Borneo Nature Foundation

BORNEO NATURE FOUNDATION

annual report 2018

turning knowledge and science into on-the-ground action

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Message from the Chairman of the Board.

Juliarta Bramansa Ottay

2018 has been a great year for the Borneo Nature Foundation (BNF), as we have further expanded and achieved higher goals. This has only been possible due to the hard work of our excellent team, and valued collaborations and contributions from our local and international partners. We look forward to strengthening these partnerships to achieve new heights together in 2019.

As our research continues to increase our understanding of the crucial importance of Kalimantan's forests for biodiversity conservation and local people, the threats facing these ecosystems continue to grow and our conservation and outreach work becomes ever-more important. In 2018, BNF scientists led or contributed to a number of important publications documenting the richness of the region's forests, including guest editing a special issue of seven articles for Mires and Peat; publishing long-term species records for Sebangau, plus articles focusing on fish, primates, cats and tropical peat-swamp forest ecology.

The foundation that this scientific work provides for our conservation efforts has been particularly vital in Rungan, which our surveys have revealed contains one of the most important unprotected orangutan populations in the region. Here, we launched a new Community Development initiative in 2018, focusing on four villages, which included a multi-disciplinary landscape assessment, implementing permaculture training sessions to create alternative sustainable livelihood options for the area, and intensive local government and community socialisation efforts.

Meanwhile, in Sebangau, we have developed and launched a new Community Nursery Project, which aims to increase the area of degraded land that can be replanted while simultaneously providing economic opportunities to 38 local families engaged in the project, and is informed by our previous reforestation research. Likewise, intensive recent research has highlighted the intricate relationships between fish, humans and human activities in Sebangau, which in turn is helping shape our community education and development activities. We also continue our focus on local education and capacity building, with the BNF education team delivering sessions at 22 local schools, six local university scholarships facilitated and our local staff receiving targeted training in numerous areas.

In 2019, BNF will build upon these efforts, to further strengthen our research, outreach and conservation efforts through both existing and new partnerships. Across our work programmes and divisions, we will remain guided by the philosophy that a healthy environment that is managed sustainably in conjunction with local communities benefits both wildlife and people. We will therefore continue to increase our local community engagement and development efforts alongside our research, to improve identification and implementation of conservation solutions that work for wildlife and people alike. We hope that you will join with us on this mission to reach new goals together in 2019!

Borneo Nature Foundation

About Us

Borneo Nature Foundation (BNF) is a not-for- profit conservation and research organization, working to protect most important areas of tropical rainforest and to safeguard the wildlife, environment and indigenous culture of Central Kalimantan. We work with various local, national and international stakeholders to achieve a vision of Borneo that is environmentally and economically sustainable, through evidence based and field tested policy input. Throughout our programs, we support and empower community-led initiatives to protect forests and biodiversity, including anti-logging patrols, fire-fighting teams, environmental education, and the replanting and restoration of damaged forests; all built on a strong foundation of rigorous scientific research.

We are a team of dedicated Indonesian and international conservationists working to create a sustainable Borneo. Our scientists are leading experts in the ecology and conservation of Borneo's forests and wildlife, with particular expertise in monitoring the distribution, population status, behavior and ecology of the critically endangered Bornean orangutan. BNF makes a major contribution to action plans and strategies for the species' conservation, and works on a variety of conservation measures to protect wild orangutan populations and their natural habitat.

Our conservation focuses on protecting and sustaining natural ecosystems, restoring damaged forest, and conserving endangered species. We implement programs in three major threatened forest habitats in Central Kalimantan, Indonesian Borneo:

- The Sebangau peat-swamp forest in Kalimantan's lowland plains;
- The tall dipterocarp forests of the Barito Hulu region in the Heart of Borneo; and
- The Rungan Landscape and its diverse heath/peat mosaic forests.

We partner with local communities, regional and national government, educational institutions and private stakeholders. In partnership with our stakeholders, we pursue sustainable forest management to benefit natural resource conservation and safeguard each of these landscape's unique biodiversity, economic and cultural values.

BNF is registered as a foundation in Indonesia (AHU-000405.AH.01.05) headquartered in Palangka Raya, Central Kalimantan, with partner organizations registered in the United Kingdom (not-for-profit company no. 06761511 and UK Charity no. 1142870).

Borneo Nature Foundation is linked to the Primate Research Group at Oxford Brookes University, the College of Life and Environmental Sciences at the University of Exeter, and the School of Geography, Geology and the Environment at the University of Leicester.

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Research
We conduct high-quality scientific research on a multitude of topics, the results of which are used as a basis for conserving and restoring forests and biodiversity. We collaborate and partner with local and international scientists to obtain the highest quality knowledge and scientific evidence to inform conservation policy decision making from community to international level; We provide training and capacity building for local students, researchers and conservation-area managers, and work with several local partners to provide in-situ learning experiences of field research and implementing successful conservation projects.

