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This Issue:

- @ FORRU Presents at Global Biodiversity Meet
- @ The Darwin Team Reaches Out to Monks, Villagers and Nursery Technicians
- @ Direct seedling-an alternative to planting trees
- @ DEO runs activities to help conserve Thailand's rarest bird
- @ Framework species
- @ Thanks to our sponsors
- @ Goodbye from Thanakorn- and goodluck to FORRU
- @ FORRU welcomes New AYAD volunteer
- @ Back to the Northern Forests
- @ More education activities with FORRU
- @ Quiz for FORRU newsletter / May 2004



FORRU Presents at Global Biodiversity Meet

The Convention on Biological Diversity is one of the most important international agreements furthering the cause of wildlife conservation. Formulated at the 1992 Earth Summit in Rio de Janeiro, the treaty establishes three main goals: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources. Every two years, government representatives from the 187 countries which have signed the convention review progress with implementing it.

In February 2004, the 7th Conference of the Parties (COP7) was hosted by the Malaysian Government at the Putra World Trade Centre in Kuala Lumpur. Most of the work of the conference involves government officials discussing how best to implement the agreement's many provisions. But, away from the main conference room, many governments run side meetings to promote the steps they have taken to implement the convention at national level.

Creating the Darwin Initiative, which funds conservation projects in biodiversity-rich countries with developing economies, was just one of many actions taken by the U.K. Government to meet its commitments under the convention. So, naturally, the UK government wanted everyone at COP7 to know about it.

However, imagine our surprise when FORRU received a letter from the British Environment, Minister Elliot Morley asking us to present our work at the meeting, as an example of good Darwin project! Not only would we promote the agency that has been so generous in funding our educational work, but also we would have a chance to explain our ideas about forest restoration to leading government officials.

So, on February 17th, David Blakesley, Acharn Sutthathorn and myself presented FORRU's research and education program to a packed room of more than 70, officials and NGO representatives from all over the world. We had a chance



Dr. Stephen Elliott, Dr. David Blakesley and Dr. Sutthathorn Suwannaratana at the Convention on Biological Diversity

to promote our plans, to start a nursery support fund here in Thailand and to expand FORRU's work to other countries. Our work stimulated a great deal of interest and seemed to impress our hosts. It was a great honour to have an opportunity to present our work to such an international audience and we thank both Mr Morely and Darwin Initiative Officers for their hospitality and encouragement.

Steve Elliott

FORRU 2003

Administration : Dr.Vilaiwan Anusarnsunthorn, Dr.Stephen Elliott, Dr.Sutthathorn Suwannaratana
Research : Cherdsak Kuarak, Thonglao Srithong, Somkid Khunkota, Panitnad Tunjai
Education : Natenapit Jitlam, Kunakorn Boonsai, Susan Doust, Rungtiwa Punyayod

The Darwin Team Reaches Out to Monks, Villagers and Nursery Technicians

At FORRU, we realize that education is not just for students but for everyone interested in forest conservation. As spiritual leaders, monks have a lot of influence amongst communities. Many Thai forests have been saved because of their teachings. Buddhism was conceived in forest and The Lord Buddha achieved enlightenment under a tree (*Ficus religiosa* L., Moraceae). One important Buddhist maxim is: "anyone who grows forest, also builds bridges and wells for people and will have virtue for all time".

So, FORRU ran a workshop for monks from Doi Loh sub-district on our framework species method and biodiversity conservation. The theme was: "how monks can convey the conservation ideal to people". The monks also studied FORRU's successful plantings at Ban Mae Sa Mai. Included amongst the participants were young novices, one of our target groups for building forest awareness. The recent forest fire in part of our plots served as a stark lesson to the participants as to how a single lapse in attention to fire prevention can set back forest restoration by years. Interest in the plots was intense and the programme was extended to take into account the many questions raised by the novices.

Villagers are often directly involved in forest conservation. So we invited 30 village community leaders from Lampang and Phayao provinces to spend 3 days with us in Chiang Mai, staying at the YMCA. With villagers studying forest restoration for community development, we like to emphasize the economic benefits of tree planting. With our teaching module "Nature Bank", villagers are taught that the forest is not just a group of trees but a life-supporting system. The module is also used to stimulate participants to come up with their own ideas about sustainable use of forest resources. The villagers also designed several activities to run in their own communities, including establishing their own tree nurseries.

The village group also went up to Ban Mae Sa Mai to see the framework species demonstration plots. They met with members of the Ban Mae Sa Mai conservation committee and spent two hours exploring how to establish their own village conservation clubs. Hopefully these ideas will take root and ensure a greener future for these villages.

