Environmental Leadership & Training Initiative

COURSE REPORT

Rehabilitating and Restoring Forests: Principles, Methods & Strategies

Samboja, East Kalimantan, Indonesia
March 24—28, 2014

An event organized by:
Environmental Leadership & Training Initiative (ELTI)
Balai Penelitian Teknologi-Konservasi Sumber Daya Alam (Balitek-KSDA)
Tropenbos International-Indonesia Programme (TBI)

Background: The island of Borneo is globally recognized as an important biodiversity hotspot containing some of the most species-rich forests found anywhere in the world. Over the last forty years, the island has experienced widespread deforestation and forest degradation due to logging, small- and industrial-scale agriculture, mining and other destructive land use practices. The fragmentation of the forests have left these areas prone to fire, evidenced most dramatically by the burning of millions of hectares during strong El Niño events in 1982/83 and 1997/98. The ability of the forest to provide a variety of environmental services, including the provisioning of forest products for local communities and broader markets, habitat for a wide arrange of biodiversity, regulation of the hydrological cycle and the sequestration of carbon, has thus been seriously depleted.

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The Indonesian government has undertaken a variety of initiatives to rehabilitate and restore some of the formerly forested areas, but often with limited success due to a variety of social and technical shortcomings. Fortunately, new approaches to forest rehabilitation and restoration, which are based on a "synergy with nature" and closer cooperation with local communities, have been developed and are being further refined. One striking example is Samboja Lestari, a 1800-hectare forest restoration site in East Kalimantan that was developed by the Borneo Orangutan Survival Foundation on land dominated by *Imperata cylindrica* (alang-alang) and prone to frequent burning. Contrary to conventional reforestation, which typically uses only a small number of (often exotic) species, Samboja Lestari was restored with hundreds of native tree species and has since seen a large return of other biodiversity through natural dispersal.

With millions of hectares of degraded land already existing in Borneo, and the consequences of those depleted environmental services increasingly being felt through flooding, land slides, siltation of rivers, and other effects, there is a huge need for more organizations and institutions to get involved in forest rehabilitation and restoration, and to refine the techniques of those already involved. This training, which was jointly organized by ELTI, Balitek-KSDA and TBI was geared towards addressing those needs by providing participants with the knowledge and skills needed to carry out technically-sound and socially-appropriate projects.

Objectives:

- Provide participants with a solid understanding of the importance and value of tropical forest ecosystems;
- Introduce basic principles of botany and tropical forest ecology as it relates to forest rehabilitation and restoration;
- Introduce the principles, methods and strategies of forest rehabilitation and restoration in the context of different ecological and social site conditions and management objectives;
- Develop through hands-on, experiential learning the basic skills needed to plan, implement, maintain and monitor a forest rehabilitation and restoration project; and
- Stimulate concrete efforts to rehabilitate & restore forests in North and East Kalimantan.

Course Format

Day 1: The training was officially opened with introductions by Dr. Nur Sumedi, Head of Balitek-KSDA, Dr. Putera Prathama, Head of the Ministry of Forestry's Forest Research & Development Agency, Mr. Pudja Satata, Director of PT Inhutani I, and Dr. David Neidel, ELTI's Asia Program Coordinator. Following a brief overview of the course and introductions by Dr. Ishak Yassir of Balitek-KSDA, Dr. Sukartiningsih and Dr. Sutedjo from Mulawarman University provided background information on Indonesian deforestation and forest degradation, the resultant loss of ecosystem services and the ecological underpinnings of tropical forest rehabilitation and restoration. Dr. Wawan Gunawan of Balitek-KSDA then discussed forest rehabilitation and restoration as seen from the perspective of Indonesian government regulations, using a case study from Mt. Gede Pangrango National Park in West Java to underline ecological and social considerations for prioritizing areas for restoration. Dr. Yassir later discussed the need to work with nature in forest restoration by understanding the role of and potential barriers to seed dispersal in different contexts. He emphasized both passive and active forms of management and outlined different plant traits that are useful for forest restoration, such as fast growth, wide dense crowns for shading out weeds and early provision of fruit or nectar to attract wildlife. Dr. Yassir, who had formerly led field operations at Samboja Lestari, also described how these approaches had been applied at that site.

