



Interim Report
October 2010



Elephant Conservation Network
**Restoring Elephant Forest Habitat in the Salakpra
Conservation Area, West Thailand**
Project Year 3



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



Keidanren Nature Conservation Fund

Interim Report for May-Oct 2010

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 aim and objectives

The aim of this 3-year project is 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.

The objectives are:

- o Develop local capacity to implement forest restoration activities
- o Continue to gather data on tree species composition of main forest formations in Salakpra
- o Find optimal seed collection times/treatments to hasten seed germination & seedling growth
- o Develop and manage a community-based forest tree nursery and planting sites.
- o Present initial results to stakeholders to encourage implementation of forest restoration.

4. Summary of progress May-Oct 2010

- *Developing local capacity:* two intensive training courses for ECN's project team (12-14 May, 9-11 July) led by Dr Stephen Elliott and colleagues from FORRU-Chiang Mai. Follow-up training in monitoring the phenology trails (24-28 August) was also provided by Mr Maxwell, senior taxonomist at Chiang Mai Herbarium.
- *Data on tree species in each forest formation:* data collected from tree species on phenology trail 10 times (20-21 April, 10-11 May, 2-4 + 21-23 June, 14-16 July, 2-4 + 26-31 Aug, 14-16 Sept, 12-14 Oct) and data on 195 new trees from 46 species recorded (24-28 Aug, 9-10 Sept) with Mr Maxwell on extensions to the phenology trails in Kaeng Plakod village and Huai Sadong station inside Salakpra wildlife sanctuary.
- *Data on seeds, germination and growth:* in July and Sept, seeds collected and germinated using standard experimental treatments, for 3 new species. In the other months, seeds either not available (Apr, May, Aug) or the project team was busy preparing new planting plots in the community forest and in Salakpra.
- *Manage nurseries and planting sites:* saplings trimmed, repotted, organized by species each month; 2009 planting plots monitored for sapling survival (Apr, Jun); three 2010 planting sites prepared (May, June), planted (July), fertilized and monitored (Aug, Sep).
- *Extension and outreach:* ECN posters on elephants and forest restoration displayed at nurseries and villages; presentation given on main planting day (31 July) supported by the Royal Thai Army with 1,000 soldiers and volunteers in honour of H.M The Queen.
- *Data processing & analysis:* All data, both written and photographic, is logged into the database at ECN office on a weekly basis.
- *Reporting:* Monthly reports, in Thai, prepared for ECN programme manager and FORRU Chiang-Mai team. Problems raised at team monthly meetings and solutions discussed with Dr Steve if necessary.

5. Planned project activities

- a) **Nursery improvement:** no improvements have been necessary in the last six months as we did major renovations in the second half of Year 2 of the project.
- b) **Nursery work:** We continue to do the seed treatment and germination growth rate trials initiated at the start of this project. The five seed treatments being tested are: soaking in hot and cold water, drying, clipping, and rubbing with sandpaper. The 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).

The germination experiments are done with the seeds of newly collected species as well as the seeds of species tested in the previous two years. We are repeating the trials on known species for two reasons: 1) to produce seedlings of different ages for each species to add to the specimen collection, and 2) to provide additional data if the first test does not yield sufficient information.

The Randomized Complete Block Design (RCBD) method has been used with three replications for each species in the germination trial. Each replication has 25 seeds which are monitored to determine their germination rate. Data is recorded every Monday and Thursday by project staff with help from the nursery workers. Specimens from each species in the germination trials are also photographed each week. Seedlings are transferred from the germination trays to plastic bags filled with five potting media: forest soil + bean + coconut husks (ratio 2:1:1), forest soil + cow dung + sand (ratio 4:1:1), forest soil + bamboo leaves + sand (ratio 3:2:1), forest soil + *Erythrophlem teysmannii* (takruk) leaves + sand (ratio 2:2:1), forest soil + coconut husk + *Erythrophlem teysmannii* leaves (ratio 2:1:1).

By June, we had almost 20,000 saplings prepared for planting in three plots (the demonstration plot in the community forest, a nearby restoration plot and another restoration plot in Salakpra) Selected samples of all species are monitored on a regular basis to determine the survival and growth rate of each species. The height of saplings is measured and photographed once a month.

