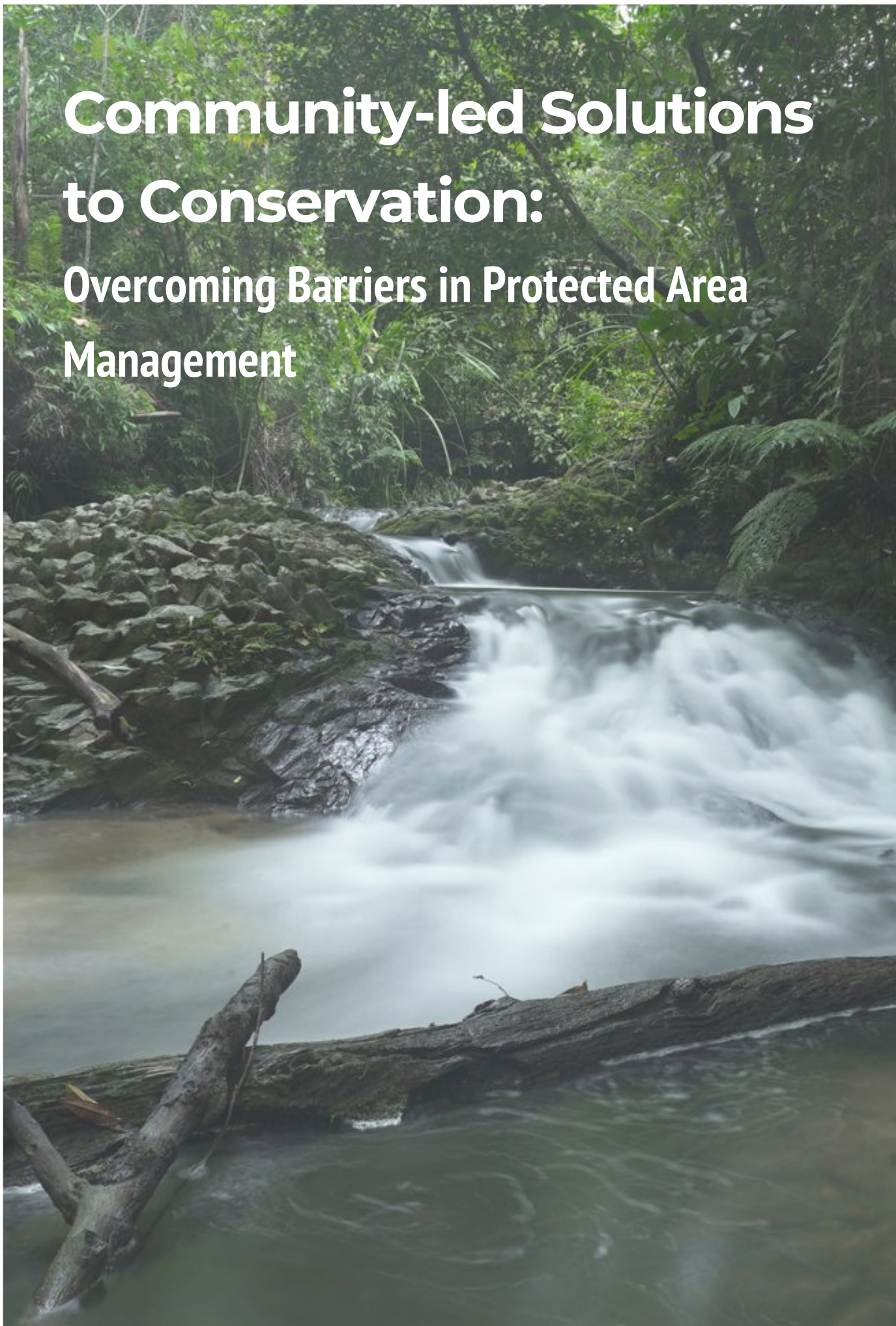


Community-led Solutions to Conservation: Overcoming Barriers in Protected Area Management



The CHALLENGE

Protected Areas (PAs) are key tools for biodiversity conservation, but management efforts of these areas have socioeconomic impacts on communities living within them (Brockington et al. 2006; Roe 2008).

In recent years, studies have shown that management of PAs that provided socioeconomic benefits to surrounding communities were far more likely to achieve positive conservation outcomes than those that did not provide benefits (Braber et al. 2018; Oldekop et al. 2015).