On many occasions the FORRU team has endeavored to transfer new restoration techniques and practices to key personnel working in the seedling production industry. One such event held recently was the "Nursery Techniques Workshop" run from 23rd-25th March 2004 for forestry officers, NGO's and community nursery workers. On the first day of the workshop, the participants visited the demonstration restoration plots at Ban Mae Sa Mai, where they could see first hand the results achievable by adopting FORRU's restoration strategy. The following day, participants learnt about the "Framework Species Method" and had the opportunity to exchange their ideas and experience of working in tree production nurseries.

On the final day of the workshop there was much discussion and the inevitable question arose: "... How much does it cost to reforest degraded land using FORRU's technique? The participants of the workshop were able to calculate the answer to this question themselves using the method explained in our new module. If you are interested in FORRU's reforestation technique and want to estimate the budget for planting your own forest ...please contact us.



*Abbot of Mon Hui Kaew
Temple explains reforestation to novice
monks at the temple*

Wasan Leerat & Natenapit Jitlam

Direct seeding - an alternative to planting trees?

Direct seeding means sowing seeds directly into deforested sites instead of planting trees. If forests can be re-established by scattering seeds, instead of by tree planting, no nursery is necessary and the costs of forest restoration could be greatly reduced.

So, one of the plots planted at Ban Mae Sa Mai in June 2003 was reserved for an experiment to test the effectiveness of direct seeding as a potential alternative to the planting of nursery-raised seedlings of framework tree species. Six tree species were selected for this experiment: *Melia toosendan*, *Spondias axillaris*, *Prunus cerasoides*, *Oroxylum indicum*, *Gmelina arborea*, and *Sarcosperma arboreum*. Batches of seeds were collected from forest trees shortly before planting time. The seed batches were divided into 2 sub-batches; one sown in germination trays in the nursery and the other sown directly into the experimental plot, in the upper watershed above Ban Mae Sa Mai, adjacent to framework species plots planted with tree seedlings.



Staff monitoring germination in the field



Prunus cerasoides germinated in the field



Seedlings germinated in the nursery

The first part of the experiment was to compare seed germination rates in the field with those of seeds sown in trays in the nursery. The next step is to compare growth rates of seedlings grown in the nursery and in the field. Finally seedlings from the nursery will be planted next to those germinated in the field (next June), to compare long-term survival of seedlings raised in the nursery with those growing from directly sown seeds.

Seeds were prepared by removing fleshy parts of the fruits. In the field, the seeds were buried to a depth of about 1 cm. Weeds were cleared around the seeding spots. Germination was monitored every week after sowing until the end of October 2003. Growth rates of seedlings are being monitored monthly.

Initial results indicate that seed germination rates in the field and in the nursery were not significantly different. Three of the species, *Oroxylum indicum*, *Sarcosperma arboreum* and *Prunus cerasoides* achieved germination rates of more than 50% in the field (55.2, 53.1 and 51.5 % respectively).



Prunus cerasoides, from direct seeding - aged 4 months

Puttipong Navakitbumrung

DEO runs activities to help conserve Thailand's rarest bird

In February 2004, I went to Krabi at the invitation of the Bird Conservation Society of Thailand to help raise awareness of the need to restore the forest habitat of Gurney's Pitta, Thailand's rarest bird. This was a follow-up activity to the workshop for forest officials and community leaders from Krabi hosted by FORRU last year.

I worked with 62 students from the local Youth Conservation Club on developing the framework species method of forest restoration using trees indigenous to southern Thailand. After a brief introduction to FORRU, the VDO "Seed of Hope" was shown and an AV presentation on the importance of biodiversity conservation. Students considered which local trees might act as framework species.

Next day, I led a walk with Mr Kunakorn Boonsai, through the forest at Khao Nor Chuchi. Following a welcome address by the local forest official, Mr. Somprat Polchu, the students labeled local trees for phenology studies. After lunch, we continued to ramble through degraded sites which had recently been planted with trees. The students wrote about their impressions of the difference between the two areas and adopted some of the labeled trees for monitoring flowering and fruiting. Student representatives from each group presented confidently about their understanding of the need to conserve Gurney's Pitta and restore its habitat.

Now that seed trees have been identified, the next step is to collect seeds and grow them into trees ready for planting. FORRU is currently exploring ways to fund a research nursery in Krabi to explore the potential of indigenous trees to act as framework species.

Thanakorn Lattirasuvan



Students learnt from community leaders

Technical term: Biodegradable

Biodegradable is a term used to describe any material that can be quickly broken down into environmentally harmless products or compounds. Materials or substances that are organic such as those originating from plant matter are usually biodegradable e.g. most foods and paper products. Micro-organisms are usually involved in the process of decomposition of biodegradable products. These micro-organisms utilize a biodegradable substance as a source of energy while breaking it down into basic elements and allowing it to become absorbed into the natural ecosystem through either the soils or water. Some biodegradable substances may also decompose in the presence of sunlight.