- c) **Identification of indigenous tree species:** After delaying his next visit for a knee operation, the senior taxonomist of Chiang Mai University and a key member of the FORRU-CMU project team, Mr Maxwell, returned for another intensive 5-day visit (24-28 Aug) to help extend this project's two phenology trails (one near the nursery in Kaeng Plakod village and community forest, and one near the nursery at Huai Sadong Guard Station in Salakpra Wildlife Sanctuary). A total of 195 trees of 46 species were identified on the trail extensions, and some other as yet-unidentified trees were named and labeled on the existing trails. At present, around 60 tree species are being cultivated in the Kaeng Plakod nursery, while an additional 40 species are being cultivated in the Salakpra nursery - a total of 100+ species.
- d) **Phenology data study and seed collection:** In the last 6-months, from May to October 2010, we did ten phenology surveys (20-21 April, 10-11 May, 2-4 + 21-23 June, 14-16 July, 2-4 + 26-31 Aug, 14-16 Sept, 12-14 Oct). So far, we have collected and germinated the seeds of over 60 tree species in the Kaeng Plakod nursery, and an additional 40 species in the Salakpra nursery - a total of 100+ species.

e) **Monitoring and maintaining 2009 planted plots:** the 9-month old plantings in our 2009 forest restoration plots were monitored and photographed in April, though many trees appeared to have died as a result of this year's very long dry season. Further monitoring was postponed until the rains started in June as only then could we be sure which plantings had died. We then found that the survival rate averaged 50%, disappointingly low for our hard-working team, but actually quite high compared to plots elsewhere in Thailand, according to Dr Stephen Elliot.

Eight of the species planted last year fared much better than the others, with average survival rates of 65-80%. They are:

- *Bauhinia racemosa* (*chongko*)
- *Phyllanthus emblica* (*makaam pom*)
- *Pterocarpus macrocarpus* (*pradu pa*)
- *Oroxylum indicum* (*paekha*)
- *Albizia lebbbeck* (*ta-keuk* or *preuk*)
- *Aegle marmelos* (*matoom*)
- *Caesalpinia sappan* (*faang*)
- *Sindora siamensis* (*makha tae*)

Another five species had very low (ave. 25-40%) survival rates:

- *Azelia xylocarpa* (*Makha Mong*)
- *Cordia cochinchinensis* (*Mun*)
- *Azadirachta indica* (*Sadao* or *Neem*)
- *Albizia grocera* (*Thon*)
- *Alstonia scholaris* (*Teen ped*)

f) **Preparing and maintaining 2010 planting plots:** in May, we plotted and mapped another 3 x 1-rai (1.2 acres or 0.5/ha) in our Kaeng Plakod demonstration plot. We then surveyed naturally seeded trees over 1-metre high in the new plots, recording 272 trees of 27 species. In June, we labeled every sapling to be planted this year. In the demonstration plots, we planted a total of 500 saplings from 25 species, with at least 20 saplings per species in each of the 1-rai plots. We also prepared three types of fertilizer to use, one type per plot: cow manure, leaf compost, and organic fertilizer (purchased from villagers nearby). In July, we prepared the plots ready for planting (marking sections, digging holes) with the help of soldiers from the nearby 9th Army base. In addition to the 3 x 1-rai demonstration plots, we prepared another 17-rai of the community forest nearby. On 31st July, in honour of H.M.The Queen, 1,000 soldiers, students and local volunteers came to help plant almost 7,000 saplings from 40 species in the pre-prepared 20-rai area. In September, each planting was given fertilizer (or not) as per the experimental plan.

g) **Training and capacity building:** on 12-14 May and 9-11 July, we organized two intensive but practical training courses with Dr Stephen Elliott and two colleagues from FORRU-Chiang Mai. The first course focused on specimen collection, oven drying, written records, rapid site assessment of natural seedlings, and proposed experiments in the 2010 demonstration plots. The second course focused on data analysis using ACCESS. The second course has enabled the ECN project team to start doing some basic analysis with our data. In August (24-28), while extending the phenology trails and identifying 195 trees from 46 species, the CMU's senior taxonomist, Mr Maxwell, also gave additional training in monitoring techniques, identifying species and preparing specimens for reference collections.

- h) **Data processing and analysis:** data from the nursery and planted plots is logged into the project database at ECN's office every week. Following the training in data analysis using ACCESS, the project team is now able to prepare some of the graphs and tables that will be needed in the preliminary forest restoration manual for West Thailand that we will produce as this project's final output.
- h) **Reporting:** the project team leader, Ms. Oranut Suk-In, writes a monthly report in Thai for ECN's manager, Ms. Jittin Ritthirat, and for the FORRU-CMU supervisor, Dr Stephen Elliott. Progress is reviewed weekly against the work-plan so that work is implemented on time. Nursery staff also complete report forms each month while also recording their daily work in notebooks. All this data is compiled into the written reports. Progress is reviewed at ECN's staff meetings each month, problems raised and solutions decided, sometimes with the help of Dr Elliott.