In other words, conservation outcomes are best achieved within PAs when programs empower local people, improve cultural benefits, and improve livelihoods.

This has led to emphasis on the importance of Community-based Conservation (CBC) approaches to reach global goals related to sustainable development, biodiversity conservation, reducing climate change, and reducing illegal wildlife trade. CBC promotes the idea that conservation success requires engaging with and providing benefits for local communities.

CBC requires some level of community governance. This often takes the form of Indigenous Associations, natural resource management societies, or committees that oversee locally managed marine areas or community forests.

The CHALLENGE

Planet Indonesia has developed a model for community-based conservation that provides both socioeconomic and environmental benefits. We designed our approach to:

Create a self-sustaining community-based governance structure to manage local biodiversity (referred to as a Conservation Cooperative)

Identify beneficial services for members of Conservation Cooperatives, sparking involvement and long-term investment

Provide services within this governance structure that address root causes of biodiversity and natural resource exploitation

Develop a model that is highly adaptable and can continue to serve community needs



The Planet Indonesia Model

What we do: Conserve at-risk ecosystem through village-led partnerships

The Mechanism: A self-sustaining, community-led organization that engages in the management of threatened ecosystems while improving human well-being

How we do it: Reduce socio-economic inequalities to incentivize community-based conservation

Long-term Goal: Rural communities safeguard biodiversity and natural resources in tropical ecosystems

How Does It Work?

We create Conservation Cooperatives (CCs), which are community-led organizations that engage communities in the management of at-risk ecosystems. Through these CCs we administer services to communities, increase economic benefits of conservation, and address the root causes of local biodiversity loss. For members who join the CC, we provide financial benefits such as access to start-up capital, asset-based inputs, and a village savings and loans program. We also provide non-financial benefits such as access to healthcare, family planning, and literacy training.

Our model was developed to create community infrastructure to manage biodiversity, improve human well-being, get people involved, and help them stay involved.

As membership within CCs grows, three things happen:

1

members gain access to much needed services

2

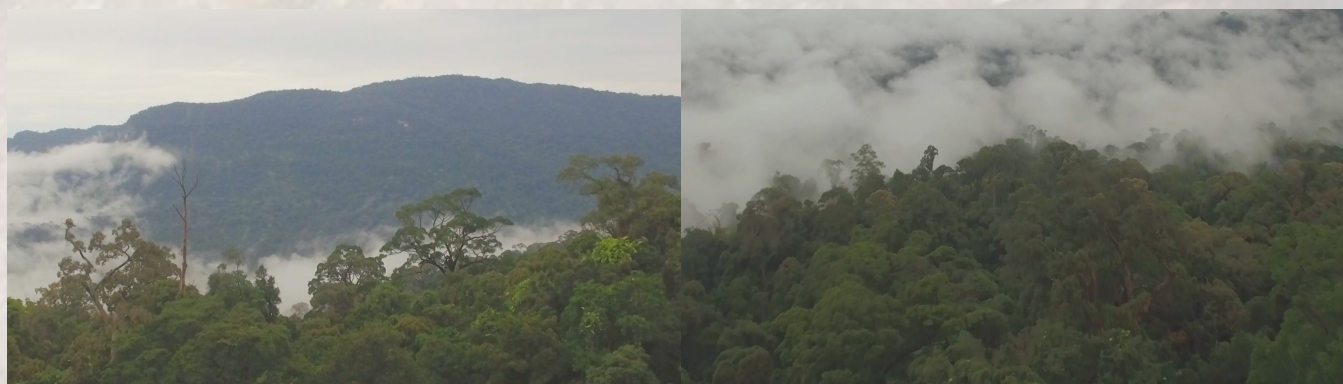
members are engaged in a governance body (CC) that is designed to decrease biodiversity and natural resource exploitation

3

The cooperative grows, meaning more funds and chance for progress towards a self-sustaining future

Testing Our Model in Gunung Niut Nature Reserve

In this learning module we present our methodology, early results, and lessons learned from the implementation of our Conservation Cooperative model in the Gunung Niut Nature Reserve (GNNR). The GNNR is located in West Kalimantan, Indonesia near the border with Sarawak, Malaysia. The reserve is 91,759 hectares surrounded by 60,815 hectares of protection forest. The GNNR and the surrounding protection forest are also connected to the Bungo Range National Park (8,096 ha) in Sarawak, Malaysia.