Conservation of Biodiversity
Together with our partners we implement conservation programs in areas of critical biodiversity importance, and identify, plan and implement restoration programs in damaged and degraded areas. This work makes use of the latest science and is conducted in partnership with stakeholders.

In Sebangau forest, with local communities we build dams in man-made canals leftover from past legal and illegal logging activities in order to keep the peat wet and thus prevent fire.

We replant burnt areas of peat swamp forest with endemic vegetation to promote the return of the natural peat-swamp ecosystem and its associated fauna.

In our effort to eliminate forest fire, we put prioritize establishing and facilitating bottom-up and community-based fire response teams in local villages. With support from our donors, we equip these teams with the skills, and equipment necessary for effective fire-fighting and prevention.

With our partner, CIMTROP, we also established and facilitated a patrol team in Sebangau Natural Peat Laboratory. For this team, we facilitated with skills and equipment to safeguard the natural laboratory from recurring peat fires, as part of support to Sebangau National Park.

Working with our partner, the Center for International Cooperation in Sustainable Management of Tropical Peatland (UPT LLG-CIMTROP), we support the Sebangau Patrol Team in its work to prevent the illegal harvest of forest products and protect the Sebangau from fires through early detection and close coordination with local fire-fighting teams.

In Rungan, we are a lead partner in local efforts to secure protection of the Rungan Landscape. This involves extensive ecological surveys of the landscape, community socialization and development work, and government and industry engagement, to feed into conservation plan development.

Environmental Education
We believe that environmental education has a fundamental role to play in conservation. BNF is therefore working with partners and stakeholders to ensure that local children receive environmental education and to raise their awareness, both of the amazing biodiversity of their forests but also the threats to this environment. Therefore, we deliver education and learning experiences to schools and communities neighboring the rainforest, with a range of projects to engage young people of different ages and backgrounds. The mix of activities gives us the opportunity to approach complicated conservation issues with engaging and informative learning methods.

We empower young people to become agents of change for the conservation of Borneo's natural environment to raise awareness about Borneo's forests and wildlife, and the need for its conservation;

- Inspire young people to act as ambassadors to spread conservation messages and take positive action;
- Develop resources to support our activities and distribute to other organizations that align with BNF's vision and mission; and
- Establish a network of educators to further improve environmental education projects across Indonesia

Learning Experience through International Visits
Together with local university partners, BNF provides a range of opportunities. Our forest sites provide excellent platforms for a wide range of international visitors, including students, volunteers, policy makers, conservationists, community groups, media, schools and universities.

Our research stations enable us to provide enjoyable interactive learning activities centered on the forest ecosystem and its threatened species. These activities are tailored to the unique biodiversity of Borneo's peat-swamp, heath, and dipterocarp forests, and the many ways to protect them!

Partnerships
Strong local and international partnerships are key components to BNF's success. We build and enhance partnerships with stakeholders in government agencies, corporations and the private sector, community-based and civil society organizations, and local communities to identify and implement effective solutions for restoring and conserving Borneo's natural ecosystems and biodiversity.

We partner with various levels of government to provide evidence-based policy input, engage in multi-stakeholder processes in a public-private-partnership model to promote forest conservation and restoration, advocate sound rules and regulations for the protection of threatened species, and promote schemes and incentives that reward local communities for safeguarding ecosystems.

Community Development
Sustainable habitat and ecosystem conservation starts with local communities. Our unique approach promotes protection of forests as an economic and community asset that provides local sustenance, jobs, economic opportunities, clean water and air, preservation of natural resources, and plays an important role in local culture and traditions.

We work with communities to create conservation solutions that produce economic, environmental and social benefits. We focus on empowering communities to increase economic and social capacity, and promote local land rights, traditional forest management and livelihoods.

In order to have an empowered local community in the field of natural resources conservation, we implement capacity building for our local field staff to enable them to lead research and conservation projects. These skills will also be a strong addition to existing local wisdom and can help inform community decision making on sustainable management of natural resources.

Barito Ulu Landscape

Rungan Landscape

Sebangau Landscape

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Where We Work

Sebangau Landscape
At 600,100 hectares, Sebangau is the largest remaining lowland forest on Borneo, and supports the world's largest protected population of the critically endangered Bornean orangutan and the largest known population of the endangered Bornean white-bearded gibbon. Sebangau National Park also provides numerous important social and economic functions for local communities.