6. Other activities

- a) **Bird survey:** in June, we began monitoring birds in the restoration plots. Led by ECN's research assistant (a graduate in forest biology from Kasetsart University), we will survey birds for 2-days, on the third weekend of every month, to record the changes in numbers and diversity over time. This will provide day on the way in which this restoration project is restoring biodiversity as well as forest cover.
- b) **Seedling donations:** in July, the Kaeng Plakod nursery donated 2,000 surplus saplings to two schools, and to the village and temple of Thung Na, for the local community to improve the natural landscape in each area. In August, another 3,880 seedlings were donated to three other communities for them to plant around their schools, temples and common land. We also gave some saplings to the Rajaphat University in Kanchanaburi to plant within its grounds. At the end of this project, we will review this policy to see how best to maximize the benefits.
- c) **Community relations:** On 24 June, the project team joined a community event in Kaeng Plakod village to clear rubbish from all public areas. This activity was inspired by a similar event organized last year in Ko Buk village by ECN as part of its Salakpra Elephant Ecosystem Conservation Alliance (SEECA) alternative livelihoods programme for forest users. As a result of the SEECA event, Ko Buk now has a waste recycling centre that is run by, and benefits, the local school. It also has a much cleaner, more attractive village.
- e) **Planting Outreach:** working with forest rangers and local volunteers, the FORRU project team also organized a planting event inside the Salakpra Wildlife Sanctuary that was supported by the Dutch NGO, bring the Elephants Home.
- d) **Public awareness:** in April we produced several posters about this project and its relevance to elephant conservation and human-elephant conflict mitigation. These are displayed at the project nurseries, at events we attended (including the Army run forest restoration day), and in public places in collaborating local communities. From 24-26 Dec, the FORRU team joined other ECN staff to mount an exhibition at the Wildlife Protection Fair at the Department of Nature Conservation in Bangkok.

8. Future Project Activities

- **Phenology study and seed collection:** current activities will be continued month by month, and more often when necessary, particularly for seed collection.
- **Seed germination and trials:** Seed germination and the associated trials will continue with more tree species will be added in the coming months.
- **Monitor seedling growth rates:** this data is recorded by the project team every 45 days. This includes height measurements and photographing of saplings.
- **On-site training:** More training is planned to help prepare the preliminary forest restoration manual for west Thailand that will be the final output of this project.
- **Planting plot maintenance:** follow-up work involves weeding, monitoring sapling growth and survival, and forest fires.
- **Produce preliminary manual:** the final output of this project will be a preliminary manual for restoring indigenous forest in the dry lowlands of west Thailand.
- **Disseminate lessons learned:** we will launch the manual at a final workshop with relevant community, government, NGO and university representatives.
- **Bird-survey at the planting site:** the bird survey will continue in order to assess the impact of this project on biodiversity restoration.

9. Project Schedule (2010)

Activities/Tasks	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Remarks
Nursery work and research	x	x	x	x	x	x	x	x	x	x	x	x	With ECN team
Training & data collection on-site		x		x		x		x		x		x	With ECN staff, villagers
Tree survey/ seed identification				x									By FORRU taxonomist
Phenology study & seed collection	x	x	x	x	x	x	x	x	x	x	x	x	By local project staff
Plant / weed restoration sites		x	x										Staff, villagers, volunteers
Monitor plots & photograph		x x	x x		x x		x x	x x		x	x		Plots of 2009 & 2010
Plan and prepare technical manual							x	x	x x	xx	xx	x x	Final output of this project

Photographic record of project activities (May – Oct 2010)



Above: holes dug by soldiers in the demonstration plot sited in the badly degraded community forest of Kaeng Plakod village.

Below: smart wooden frames with tree identification labels ready to protect the saplings planted by VIPs.



Right: a young girl carrying the Queen's flag waits patiently for the planting to begin.

Below: in the outdoor exhibition area, students learn about this project and its contribution to local environmental health and well-being



Below: forest fire fighters and other local government personnel line up to help plant trees in Kaeng Plakod



Left. ECN programme manager, Jittin Ritthirat (in pink) with senior officials
Above: the General in command of the 9th Army, based in Kanchanaburi, opens Kaeng Plakod's planting event



Above left: Teams of recruits wait to plant trees in Kaeng Plakod.

Left: One local elder took no chances with falling branches or other dangers.

Above: a local celebrity waters the sapling planted by a senior official.



Above: a cheerful lass helps plant out saplings in Salakpra.
Right: local kids learning about seeds and seed treatments



Left: soldiers, forest rangers and other recruits line up to be photographed with Salakpra's planting day banner.





Left: one of the planting sites in Salakpra where we are accelerating forest regeneration.

Below: ECN's wildlife research assistant engages children in some outdoor ornithology



Below left: Mrs. Pannor, the Kaeng Plakod nursery manager, teaches children how to pot seedlings.

Below: inside Salakpra, local children learn the best way to plant out saplings