Day 2: The second day started with an introduction to botany by Mr. Arbainsyah from the Balitek-KSDA Herbarium. Mr. Yustinus Arianto of Balitek-KSDA then gave a presentation on nursery establishment and management and provided insights into seed treatment and working with wildings. Participants were later divided into groups for a field exercise on recognizing common forest trees, collecting materials for making botanical specimens and collecting wildlings, which were led by field botanists, Mr. Amriansyah and Mr. Zainal Arifin. Proper preservation for plant materials for the botanic specimens and care for the wildlings were presented and discussed. Participants then visited the Bukit Bangkirai nursery, where Mr. Arianto led them through a hands-on exercise in preparing wildings and the construction of a recovery chamber with low cost and locally available materials.

Day 3: On day 3, Dr. Neidel presented on the implications of climate change for forest restoration projects and strategies at both site and landscape scales for the forest to respond to future temperature and rainfall patterns. Dr. Yassir and Dr. Neidel then presented and led a discussion of how best to work with local communities in forest restoration, using examples from various parts of Indonesia to underline different strategies. In the afternoon, participants visited a field site at Bukit Bangkirai that contained plantations of *Acacia mangium*, an exotic timber species, which was being cleared and the site restored for biodiversity conservation and recreation. Participants discussed with Dr. Yassir, Mr. Arianto and Mr. Tarigan, the site manager for PT Inhutani I, different management approaches that they would use for restoring and enhancing different parts of the landscape. Participants later practiced proper techniques for planting trees in the area where active restoration was needed. Ongoing maintenance and monitoring for that site were also discussed, which will be carried out by Mr. Tarigan and his staff.

Day 4: The fourth day of the training was devoted to site visits. Participants first went to the nearby PT Singlurus Pratama coal mine, where Dr. Yassir has worked with company staff to develop a species-rich planting strategy for rehabilitating mined lands. Participants examined the performance of the different tree species (both planted and naturally dispersed). They also assessed the strengths and weaknesses of different cover crops used to limit erosion, but which can also overtop trees and block natural recruitment. Participants were then introduced to a community work group, which had been contracted by the mining company to conduct the plantings, and discussed the benefits and challenges to close community involvement. The group later visited Balitek-KSDA office complex where they were given an introduction to the herbarium and shown how to prepare specimens from the plant materials they had collected on the second day of the training. The point was emphasized that the herbarium staff could be very useful for them to identify species as they move forward with their rehabilitation/restoration projects. Participants then visited Samboja Lestari, where they learned more about the restoration approach that had been applied and also visited areas used for the rehabilitation of orangutan and Malayan sun bears.

Day 5: On the final day of the training, all of the participants were required to present their action plans, which outlined how they plan to apply the lessons from the training once they return home. The trainers gave feedback on these plans and other recommendations for improvement. Ms. Pangestuti Astri of ELTI also presented on ELTI's Leadership Program and outlined how ELTI could provide assistance to participants in the implementations of their projects. The training ended with final closing remarks, a course evaluation and distribution of certificates.

Participants: The course was limited to 25 participants who were chosen on the basis of applications submitted to the organizers. Participants included representatives from government agencies, NGOs, universities and other organizations and institutions that are currently active or plan to become active in in forest rehabilitation and restoration.

Follow Up: A list serve was created to keep the organizers and participants in touch with each other and so that the organizers can monitor the progress that participants are making in carrying out their action plans. To date, there have been two requests to the ELTI Leadership Program for follow-up support, including a professional development activity and project implementation support for a forest restoration initiative at the Sungai Wain Protection Forest. ELTI, Balitek-KSDA and TBI also have closely analyzed the results from the training evaluation and are in the process of further refining the training approach and developing new demonstration sites, which will be used in future trainings.

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