



Interim Report Year Two
October 2009



Elephant Conservation Network

Restoring Elephant Forest Habitat in the Salakpra Conservation Area, West Thailand



as part of the
Salakpra Elephant Conservation Project
Kanchanaburi Province
West Thailand



Keidanren Nature Conservation Fund

Interim Report Year Two

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1. Project Name

Restoring Elephant Forest Habitat in Salakpra Conservation Area, West Thailand

2. Organisation

2.1 Applicant organisation:

Zoological Society of London (ZSL)

2.2 Implementing organisations in Thailand

Elephant Conservation Network (ECN)

Forest Research and Restoration Unit, Chiang Mai University (FORRU-CMU)

3. Project purpose

This is a three year project to create an original knowledge base for indigenous forest in West Thailand and develop local technical skills to facilitate future restoration of elephant forest habitat in degraded land in and around the Salakpra Conservation Area

4. Summary of project progress (May-Oct 2009)

- *Nursery improvements:* the Kaeng Plakod nursery has been re-roofed with plastic and tiles, re-walled with chicken wire and re-floored with plastic to keep out rain and pests.
- *Phenology work:* seven phenology surveys have been carried out in the last 6-months and 23 new species identified and seeds collected, bringing the total to 58 tree species.
- *Nursery work:* 48 species are undergoing germination trials, testing five seed treatments and a variety of soil and fertilizer treatments involving over 15,000 seedlings.
- *Capacity building:* a 4-day training workshop led by Dr Steve Elliott of FORRU-CMU focused on seedling records, data analysis and future work linked to climate change
- *Planting:* ECN organised two planting sessions – one in the community forest of Kaeng Plakod adjacent to Salakpra, and one inside Salakpra, re-planting around 5 hectares
- *Monitoring & weeding:* the planted sapling survival rates were checked 3-weeks after planting and thereafter every 6-months. Weeding is done 3-times in the rainy season.
- *Data reporting & analysis:* findings are reported to ECN and FORRU-CMU every month, but the project team is now analyzing data using the ACCESS database programme
- *Outreach:* the project nurseries and planting sites were visited by local administration officials, southern Thailand community leaders, an Indian NGO, and a French TV crew.
- *Extension work:* the ECN FORRU team was asked to participate in two large local events; the annual 'best village' award ceremony and to plant trees in honour of H.M. The King.

In the opinion of Dr Stephen Elliott, director of the Forest Research Restoration Unit of Chiang Mai University and our project partner, the ECN FORRU team is implementing this project with impressive competence. In fact, he describes the team's work as outstanding.

5. Planned project activities

- a) **Nursery improvement and extension:** The nursery was improved in October 2009 by replacing bamboo poles with chicken wire around the outer walls to allow air ventilation and to protect germinating seeds from mice and squirrels. The plastic roof was also replaced by tiles to withstand heavy rain and provide more shade. To prevent weeds and termites, high density plastic sheets donated by a private company in Bangkok have been laid on the floor of the nursery. This method has proved extremely effective compared to previous methods (chemicals and salt). A 4 x 6m covered extension has been built to store materials and equipment, including a new organic fertilizer facility.
- b) **Indigenous species survey:** no tree identification survey was done during this period, but the senior plant taxonomist with FORRU-CMU, Mr J. F. Maxwell, will return in the first quarter of 2010 to survey and identify more indigenous trees.
- c) **Phenology data study and seed collection:** The aim of the phenology survey is to understand the reproductive cycle of each tree species, including the time period of flowering and fruiting. In the last six months, we have undertaken seven phenology surveys: 18-20 May, 10-12 June, 20-22 July, 10-13 Aug, 2-3 Sept, 21-23 Sept and 13-15 Oct. We are now germinating the seeds of 57 tree species. In the last six months, 23 new species were collected from trees on the phenology trail (12 of them in July) and from trees inside the sanctuary. Naturally germinated seedlings of three species (*Syzygium*, *Alangium salfalvifolium* and *Vitex glabrata*) were also collected to increase the number of seedlings of these species in the nursery, as the seeds used in the germination trials have not survive well, but there were plenty of healthy ones in the wild.
- d) **Nursery work:** We are doing experimental trials at three separate stages of seedling production: seed treatment, seed germination and growth rates of seedlings. Seed germination trials began in December 2008 and are still in process. Altogether, 48 species are included in the germination trials, and a total of 15,653 seedlings have been produced at the nursery from the 57 species collected. The growth rates of seeds and seedlings in the germination trials are regularly monitored - twice a week for the germination trays and every four weeks for the seedlings.