In collaboration with national and international partners, in 2018 we published species presence records collected since 1993 in the CIMTROP-managed Natural Laboratory of Peat Swamp Forest (NLPSF), Sebangau. This represents the most comprehensive Bornean peat-swamp forest biodiversity inventory yet published. Our list of species - which is still almost certainly incomplete - comprises 215 tree, 93 non-tree flora, 73 ant, 69 butterfly, 297 spider, 63 dragon/damselfly, 55 fish, 11 amphibian, 46 reptile, 172 bird and 65 mammal taxa. Of these, 46 species are globally threatened and 59 are currently protected in Indonesia; 19 vertebrate species are endemic to Borneo.

BNF and partners are working on the ground to develop and implement long-term solutions to conserve and restore the natural ecosystem and biodiversity in Sebangau. This is being achieved through reforestation efforts in damaged and burnt areas, re-wetting the peat to increase peat water levels and reduce the risk of fire, and fighting fires if they do emerge, plus promoting sustainable sustainable livelihoods for local communities by transferring skills, and knowledge.

Rungan Landscape

Until recently, this region of southern Central Kalimantan was a conservation afterthought, yet the Rungan forest, at over 150,000 hectares in size, is the largest relatively-intact forest in this part of Borneo that had not yet become the focus of a formal conservation project.

The region was originally brought to our attention by the people of Mungku Baru, a small village on the western side of the forest. Here is a sacred ironwood forest, rich in wildlife including orangutans, that is at risk from conversion to plantations. Mungku Baru village has now gained formal protection and management rights over 500 hectares of the sacred forest, and the University Muhammadiyah Palangka Raya has been awarded a 4,910 hectares area of the forest for education and training purposes.

Rungan is dominated by kerangas (heath forest) in the north and peat swamp forest in the south, creating a transition mosaic in the centre that is strongly affected by soil type and topography. Because of the variation in habitats, this landscape supports a huge array of biodiversity, with 76 mammal species, 219 birds, 22 reptiles and amphibians, 31 fish and 105 tree species identified to date.

Our surveys discovered orangutans throughout the landscape, with higher densities in the riverine/mixed peat and mixed kerangas habitat types. We estimate there are between 2,220 and 3,275 orangutans in the Rungan landscape. This is higher than previous estimates and in the top 10 largest orangutan populations remaining in Borneo, highlighting the urgent need to conserve this currently unprotected forest.

We are working with government, community and industry stakeholders to develop and agree plans to properly protect and manage this forest for biodiversity conservation, which is critical as orangutan habitat continues tobe destroyed across Kalimantan.

Barito Ulu Landscape

Barito Ulu is in the south-eastern corner of one of the world's last great rainforests, the 'Heart of Borneo', which cloaks the mountains, foothills and valleys of the Schwaner and Muller mountain ranges that form the island's spine. The forests in this region are among the world's most spectacular, owing to both their rugged beauty, and the huge diversity of flora and fauna species found there.

But Barito Ulu is being increasingly threatened by development, including coal mining and timber harvesting. It is apparent that a permanent conservation presence is needed in Barito Ulu, to ensure that the environmental impact of proposed development is fully assessed and that development is carried out sustainably.

Our goal is, therefore the preservation of the forests and biodiversity of the Barito Ulu region, including its important primate populations, by working together with stakeholders to improve nature conservation in partnership with development. This will be achieved through programs of research, advocacy, education and community-led and community based conservation.

Our 2018 Milestone Achievements: Research in NLPSF Sebangau

1,683
hours searching orangutans

883
hours observing orangutans

4,120
nest found during orangutan survey

417
hours searching red langurs

539
hours observing red langurs

42 species
photographed by camera traps

731
butterflies of 16 species counted

2,925 Damselflies and Dragonflies of 40 species counted.

7 articles
in special issue of Mires and Peat

We run long-term research and monitoring studies focused on orangutans, gibbons, red langurs and wild cats, plus forest biodiversity and ecology, including carbon store evaluation. Using high-quality scientific research as a basis for conservation, we provide support for land managers and the private sector to protect and manage wildlife; we advise the government through national and international conservation action plans; we advocate for the preservation of Borneo's last remaining tropical rainforests; and we strengthen university capacity to train the next generation of scientists and conservationists.

Gibbons
Primates are thought to be important seed-dispersers so the BNF team have been researching this. Our findings on the germination rates of seeds which have passed through the guts of gibbons and red langurs, when compared to those that have not, were presented at the International Primatological Society conference in Nairobi in 2018.

We are continuing our monitoring of gibbon populations in Sebangau and Rungan. We now have 14 years of data for Sebangau and 3 years for Rungan.

Building on our commitment to staff development and building local capacity, in 2018 we initiated collaborations with other Indonesian NGOs for staff exchanges and training, with local members of our Sebangau field team leading training in gibbon and red langur surveys with staff of Pro Natura and students from the University Mulawaarman in Sungai Wain, east Kalimantan.

