calendar

As part of its outreach effort, MAP published its annual Children's Art Calendar. This 17th edition of the calendar – which is made up of artwork from children in mangrove countries around the world – also celebrated MAP's 25th anniversary!



PREPARING FOR THE FUTURE

The Mangrove Education Program (MEP) gained official NGO status within the Cayman Islands, with an MOU signed between it and MAP that allows for total partnership in furthering mangrove educational programs. This partnership will help expand the mangrove educational programs to new locations. Indeed, the program was already being utilized to help implement the mangrove curriculum in French Guyana by the end of 2018.

Additionally, at the end of 2018, the CBEMR team was gearing up to conduct another training workshop in conjunction with Wetlands International in Tanzania, something which MAP aims to replicate and expand in the near future.

The expansion of these workshops – both in CBEMR and MM – means that MAP will be able to have an outsized impact on the conservation and restoration of mangrove forests around the world by enabling others to effectively utilize the best-practice approaches in working directly with both mangrove ecology and communities for a long-lasting impact.

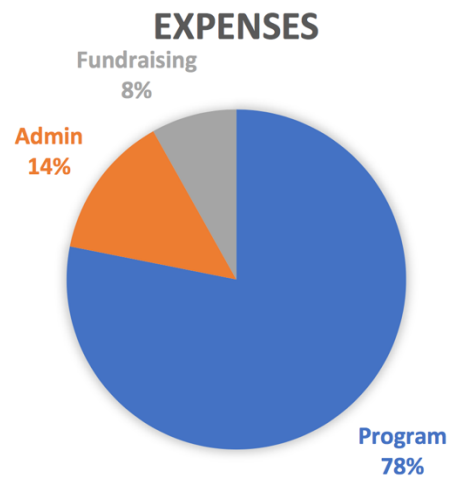
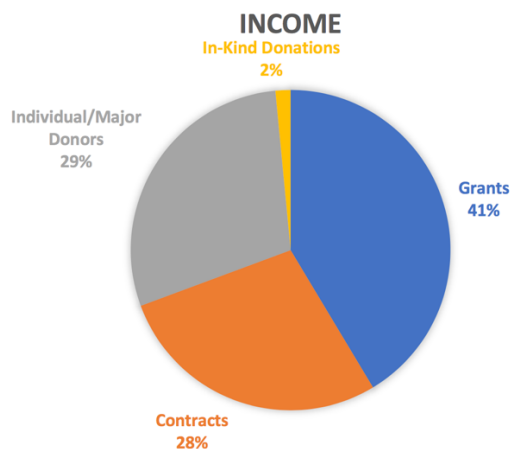
SUMMARY OF FINANCIAL ACTIVITIES – 2018

Income

Balance Forward from 2017:	\$27,912
Income 2018:	\$129,928
Grants / Foundations	\$54,170
Contracts	\$36,611
Individuals / Major Donors	\$38,117
Interest	\$30
In-Kind Donations	\$2,000
Total Forward Balance and Income:	\$158,840

Expenses

Programs	\$117,702
Administration	\$20,689
Fundraising	\$12,276
Total Expense:	\$150,667



2018 MAJOR DONORS

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