Together, this 160,000-hectare forest complex represents one of the last major forested areas in Borneo. The GNNR is made up mostly of sub-montane and montane rainforest, varying from lowland forests at roughly 100 meters above sea level, up to montane forests at with the tallest peak at 1700 meters. The reserve is primarily managed through the Department of Natural Resources (BKSDA) of West Kalimantan.

Testing Our Model in Gunung Niut Nature Reserve

The GNNR represented an ideal site to test our model for the following reasons:

Local communities expressed a high dependence on bushmeat, timber, and other forest resources as a primary source of income for many villages

1

The GNNR has a history of conflict between villages and governments inside the reserve's boundary

2

Nature Reserves have largely been overlooked by the conservation community in Indonesia, which tends to focus on national parks or non-protected areas

3

There were no other NGOs working in the reserve or surrounding villages

4

The GNNR represents one of the last large forest complexes in Borneo and is highly threatened

5

Testing Our Model in Gunung Niut Nature Reserve

A central and critical piece to our model is listening to community needs. Before launching a Conservation Cooperative in the GNNR, we conducted six weeks of focus group discussions in various villages across the reserve.

From these discussions, several trends appeared:

“ Listening and sourcing local ideas is key ”

- Local communities felt their land and forests had been stolen and turned into a protected area
- Community members had no access to financial services in most villages
- Villagers had been exploited by loan sharks and credit unions
- Issues with agriculture (crop failures, disease, lack of inputs) often led to exploiting biodiversity for income
- Lack of start-up capital often led communities to use “natural capital” to pay for unmet bills and needs
- Most villages had little to no access to healthcare
- Sanitation issues were raised in several villages who mentioned illegal gold mining had poisoned their water, fish supply, and crops
- The reserves boundaries and zonation had never been explained to community members and was a constant point of conflict
- Community members felt that they were often threatened by police, park rangers, and government officials who refused to listen to the reasons they were engaged in natural resource exploitation

PROGRAM PILLARS

The Conservation Cooperative approach can be adapted to local needs. The following specific pillars to administer services were developed in response to Guning Niut community needs and administered through the Cooperative:



Livelihood Improvement

we provide financial services, create a village savings & loans program, provide asset-based inputs, and develop new commodities (e.g. forest honey, organic crops)



Agriculture and Agroforestry

provide training and farmer schools to improve yields and decrease farmer spending



Forest and Wildlife Protection

community-based SMART patrol units to involve communities in forest protection in tandem with government park rangers



Land Tenure and Rights

participatory mapping, facilitating collaboration between the government management authority and local communities



Population-Health-Environment

health advocacy to improve community health, training local health ambassadors, family planning and reproductive health services

Achieved Results and Outcomes

Reduction in Tree Cover Loss and Deforestation

The major outcome we seek to achieve is to conserve the integrity of biodiverse ecosystems. Thus, we conducted an analysis of tree cover loss within the GNNR as a whole and within areas covered by local community patrols facilitated through the Conservation Cooperatives.

Using the most recent datasets from the Global Forest Watch platform of the World Resource Institute, we analyzed tree cover loss at greater than 75% canopy density from January 1, 2001 through December 31, 2018, and from January 1, 2015 through April 30, 2019. We also investigated *where* tree loss was happening.



We conducted a second analysis looking at tree cover loss restricted to primary rainforests in the GNNR. We calculated the average loss per year between 2001-2016 and then compared this to loss within natural, non-replanted forests after Planet Indonesia's interventions.

Deforestation rates in natural forests was 21% lower after Planet Indonesia's interventions when comparing the average rate between 2001-2016.

Within two years, deforestation rates in primary rainforest dropped by 56% compared to pre-program intervention (2015-2016), when tree cover loss and deforestation were at their highest rates ever.

Achieved Results and Outcomes

We also wanted to look at *where* loss was happening and to test whether it was higher in areas where Planet Indonesia was not yet working, as there are several villages in the GNNR where we have not yet implemented our approach. Over the past two years, 77% of all tree cover loss is happening *outside* of our partnership areas, meaning our project has succeeded in reducing tree cover loss and deforestation when comparing pre- and post-intervention with control sites.