Red Langurs
Our red langur research in NLPSF Sebangau has been ongoing for 9 years. We have reported on unusual behaviour exhibited by the red langurs in our research area, spending time on the ground and eating several species of mushrooms.

In addition to the training on red langur surveys in Sungai Wain, we also presented our work at the first SwaraOwa Primate Conservation Workshop in Java.

Sebangau Camera Traps
We have evidence of breeding in flat-headed and marbled cats in Sebangau, having captured images of kittens Of both species. This work represents the first ever comprehensive and long-term surveys of small cats in Central Kalimantan.

Rungan Camera Traps
While limited data are available from our relatively newly established Rungan research site, we have confirmed the presence of all five wild cat species found on Borneo, although we have insufficient data to comment on the bay cat's behavior and ranging. Cat sightings are intermittent and this may reflect the unprotected status of this forest. Leopard cats again appear relatively unaffected by habitat disturbance based on encounter rates on camera traps.

Our 2018 Milestone Achievements: Conservation of Biodiversity in NLPSF Sebangau

14

dams constructed in two canals

24

canals identified critical importance

160

dams will be built in 8 canals in 2019

hydrology

13.5 cm

Below below ground levelsurface in dammed canals vs 40cm in undammed canals

1,558

seedlings collected for reforestation trials of four native species

97%

seedling survival rate in organic polybags 87% survival rate in regular polybags so reducing post-planting mortality

96%

average survival rate of 3.500 trees planted in 16 plots within marginal swamp and degraded forest

48

we support 3 local fire response teams in Sebangau (CIMTROP Patrol and MPAs in Kereng Bangkirai and Sabaru) with 24 patrols / month

Hydrology Restoration

We have produced a damming and hydrology monitoring strategy design for the next two years and identified a total of 24 critical canals to block in the northern side of Sebangau. Ten of them were dammed before 2018 and seven have been monitored on a monthly basis (ground water-table, water flow and up/downstream water levels). In 2018, 14 new dams were built in two canals and another eight canals have been mapped. In each of these eight canals, 20 dams will be built during the next dry season (2019).

Our monthly hydrology monitoring indicates that these efforts have been successful slowing the water discharge rate (average 0.02 m^3/s in dammed canals vs. 0.15 m^3/s in undammed canals) and consequently increasing peat water tables (average 13.5 cm below the surface around dammed vs. 40 cm below around undammed canals), resulting in a wetter peat substrate.

Replanting and Reforestation

A total of 1,558 seeds/seedlings have been germinated/collected for reforestation trials, targeting four native species with high potential for forest restoration in damaged peat swamp areas.

Throughout 2018 the team has monitored our experimental and permanent plots. Ongoing trials of organic polybag (bakul) design have produced promising results in the burned area, with higher rates of survival for seedlings planted using organic vs. traditional (plastic) polybags. This pilot project was set up in 2016 aimed at linking the need for innovative techniques to reduce post-planting mortality rates with the aim of empowering local communities in conservation activities and promoting development of a green economy.

Meanwhile, monitoring of our long-term reforestation plots has continued in NLPSF Sebangau, by measuring and recording the condition of the 3,500 young trees planted in 16 reforestation plots sited in the marginal sedge swamp and disturbed forest areas, to help us better understand the possibilities and barriers to long-term recovery of the peat swamp forest ecosystem, and the level of assistance required. The post- planting figures in the 2015 burned area – the targeted reforestation area for this project – show an average survival rate for the four target species of 96%, a highly encouraging demonstration of the effectiveness of a research-based reforestation plan. Survival and growth rates for planted trees will be used as key performance indicators.

Seedling Nurseries
During 2018 we have increased the tree stock and developed a new pilot "community nursery" reforestation strategy for the area of forest destroyed during the devastating 2015 fires, with the aim to scale up the project in future years. BNF's Conservation Team targeted implementation of the community nursery concept in two target villages: Kereng Bangkirai and Sabaru. Working in partnership with these communities, a strategy was developed to integrate growing trees for reforestation, planting crops for agricultural purposes and developing fish-ponds in the future to increase community income. 5 community nursery groups have been established that consist of 38 families.

A total of 19 women are working in 2 community groups crafting organic polybags for reforestation purposes, and a total of 3,000 organic bags have been produced to date. Women's participation and empowerment is both integral and essential to the success of this project.

Community Based Fire Response Team
Three community fire-fighting teams were fully operational during 2018,

with a total of 48 people involved in fire-fighting and patrolling activities.

During August and September 2018, the community fire-fighting teams worked on 47 fire interventions, with 100% of fires extinguished and no new forest loss.