We are testing five seed treatments for each species: soaking in hot and cold water, drying, clipping, and rubbing with sandpaper. Wrapping in cloth overnight has also been tried with some seeds (*Catunaregum tomentosum*) while the combined technique of clipping and soaking in hot or cold water has been tried with some other species. Seeds are then planted into germination trays using four different media: forest soil only, sand only, forest soil + sand (ratio 1:1), forest soil + coconut husk (ratio 1:1). However, some seeds (e.g *Spondias pinnata* and *Afzelia xylocarpa*) are too big to put in trays, so they are put directly into plastic bags or into the ground and moved once they have germinated.

From May to October 2009, we carried out germination trials with 15 of the 23 new species collected. The other eight species have either undergone trials already or have solid data on the germination survival and growth rates from the CM-FORRU research work earlier.

- e) **On-site training:** From 29 September-2 October 2009, a 4-day training workshop was undertaken by CM FORRU at the ECN office and at the village nursery. The training, led by Dr. Stephen Elliot, reviewed project progress, and then focused on data analysis and future project management, while also discussing the role of forest restoration in tackling global warming.

The project was reviewed on the first day through a powerpoint presentation prepared by the ECN team, followed by discussions on the issues raised during the presentation. The second day was spent at the village nursery and the planting site nearby. The ECN team was shown how to photograph samples of seedlings and saplings every month in order to make a pictorial record of each species growth rate. The team was also taught how to use ACCESS for the data analysis by FORRU-CMU's specialist.

Dr. Steve and his colleagues think that, so far, the progress and the quality of work achieved by the ECN team in handling routine nursery work, data collection and management competent is more than simply competent. In their opinion, it is outstanding. Consequently, he has suggested that the ECN team increase its collection of tree species to 100. The original number proposed was 50 species.

- f) **Planting:** On 5th June, the first planting day was organised at Kaeng Plakod in a demonstration plot of 5-rai (just under 1-hectare). A total of 2,325 seedlings (15 species) were planted with help of 270 volunteers that included several local government organisations and sub-district leaders, the local army brigade, conservation areas, fire prevention units and the district office. Planting was completed in 1.5 hours. Because the community forest of Kaeng Plakod is degraded and dry – much drier than FORRU-CMU is used to in northern Thailand – the area and number of saplings planted was deliberately limited in order to monitor the survival rate without expending too much effort in case it fails. The Kaeng Plakod planting site is divided into 5 plots: three are demonstration plots using different fertilizer treatments. We are testing three formulae: cow dung manure, organic fertilizer made from leaf litter, and organic fertilizer with added nutrition. The first two formulae are prepared in the village level, while the third can be bought from the town market. The other two plots use no fertilizer.

Another planting day was held 2-weeks later inside the Salakpra Wildlife Sanctuary (see below).

- g) Tree monitoring and weeding:** Monitoring the survival of trees planted at Kaeng Plakod village began on 22-26 June, 3-weeks after planting. All the saplings looked healthy and only one (a *Codia Cochinchinensis* sapling) had died in plot No. 1. The next monitoring will be done mid-November at the end of the rainy season. The first weeding session was held on 29 July, roughly two months after planting. This was earlier than planned because the grass had grown quickly because no herbicide was used when the plots were cleared. The next weeding activity was late September and a third session will be held in mid-November.
- h) Data processing and analysis:** In late September 2009, the ECN team began processing and analyzing project data. This will now be a regular activity each week. The findings will enable us to produce a calendar of seed collection and compare the growth and survival rates among tree species. This combined data will identify the best framework species for forest restoration in Kanchanaburi, west Thailand. Data is logged into the ECN database and backed-up on external hard disk. Every 3- months, the latest files are stored on CD and, each season, the whole database is stored on DVD.
- i) Reporting:** Project team leader, Ning, writes a monthly report in Thai for ECN's manager, Jittin, and for FORRU-CMU supervisor, Dr Stephen Elliott. Progress is reviewed weekly against the work-plan so that the team can implement work on time and tackle practical problems as they arise. Nursery staff also fill in monthly report forms as well as recording their daily work in notebooks. This information is compiled into the monthly reports. The ECN FORRU team also reports to the ECN monthly meeting so that the whole team is aware of project progress.

6. Additional project activities

a) Planting:

- **inside Salakpra:** on 16 June, the ECN team jointly implemented the planting event inside Salakpra with the Salakpra Sanctuary with supplementary support from Bring the Elephants Home (BTEH). Around 280 people from various sectors (local colleges, villagers, tourist volunteers, the army, community leaders and rangers) joined this full-day activity. Approximately 10,000 saplings were planted in three separate plots over an 18 *rai* area (2.95 hectares) in prime elephant habitat.
- **on Kaeng Plakod public land:** On 12 July, more planting was organised by the Salakpra Wildlife Sanctuary in degraded public land near the village temple. This small event involved 1,000 seedlings, local villagers, rangers and some volunteers from Bangkok. The ECN team was invited to assist.