HOW IS TREE COVER DEFINED?

According to Global Forest Watch, tree cover is defined as all vegetation greater than five meters in height, and may take the form of natural forests or plantations across a range of canopy densities. Tree cover loss is defined as “stand replacement disturbance,” or the complete removal of tree cover canopy at the Landsat pixel scale. Tree cover loss may be the result of human activities, including forestry practices such as timber harvesting or deforestation, as well as natural causes such as disease or storm damage. Fire is another widespread cause of tree cover loss, and can be either natural or human-induced. Most existing forest loss alert products use 250-meter resolution MODIS imagery, Global Forest Watch alerts have a 30-meter resolution and thus can detect loss at a much finer spatial scale. The alerts are operational for land areas between 30 degrees North and South, as well as the southern tip of Brazil and Russia Far East.

Achieved Results and Outcomes



70%

decrease in tree cover loss across the entire reserve since the start of our program (2016)



56%

56% decrease in tree cover loss in the first year of our program (2017)



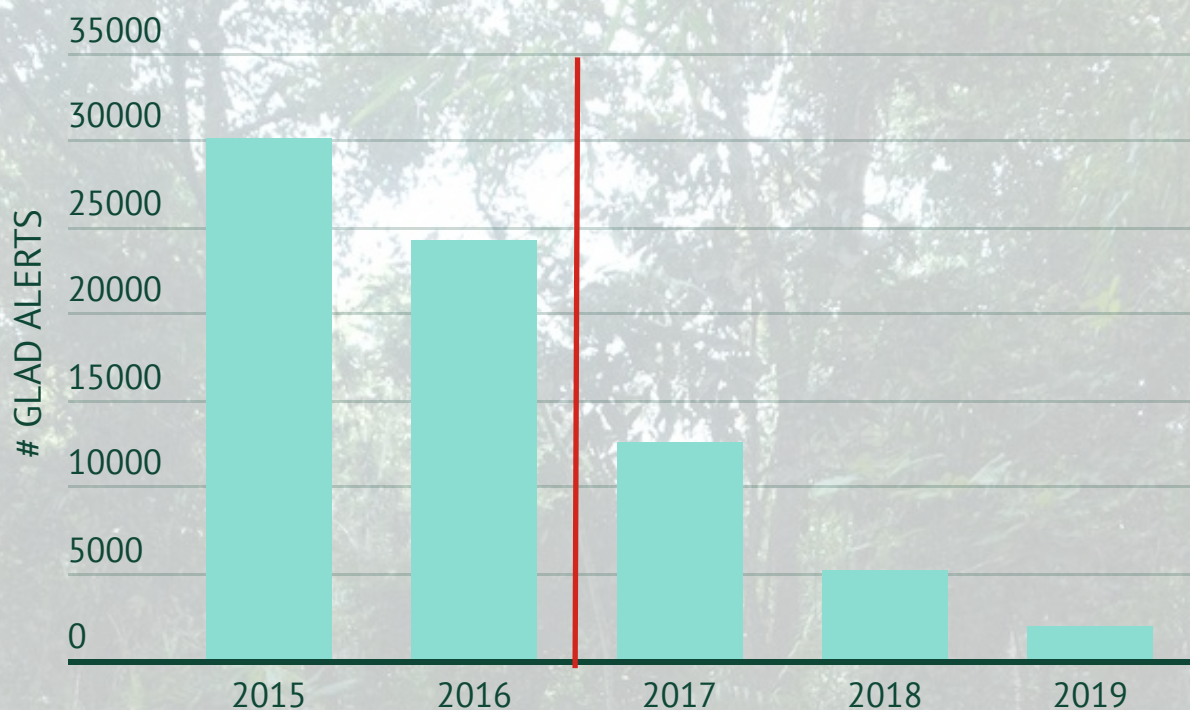
31%

decrease in tree cover loss in year two of our program (2018)



Achieved Results and Outcomes

GLAD Alert Disturbances



Program start



70%

decrease in GLAD alerts for disturbance in first year of our program (2017)



64%

decrease in GLAD alerts for disturbance in second year of our program (2018)