In 2018, BNF held strategic discussions with key stakeholders to identify priority areas and needs for strengthening emergency fire-fighting response and established a partnership with the Central Kalimantan Disaster Management Agency (BPBPK) and the local police, including development of working procedures and mechanism to maximize efficiency and coordinate effort across the region.

BNF also agreed with the University of Palangka Raya and the Center for International Cooperation in Sustainable Management of Tropical Peatland (CIMTROP) that the current CIMTROP Patrol Team (7 members), responsible for protecting the NLPSF in Sebangau, will be strengthened by recruiting 6-8 new members and an experienced fire-fighting coordinator equipped with fire-management training. Additional fire-fighting equipment including GPS and cameras will also be provided.

BNF also led two fire-fighting capacity-building workshops, involving community fire-fighting teams and researchers. The first of these, conducted in collaboration with Liverpool John Moores University (LJMU), the University of Palangka Raya and CIMTROP, focused on the use of drone technology as a complementary tool for fire-fighting and monitoring activities. The second workshop, which focused on presenting new fire detection systems, was attended by senior members of the community fire-fighting teams, government officials and local researchers from the University of Palangka Raya.

Our 2018 Milestone Achievements:
Environmental Education

1,701

children and adolescents participated in education activities

22 Schools 104 Teachers

Participated in education activities

193 Sessions

of learning and education activities conducted in communities and villages

70 Sessions

of learning and education extra-curricular activities has been conducted in partnership with local schools

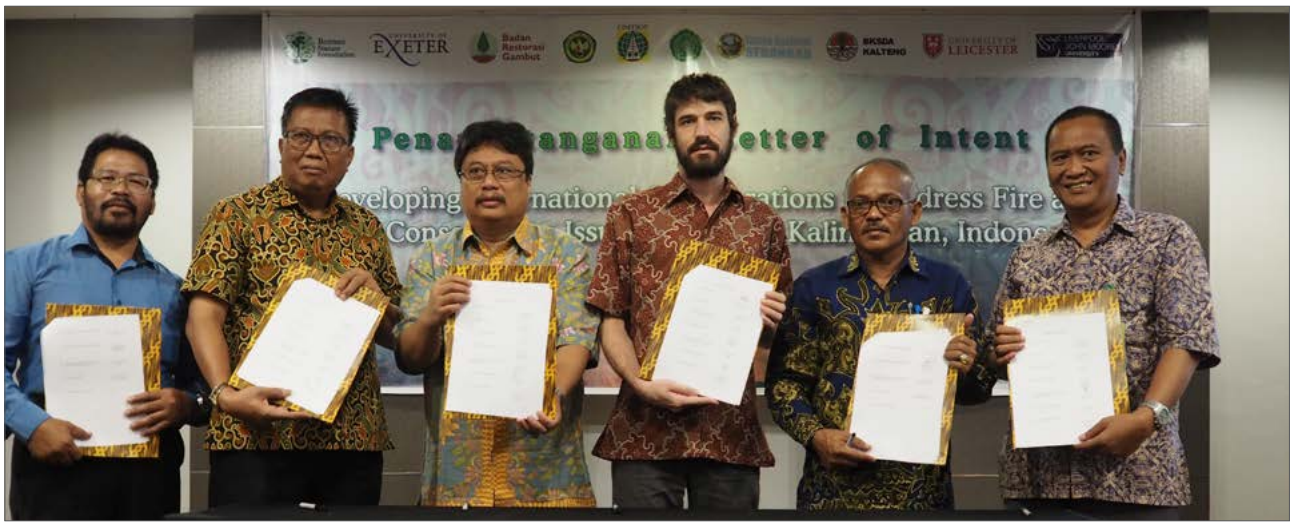
6

local university students awarded OCS scholarships

5

local field staff trained in research and assessment technical skills

Our 2018 Milestone Achievements: Partnership



Memorandums of Understanding and Collaborative Agreements have been developed by BNF and established with academic/research institutions (University of Palangka Raya (UPR), UPT LLG-CIMTROP, UPT-KHDTK Tumbang Nusa), community groups (fire-fighting teams, women's groups, community nurseries, local schools, etc.) and government agencies, including planning for cementing partnerships with the Central Kalimantan Agency for Conservation of Natural Resources (BKSDA), Sebangau National Park (TNS), and the Central Kalimantan Disaster Management Agency (BPBPK).

Our 2018 Milestone Achievements: Learning Experience Through International Visits

Our Sebangau and Rungan forest sites hosted a number of researchers, field courses, donor visits, field

expeditions and documentary film crews.

Visitors from all around the world joined BNF in Kalimantan, including from United Kingdom, United States, Spain, France, New Zealand, Denmark, Czech Republic, Taiwan, and Germany to learn about the forests and conservation projects in Sebangau and Rungan..