- b) Weeding the planted plots inside Salakpra:** From 20-27 July 2009, four weeks after the planting event inside the wildlife sanctuary, the first weeding session was organised by ECN, although much of the weeding work was done by rangers and local villagers.

c) Study trip: From 14-16 July, Ning was invited to join a study trip to learn about organic farming in Kanchanaburi and Sukhothai provinces. The trip was organised by the Erawan National Park as part of its Joint Management of Protected Area (JOMPA) project. Other participants included selected leaders and villagers from local communities in the JOMPA target area around the park, including Kaeng Plakod. This trip proved very useful to ECN because it gave Ning the opportunity to engage with members of other communities in our target area and to tell them about our community-based projects, including this one.

d) Site visits by outside groups: On 17 July, local councilors from Chong Sadao District TAO visited Kaeng Plakod to evaluate government-supported projects. They also visited our nursery to learn how Kaeng Plakod village is engaging with other organizations to improve their lives, livelihoods and environment.

On 24 August, community leaders from Suratthani province in south Thailand also visited the nursery after spending time in Salakpra Wildlife Sanctuary to learn about elephant conservation issues from deputy chief Mr Prawut Prempri.

e) Filming and communications: On 21 July, a French TV crew came to film the ECN project teams at work as part of a documentary about human-elephant conflict mitigation. The TV crew spent half a day filming at the nursery to document every step of the nursery production process. Mrs. Pannor and Warinda, as well as other members of the ECN FORRU team were featured going about their work, and Jittin gave an interview on elephant conservation issues.

f) Community relations: in August, the ECN forest restoration team was asked to take part in two community events. The first, held in nearby Pong Pad village, was a provincial contest to select outstanding communities. A variety of socially responsible criteria were used. One of them was ‘participation in environmental conservation’. ECN displayed posters about its forest restoration project with Kaeng Plakod village and the judges were hugely impressed by this collaborative community initiative.

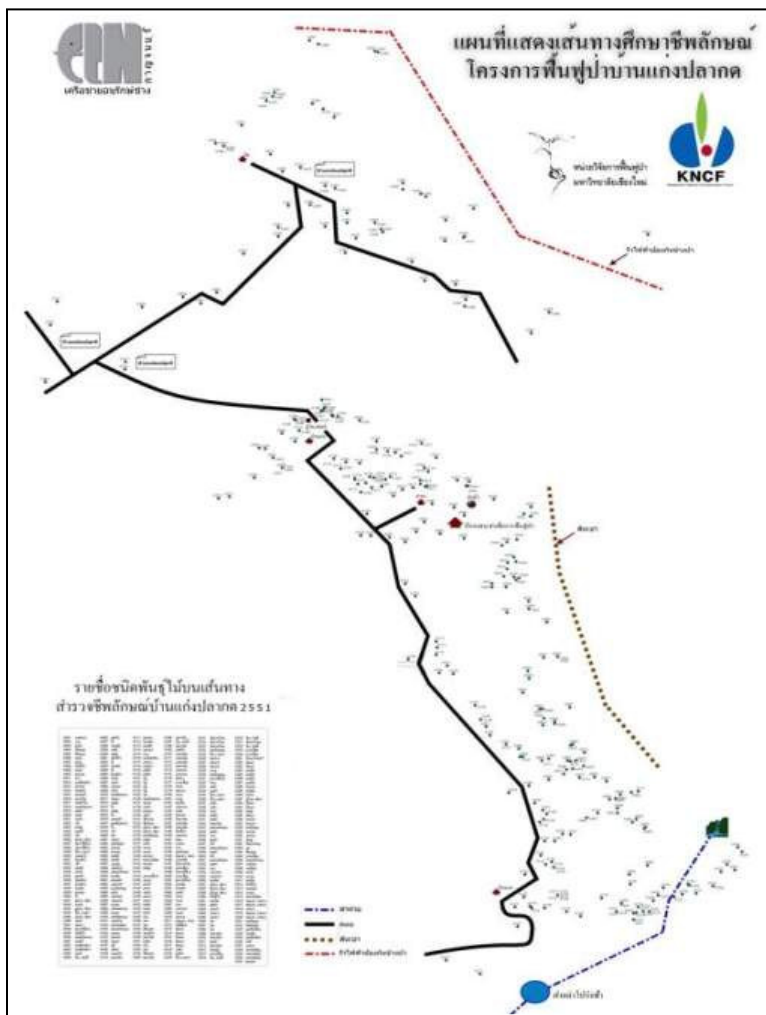
The second invitation was to a tree planting that was part of the ‘Nine Million Trees Planting Project’ in honour of H.M. The King. This event was held at Tha Thungna Dam and was presided over by former Prime Minister General Surayuth Chulanond. ECN’s poster and nursery display attracted a lot of villagers from nearby communities, many of whom asked for seedlings to plant at their home.