56%

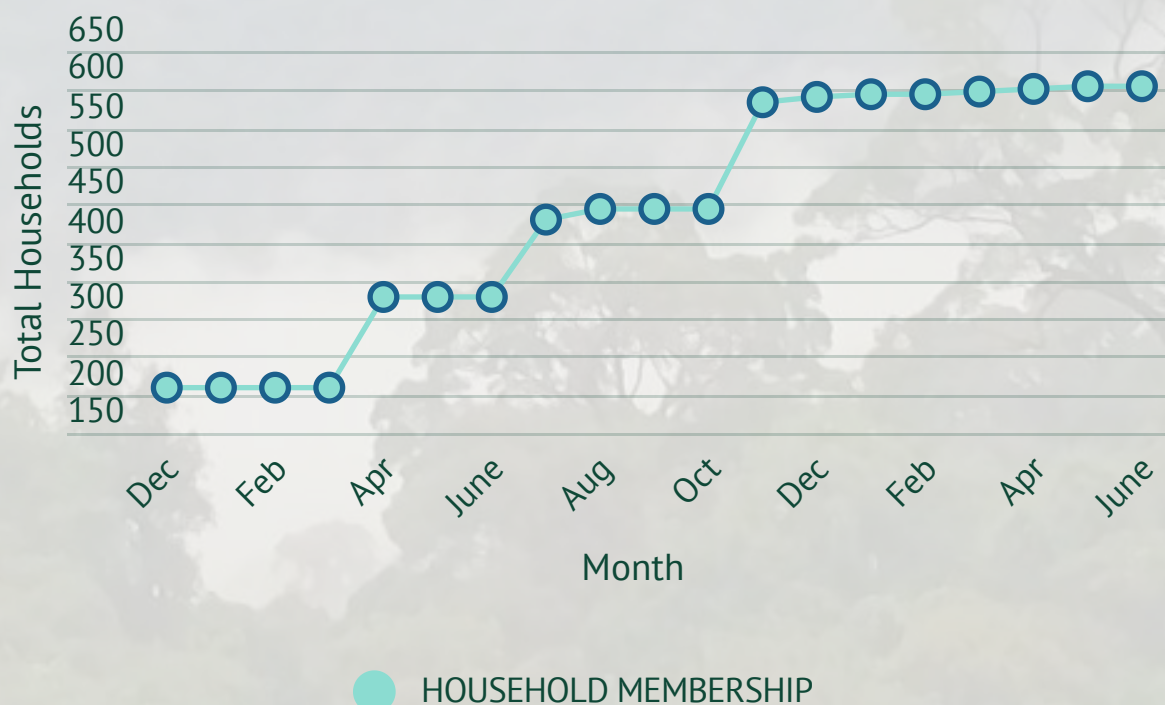
decrease in deforestation in primary rainforest since the start of Planet Indonesia's program (2016 – 2018)

Achieved Results and Outcomes

Conservation Cooperative Involvement

Since the opening of the first Conservation Cooperative in 2016, enrollment has grown from 203 households to 600 households. Based on average family size, there are roughly 3,000 individuals within the GNNR involved in our programs.

