Environmental Leadership & Training Initiative

COURSE REPORT

MANGROVE FOREST RESTORATION AND REHABILITATION TECHNIQUES

November 22-24, 2019
Sungai Hitam, Samboja Sub-district, East Kalimantan, Indonesia

A field training organized by:
Environmental Leadership & Training Initiative (ELTI)
Research & Development Institute for Natural Resource Conservation Technology (BALITEK-KSDA)
Tropenbos Indonesia Program (TBI)
Pertamina Hulu Mahakam (PHM)
Blue Forest Foundation

Training participants and organizers

Background: Indonesia has the largest area of mangrove forest in the world. Mangroves provide a wide array of environmental services, including serving as an essential nursery for fisheries, providing timber and non-timber forest products (NTFPs), sequestering and storing carbon, enhancing sediment deposition, and protecting the coast from waves and storm surges. Mangroves also serve as valuable habitat for charismatic megafauna species, like the proboscis monkey (*Nasalis larvatus*), around which ecotourism can be promoted.

ELTI is an initiative of: Yale SCHOOL OF FORESTRY & ENVIRONMENTAL STUDIES

Organizer explaining a map of mangrove forest conditions for the field practicum

Unfortunately, the rate of mangrove deforestation has been very high. Since the mid-twentieth century, the world has seen a 50% decline in the total area of mangroves, making them one of the most threatened tropical ecosystems. The loss of mangroves has largely been due to coastal development, conversion to shrimp and fish ponds, and harvesting wood for fuel and charcoal. The situation, however, is starting to change as governments, local communities, and other stakeholders come to appreciate the environmental services provided by mangroves.

In Sungai Hitam, East Kalimantan, ELTI has been working closely with local partners to maintain, restore, and improve the function of a mangrove forest, focusing particularly on their role as proboscis monkey habitat and as a source of non-timber forest products (NTFPs). ELTI has held several previous trainings with the relevant stakeholders and is working with local community members to promote mangrove rehabilitation in the riparian area. This particular training is meant to build local capacity to conduct successul mangrove rehabilitation and restoration.

Objectives:

1. To provide the knowledge and skills needed to rehabilitate the riparian zone of Sungai Hitam mangrove forests
2. To recognize different types of mangrove forest trees as a precursor to conducting forest rehabilitation
3. To understand how mangrove forest restoration influences water quality management

Sulton Afifudin

Opening ceremony with Mr. Akmad Nurkhalis

Sulton Afifudin

Mr. Yusran Nurdin Massa presenting about mangrove ecosystems


Sulton Afifudin

Mrs. Riana Rahmaningrum participating in a tree planting activity

Program

Day 1

The training started with an opening ceremony that included a traditional dance by Pokdarwis staff, a prayer and opening remarks by Mr. Taufiqurrahman (Balitek KSDA), Mr. RSDMG Luhur (Pertamina Hulu Mahakam), Mr. Yudiansyah (Kampung Lama) and Mr. Akhmad Nurkhalish (Samboja Sub-District). Mr. Bina Swasta Sitepu (Balitek KSDA) then gave an introductory presentation on the ecology of mangrove forests, while Mr. Yusran Nurdin Massa (Blue Forest Foundation) discussed the status and threats to mangrove ecosystems in Indonesia. After lunch, Mr. Massa provided an introduction to mangrove rehabilitation methods and Mrs. Regista (Blue Forest Foundation) familarized participants with mangrove tree species.

Day 2

All participants went to the field for a tree planting activity in the riparian zone of Sungai Hitam. A total of five hundred seedlings were planted of the following species: *Shorea balangeran, Hevea braciliensis, Archidendron jiringa, Aquilaria microcarpa, Syzygium polyanthum, Syzygium malaccensis, Durio zibethinus, Parkia speciose,* and *Annona muricata*. The trainers then worked with the participants to conduct an ecological and hydrological assessment of the area needing restoration. They also assessed ongoing anthropogenic disturbances to the area and community perceptions about the need for rehabiltation. During the practicum, participants were divided into two groups, each tasked to measure the height of mangrove sedimentation and the distance between different species as a way to identify species zonation. After lunch, each group developed a PowerPoint presentation to share what they had learned with the rest of the group.

Course participant presenting his group's results

A working group of participants

Participants practicing mangrove tree species identification

Day 3

The third day started with representatives from each participant group presenting what they had learned and what they plan to do with the information and experiences gained during the previous two days of the training. Mrs. Regista and Mr. Massa gave feedback to participants on their presentations. They then used games to motivate and encourage participants to restore and rehabilitate the vegetation at the Sungai Hitam mangrove forest. After the morning break, participants watched a video showing the condition of the Sungai Hitam mangrove forest and then had a discussion about the video. Dr. Arbainsyah then provided an introduction to the ELTI Leadership Program, to which course alumni can apply for additional training, professional development, and project support. The training ended with a course evaluation and closing remarks by Mr. Muhammad Saleh (Pertamina Hulu Mahakam).

Participants:

A total of 25 participants attended the training. Participants included representatives from the local community in Sungai Hitam, local community organizations (i.e., Karang Taruna, Dasawisma, Pemberdayaan Kesejahteraan Keluarga, and Pokdarwis), local NGOs (i.e., the Borneo Orangutan Survival Foundation and Yayasan Jejak Pulang), local mining companies (i.e., PT. Inhutani I Bukit Bangkirai and PT. Pertamina Hulu Mahakam), as well as government organizations (i.e., the Ministry of Environment & Forestry's Balitek-KSDA, and local government offices of Sungai Hitam village and Samboja Sub-District).

Sulton Afifudin

Participants receiving their training certificates

Follow-up:

A WhatsApp group was established so that participants could easily continue communicating with each other as well as the organizers after the training. Some of the training participants have also requested assistance from ELTI's Leadership Program to conduct future trainings on nontimber forest products, including Eucalyptus oil and stingless beekeeping.

This event was possible thanks to Arcadia, whose Environmental Conservation grants support programmes that protect and enhance biodiversity, and provide field training and academic research.