g) Public contributions: As this project nursery grows, along with the reputation of ECN’s forest research restoration work, we have begun to attract more and more support and requests for collaboration. The nearby Tha Thung Dam and fire prevention unit gave soil and organic fertilizer for our nursery work and would like to collaborate more in future. And a company in Bangkok donated plastic sheets to improve the nursery. Other organizations give support in kind: the 9th army sent soldiers to dig planting holes, and the organic farming education centre in Kanchanaburi taught us how to make organic fertilizer.

h) Seedling distribution: In response to requests, we have donated 1,214 seedlings from the nursery to local communities and organizations (Kaeng Plakod village, Salakpra Sanctuary, Tha Thungna Dam, Forest Fire Prevention Unit, and villagers from nearby communities who mostly favour edible species such as *Phyllanthus* (Makham Pom - fruits) and *Oroxylum indicum* (Pheka - pods).



9. A GIS map of the Kaeng Plakod Phenology Trail



This GIS map is regularly updated to mark, with numbers and species name, every tree identified on the trail to date. A laminated copy of the map is kept for reference at the Kaeng Plakod nursery.

8. Future Project Activities

- **Phenology study and seed collection:** current activities to be continued month by month or more often when necessary, particularly for seed collection.
- **Seed germination and trials:** Seed germination and associated experiments will continue with more tree species added in the coming months. The target number of tree species has been increased to 100 species (see 5e above).
- **Accelerated growth treatment:** we will experiment with methods to accelerate seedling growth in the nursery, along with methods to slow down the growth of species that grow too quickly. Both techniques are needed because some seedlings are growing too quickly or too tall, while others are growing too slowly and are likely to be too small to plant out next year.
- **Monitor seedling growth rates:** this data is recorded by the project team every four weeks. Five seedlings from each species are randomly selected. They are then measured and photographed.
- **Monitor and maintain trees planted at Kaeng Plakod:** the growth and survival rates of trees planted in June 2009 were first monitored 45 days after planting and will now be monitored twice a year, at the end of the rainy and cool seasons i.e. end of October and February). Fertilizer will be applied three times in the rainy season. Photos of saplings from each species will be taken every 3-months.
- **Specimen collection:** specimens of each tree species are collected three times: once from the tree, once at seed germination stage and once at seedling stage. These specimens are either dried in an oven or stored in jars filled with water and alcohol. All specimens are sent to the herbarium at Chiang Mai University.
- **Data processing and analysis:** From October 2009, the ECN team will spend two days a week on the data processing and analysis using the ACCESS programme. However, a refresher course in using this database programme is clearly needed and will be held as an in-house capacity building exercise for the whole team. A appropriately qualified trainer will be found.

9. Updated Project Schedule

Activities / Tasks	1 June	2 July	3 Aug	4 Sept	5 Oct	6 Nov	7 Dec	8 Jan	9 Feb	10 Mar	11 Apr	12 May	Remarks
FORRU-CMU training workshops					x								ECN staff & villagers
Nursery work & research	x	x	x	x	x	x	x	x	x	x	x	x	Project staff
Forest tree survey/ seed identification									x				By FORRU specialist
Phenology study & seed collection		x	x	x	x	x	x	x	x	x	x	x	Project staff
Planting, weeding, monitoring plots		x	x	x	x	x						x	Associates, volunteers
Data analysis					x	x	x	x	x	x	x	x	ECN staff & CMU

10. Photographs of project activities (May-Oct 2009)



Above: the nursery in Kaeng Plakod village being re-roofed with plastic and concrete tiles.

Below: heavy-duty plastic is now used to line the floor of the nursery to prevent termites from eating the saplings. An additional benefit is that saplings roots do not go down into the ground



Right: a sapling ready to photograph for the growth records data. Below: Ms Kwankhao of FORRU-CMU with ECN's Pannor, Gip and Ning during the on-site training visit Oct 2009

Below: Dr Steve Elliott of FORRU-CMU showing the ECN team how to log tree growth monitoring data



Left: Kwankhao explaining how to measure sapling growth. Above: Gip & Pannor measuring a plant



Above: General Sarayudh Chulanond, former Prime Minister, planting a tree to honour H.M The King. Left: Ning with school children at the ECN booth during General Sarayudh's visit.. Above left: a French TV crew filming in Kaeng Plakod nursery for a film about human-elephant conflict mitigation.



Above: the group of community leaders from Surattani province visiting the nursery. Right: villagers from nearby Srisawat district came to learn about nursery management techniques so that they can start their own herbal plant nursery and produce traditional healing remedies



Far left: Gip with villagers and the ECN display at the village award open day. Left: Ning and Kaeng Plakod headman Mr Wasant with government inspectors at the nursery.