Household Membership

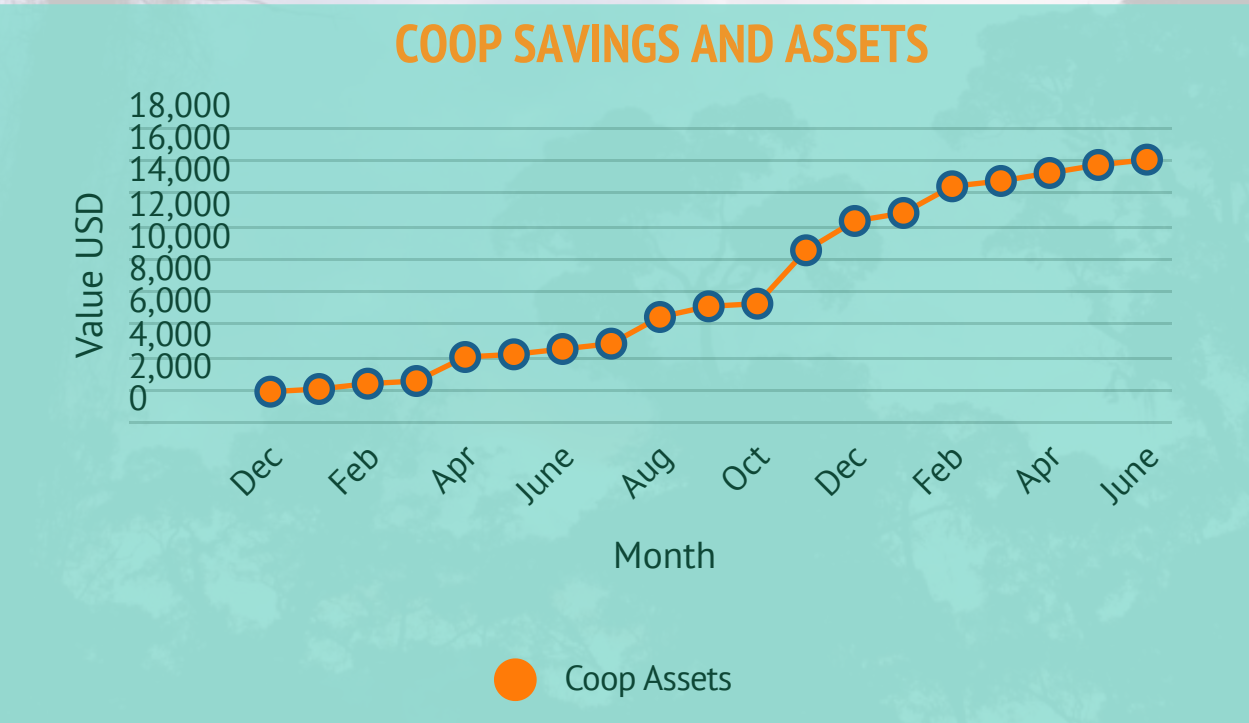


Achieved Results and Outcomes

Village Savings & Loans Program

A good measure of involvement in our CC Village Savings & Loans program is the amount of funds saved by community members. There is a strong indication that members are excited about the program, involved in the savings/loans process, and engaged in the community governance structure. **Since the first Coop opened, total assets have grown to USD\$15,970.** The size of savings and assets owned by the group are expected to grow over time.

CCs decided to open for loans after one year of savings and growth had been completed. In the last six months, several small loans have been taken out with a 100% loan repayment rate. In all cases, communities personally decided on a <1% interest rate for monthly payments and created their own performance system based upon amount saved, monthly attendance, and involvement in natural resource governance decisions as a set of deciding indicators for loan funds available to individuals.



Achieved Results and Outcomes

Sustainable Agroforestry

CC members can also opt-in to receive sustainable agriculture and agroforestry training through our 4-level program. Each level provides small steps towards sustainable agriculture, and farmers receive incentives and benefits from graduating through this stepwise process.



150

households were reached through sustainable agriculture training in 2018



13

farmers groups within the Cooperatives have been created



7+

commodities grown by farmer groups range from white pepper, green beans, bird's-eye chili peppers, corn, and rice, among others



248

households were reached through our agroforestry programs



28,551

seedlings have been planted with a 90% survival rate on community members' land

Achieved Results and Outcomes



Reducing Pressures on Wildlife Populations

Each CC operates a community-based patrol unit using the Spatial, Monitoring, and Reporting Tool (SMART) to disarm wildlife snares and detect any other illegal activity. Each SMART unit consists of three community members, one government park ranger, and one Planet Indonesia staff member. Currently, two of the five units have reached independence and no longer require assistance of Planet Indonesia's staff on monthly patrols for illegal wildlife activity.



Achieved Results and Outcomes



31%

of the reserve, or roughly 40,000 ha, are managed through SMART patrols



618

wildlife snares, camps, and logging camps were removed in 2018 by SMART patrol units



5

large participatory mapping projects were conducted to clarify boundaries of community land and protected area land



2

new zonation were created for villages inside protected areas to allow for limited resource use within PA boundaries



SMART

monthly encounter data of wildlife indicates stabilization or improvement in several key species in areas managed through SMART