We conducted the first BNF-led university field course for two weeks with students from the UK, US, Spain, France, New Zealand and Denmark in Sebangau forest research

BNF and CIMTROP hosted 3 international school visits in NLPSF Sebangau:

- Cleveland and Springfield High School from Australia - 13 students aged 15-18;
- Green School Bali - 12 students aged 15 -18;
- Kaohsiung American School Taiwan - 6 students aged 15-16.

We also hosted 13 volunteers in NLPSF from the UK, Germany, Australia, Czech Republic, the US and Denmark.

Our 2018 University of Exeter expedition to Rungan, run in partnership with the University Muhammadiyah Palangka Raya, was joined by 16 Exeter students aged 20-22, as well as students from the local university.

BNF entered into partnership with Internet of Elephants who create interactive games for develop a conservation using real wildlife data. BNF's role will be to ensure the images and information used in the game are scientifically accurate and reflect the research and conservation work being done in Sebangau.

A film crew from the BBC visited Sebangau to record footage of orangutans and interviews with members of the field team for a series of documentaries called "Islands" one of which will feature Borneo.

One Health Productions, from the United States, came to Sebangau to film gibbons for a pilot short film to support the future production of a documentary called "The Great Call". The documentary will be a multimedia project highlighting gibbon song within the soundscapes of the Bornean rainforest.

An expert from the University of Kent/ Durrell Institute of Conservation and Ecology (DICE), visited BNF's Office and Sebangau to assess for an ecology field

course collaboration in 2019. BNF have agreed to host their field course in July 2019.

An expert from Institute for Field Research (IFR), United States, visited BNF and CIMTROP, resulting in an agreement to conduct collaborative field courses in 2019 and beyond.

An expert from The Orangutan Project (TOP) Australia, visited BNF and government stakeholders to monitor existing programs that they are supporting, and assess potential for additional support for our projects in Sebangau forest, and a donor visit in 2019.

BNF also received a visit from Tri Upcycle Bali, to look at progress on the dam-building project that receives funding from TRI.

Our 2018 Milestone Achievements: Rungan Community Development

4 Villages :
Mungku Baru
Bukit Sua
Petuk Barunai
Panjehang

Community perception survey through customised multidisciplinary landscape assessment approach permaculture capacity building

Organic liquid fertilizer

Hot and cold composting

Wood charcoal production

2018 is marked as the start of our Community Development program in Mungku Baru, Central Kalimantan. Pursuant to achieving its objectives, 2018 has been productive in establishing the foundations to develop bottom up conservation strategies. We conducted a multidisciplinary landscape assessment survey in four Rungan villages: Panjehang, Petuk Barunai, Bukit Sua dan Mungku Baru. A total 176 families were surveyed and, following discussions, a mentoring plan of permaculture was agreed. We implemented permaculture technical training including a theretical introduction, plus use of hot and cold composting, organic liquid fertilizer and mtethods for wood charcoal production from sawdust waste. This training was implemented in two villages and involved 36 participants.

Sustainable Livelihoods

We introduced our Community Development program in 4 villages: Mungku Baru, Bukit Sua, Petuk Barunai, and Panjehang. The events were attended by 143 community representatives of their respective villages, 81 women and 62 men.

We implemented Social Economy Participatory Survey using our tailored Rungan Landscape Assessment method (RuLAs), aimed to assess community perceptions on welfare, health, wealth, knowledge, natural environment, economic environment, social environment, political environment, services and infrastructure, community dependency on forest and land, community perception on the definition of a dangerous situation at community level, community aspiration on development, taboos and cultural prohibition, community products, prices, shops and trade infrastructure, and village level institution. The survey method is a modification from MLA survey method, tailored to BNF needs.

We started the initial community capacity building activity by delivering the introduction to permaculture. 73 community representatives, that were predominantly females, from 4 villages where we operate, participated in the event. Permaculture's aim is to create systems that are ecologically-sound and economically viable, which provide for their own needs, do not exploit or pollute, and are therefore sustainable in the long term. Permaculture uses the inherent qualities of plants and animals combined with the natural characteristics of landscapes and structures to produce a life-support system for cities and countryside, using the smallest practical area.

37 community members in Bukit Sua, Petuk Barunai and Panjehang participated in the introduction to permaculture and have started to use what they learned to improve production on their land, with 25 families having received vegetable seeds and fishnets to fence their new permaculture gardens.