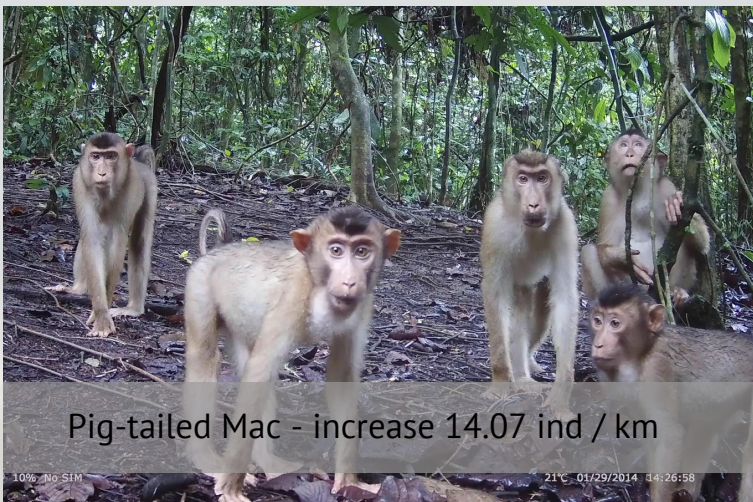
Achieved Results and Outcomes

Stabilizing Wildlife Populations

To assess wildlife population densities, we implemented a novel method described in Hoovens et al. (2004) that leverages local knowledge and involves communities in estimating wildlife population densities. The developed method is called Pooled Local Expert Opinion (PLEO) and uses the knowledge of local hunters and wildlife specialists (see Hooven et. al. 2004, Mayaka et. al. 2015; Lauck et. al. in prep for methodology specifics). Additionally, our biodiversity research team conducts point counts and transect surveys to measure wildlife populations. And finally, monthly SMART patrol reports track encounter rates of wildlife. We use these combined methodologies to track trends in wildlife populations and ensure we are safeguarding biodiversity.



Achieved Results and Outcomes



Lessons Learned

Across the GNNR, the drivers behind each village's engagement in the exploitation of biodiversity and natural resources vary slightly. The majority of drivers are linked to issues of rural poverty and land rights. These range from livelihood security to a lack of access to sustainable agricultural methods, unmet healthcare needs, physical barriers (e.g. villages who are unable to sell commodities due to poor roads in the rainy season), and land tenure (e.g. villages located on protected land).



“Landscapes are diverse in their threats and communities are diverse in their needs.”

The threats also varied from villages who were almost entirely made up of loggers, to villages that had no loggers but were completely dependent on bushmeat as their primary source of income. Planet Indonesia recognizes these differences; our Conservation Cooperatives approach is a framework that can be adapted based upon a specific set of community needs and threats to ecosystems. We have learned that flexibility and adaptability within a conservation approach is essential, and that listening to communities is key for proper services to be provided.

Lessons Learned

Creating systems for government and community collaboration is essential. When we first started working in GNNR the situation was clear: communities felt they were constantly under threat from law enforcement but were never given solutions, never told where their land ended and the reserve started, and never had rules and regulations of the reserve explained to them. An essential part of our model has been creating governance structures (CCs) that facilitate co-management of the reserve between villages in the reserve and the Department of Natural Resources. This has been essential in zoning and mapping activities which have clarified where communities can farm, hunt, or look for non-timber forest products. Within two years of our program the atmosphere has changed, and in 2018 the government even invested USD \$5000 for a CC in a village that had once threatened to burn government officials and remove their heads if they entered their forests again.



Next Steps

- **Expansion to new villages:** As mentioned, over the last two years deforestation has dropped by 56% across the reserve. Not surprisingly, 77% of the deforestation still happening is coming *from areas where we are not yet working*. Over the next two years we will continue to expand our CCs approach to new villages to improve reserve-wide coverage.
- **Improving Monitoring, Evaluation, Accountability and Learning (MEAL):** We are dedicated to an evidence-driven approach that is both replicable and adaptable to local needs. This requires a system where we are constantly receiving feedback, adapting, and revising our model. Over the next few years we will continue improving our model within the GNNR, the Gunung Naning Protection Forest, the Kubu Raya Mangrove Forest, and other project sites in West Kalimantan. In 2019 we are using mobile technology to create text message surveys and feedback systems that allow cooperative members to provide constructive criticism about membership and programs to improve our service delivery.
- **Moving towards independence:** The first three years of a CC require extensive investments of staff, time, non-financial services, and financial capital. However, the Cooperative model is designed to gradually decrease investment by creating a self-sustaining governance structure. As we expand, it is essential that CCs established in 2016 reach independence as our team invests time, resources, and funds into new villages. We are beginning to see communities independently run aspects of the Conservation Cooperatives, and will continue to invest until CCs can reach an independent, self-sustaining state.