Social Forestry

As part of our effort to promote Social Forestry, in 2018 we conducted a meeting with the Central Kalimantan Office for Social Forestry and Environmental Partnership (BPSKL) who represent the Ministry for Forestry and Environmental Affairs. We discussed opportunities and barriers that exists in the Rungan Landscape, such as land conflict between communities and the management of the special purpose forest area KHDTK in Mungku Baru, Community land purchase by palm oil corporations, and Mungku Baru ironwood customary forest that is located within concession area assigned to a corporation in Gunung Mas district. The meeting resulted in a joint conclusion that a workshop is needed, where participation from key stakeholders is of key importance to establish how they can contribute to social forestry within Rungan Landscape. The Central Kalimantan office which leads management of productive forest KPHP was also involved in the process, including disseminating information to stakeholders about Social Forestry.

We implemented a workshop to share knowledge and information with stakeholders on the rights of indigenous and local communities to manage forest resources, and policies related to indigenous people.

Species Focus: Sebangau Peat Swamp Forest - A Freshwater Fish Habitat of Local and Global Importance

Freshwater fish are globally under grave threat. The recent IPBES Global Assessment Report on Biodiversity and Ecosystem Services reported that, since 1970, vertebrate populations have fallen by 84% for freshwater species (compared to 40% for land- based species and 35% for marine species). In addition, relatively little research has been done on freshwater species, and while many freshwater fish species across Indonesia and Malaysia are suspected to be threatened with extinction, only 41% of freshwater fish in this area have been formally assessed. In particular, very little is known about the fish species inhabiting peat swamp forests.

As the water in peat swamps is very acidic (with a pH less than 4) with low oxygen levels (as there is a lot of standing water), these forests are habitats for unique fish species that are specially adapted to live in these tough conditions (such as the walking catfish, from the genus Clarias, which can breathe atmospheric air and is named for its ability to "walk" between water pools). Amazingly, each patch of peat swamp possibly contains its own suite of endemic fish species. However, if current rates of peat swamp forest loss continue, research shows that 77% of fish species in these environments are likely to become extinct, with the peat swamp forests of Central Kalimantan, such as Sebangau, likely to be the most severely impacted.

A walking catfish, locally known as 'Lele' (*Clarias sp.*).

To tackle these worrying statistics, a Borneo Nature Foundation (BNF) and University of Leicester PhD project, led by Dr Sara Thornton, began in 2013 to explore the Sebangau fish species and the importance of fish and fishing to local communities. Fifteen months of surveys led to a species list of 55 fish species and provided a baseline for the long-term monitoring of the freshwater habitat, fish populations and conservation actions in Sebangau (see the resulting publication: Thornton et al., 2018). This work now continues, with BNF research teams conducting monthly surveys of fish species, catches, and the environmental conditions of the Sebangau river. Here, and across the world; further research on fish populations, their diversity, ecology, behavior and resilience to environmental degradation and climate change is urgently required.

The conservation of peat swamp forest and rivers is vital, as the loss of fish species not only has significant consequences to the functioning of the ecosystem, it is also a serious threat to the communities across Kalimantan reliant on freshwater fish as a main source of livelihood and protein. Interviews conducted indicate that Sebangau peatlands are experiencing a decrease in fish populations, and this has a direct impact on community livelihoods and their resilience to environmental change including climate change. Declines in fish populations are mainly due to habitat degradation from deforestation, increased fishing pressures from growing human populations, river pollution and harmful fishing methods (poison and electric).

For fish, rivers and people, peat swamp forests need to be conserved and degraded peatland areas need to be restored. Harmful fishing methods need to be stopped with viable alternatives identified. All of this must be done in collaboration with communities so that together we can find just and long term solutions.BNF, with partners and local community around Sebangau National Park, are implementing a forest restoration program that at the same time incorporates community development and capacity building programs and .this includes promoting sustainable freshwater fishing practices.

Right above: BNF research teams heading out to set fish traps in the Sebangau river. Traditional wire traps called 'tampirai' are set in the river and checked for 3 consecutive days. Below: Trapped fish are measured, identified and counted before being returned to the river. Continuing this research long-term allows us to evaluate temporal changes in the river environment and resulting changes in fish catches.

Scientific Publications 2018

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Financial Summary

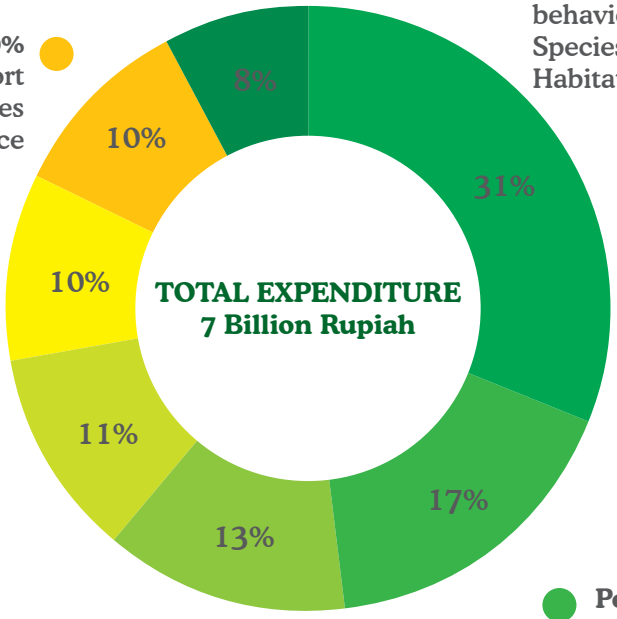
Partnership Development 8%
Government collaboration
Academic partners
fundraisingFundraising,

Overhead 10%
Administrative support
Human resources
Legal compliance

Community Development 10%
Support and training for sustainable livelihoods, including community nurseries and sustainable fishing

Education activities in schools and after-school clubs,

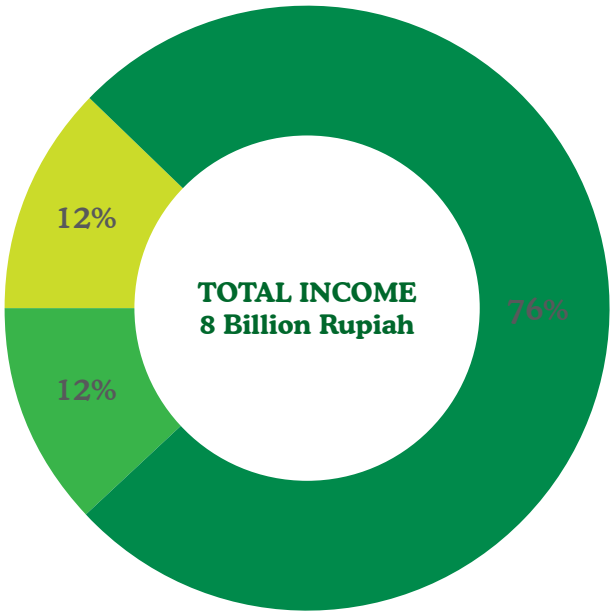
Forest Protection 11%
Forest and river patrols
Support and training



Research 31%
Wildlife population and primate behaviour monitoring,
Species surveys
Habitat evaluation;

Peatland and Restoration 17%
Monitoring peat swamp hydrology
Damming man-made canals
Replanting burned forest areas
Researching forest restoration methods

Outreach 13%
Awareness-raising through online publications and social-media engagement
International volunteers and field courses
Public events in Palangka Raya;



OTHER 12%

FUNDRAISING 12%

GRANTS 76%

Partners and Collaboration

Government of Indonesia
- Ministry of Research, Technology and Higher Education/ Kemenristekdikti
- Office for Environmental Services/ Dinas Lingkungan Hidup – Central Kalimantan Province
- Office for Forestry Services/Dinas Kehutanan – Central Kalimantan Province
- Agency for Conservation of Natural Resources/BKSDA – Central Kalimantan
- Badan Nasional Penanggulangan Bencana (BNPB)
- City Government of Palangka Raya
- Sebangau National Park Authority
- Forest Management Authority – Central Kalimantan

Research Collaboration
- Faculty of Forestry –Muhammadiyah University Palangka Raya (UMP)
- University of Palangka Raya (UPR)
- Christian University of Palangka Raya (UNKRIP)
- UPT LLG-CIMTROP UPR
- University of Exeter, UK
- University of Leicester, UK
- Oxford Brookes University, UK
- Liverpool John Moores University, UK
- Bina Cita Utama School – Global Initiative Network Project

Community Based Organization
- Mungku Baru Village Community
- Panjehang Village Community
- Petuk Barunai Village Community
- Bukit Sua Village Community
- Kereng Bangkirai Community Nursery Group
- Sabaru Community Nursery Group
- MPA and TSAs

Non-Government Organization
- Orang Utan Republik Foundation
- Borneo Orangutan Survival Foundation
- Lestari Capital

Donors and Funders
- The Orangutan Project
- Arcus Foundation
- Orangutan Conservancy
- Orangutan Appeal UK
- Leonardo DiCaprio Foundation
- Panthera
- Ocean Parks Conservation Foundation Hong Kong
- British Ecological Society
- Orangutan Outreach – Red Apes Foundation
- The Rainforest Trust
- The Darwin Initiatives
- The Great Apes Conservation Fund of the US Fish and Wildlife Service
- CISU Ludvikling
- Taronga Zoo, Sydney
- USAID Lestari
- ICCTF
- TRI Upcycle

Borneo
Nature
Foundation

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