Compost is a good example of a valuable, biodegradable product, which can be used to increase the growth of planted trees. This unattractive pile of "waste" in a village in China is destined to help trees grow in a nearby community forest.

Substances that have been created by industry from resources considerably altered from their natural state are usually not biodegradable e.g. plastics. When plastics and other non-biodegradable materials are discarded they will not break down rapidly or may release toxic substances into the environment as they deteriorate. Non-biodegradable products pollute and litter the environment and it is important that these products are not discarded inappropriately and dumped in natural areas. Many products can be reused or recycled to reduce wastage. Paper, plastic, glass and scrap metal can all be recycled in Thailand. Recycling and correct disposal of litter will ensure that the environment is cleaner and healthier for future generations.

Susan Doust

Framework species

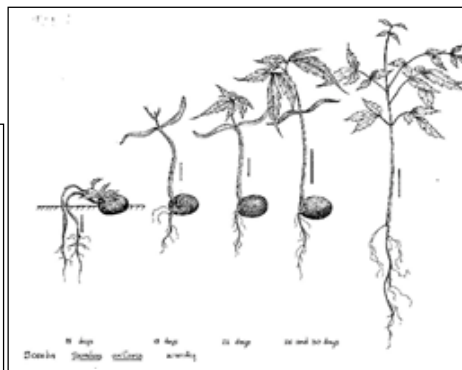
Spondias axillaris Roxb. (ANCARDIACEAE) Hog Plum มะกัก

A fairly common, medium-sized, deciduous tree, this species can be planted to restore evergreen and evergreen pine forest at elevations 700-1,600 m.

Its main value as a framework tree species is its exceptionally fast growth and rapid canopy closure. Planted seedlings reach an average height of 255 cm by the end of the second rainy season after planting, with an average canopy width of 213 cm. Mature trees can grow up to 25 m tall with a dbh up to 50 cm. This species can produce flowers and fruits within 4 years after planting. Birds nest in this species at about 5 years after planting, Nine species of birds are known to frequent this tree species. Survival after planting is typically around 50%.



S. axillaris has a pinnate leaf



Several seedlings can emerge from a single pyrene.



Smooth, with lenticels; bark of a 4 year-old *S. axillaris*

Wood can be used for interior finish, drawers, crates, carvings, turnery, plywood and pulp. The leaves are used as fodder and are edible when boiled. The trees are sometimes planted for shade.

To grow this species, collect yellow fruits in March. Remove the fruit pulp and soak the pyrenes in water for 12 hours, before sowing them in trays in partial shade. Up to 5 seedlings can emerge from each pyrene; expected germination rate is up to 43% , over 11-32 days. Prick out the seedlings immediately after germination. Saplings should be ready for planting in the second planting season after germination.

Thanks to our sponsors

We would like to say many thanks to Tesco-Lotus supermarket, Hang Dong - Chiang Mai branch and Carrefour supermarket for their kind donations of used boxes. These boxes will be used as cardboard mulch mats for planting activities during mid June this year. We also thank the Phokaruna Company for their donation of organic fertilizer. The planting sites this year will be Mae Sa Mai village, Mae Rim District, Chiang Mai Province and Jum Chum Phu village, Pha Zang district, Lum Phun Province.



PHO KARUNA
organic fertilizer

Goodbye from Thanakorn - and good luck to FORRU

Having been part of the Darwin education team for the past two years, sadly I am leaving to become a lecturer in forestry at Maejo University.

It has been a great privilege to work with such talented environmental educators. Ms Natenapit Jitlam, the most beautiful member of the team has so much previous experience about forest restoration and can pass it on so well to all visitors to the unit. Mr. Kunakorn Boonsai, an expert in environmental education techniques helped me a lot to develop my speaking skills and preparation. Mr. Wasan Leerat, an environmental engineer, is our latest recruit and a great help with English language and communicating with foreigners. I also thank Ms. Rungtiwa Punyayod, who did such a good job of sorting out the administration of our education events.

I am proud to have been a Darwin Education Officer on this project, helping to run 12 workshops, school events for more than 1000 students and extension visits to many communities and forest department offices throughout northern Thailand.

I believe that the Darwin Education Team carries out its work to high international standards, and sadly, funding from the UK government will cease in March 2005. The team must work hard to convince other donors to continue with this work. Anyone interested in helping to sponsor the Team can contact us using the address and email on the last page of this newsletter.

Lastly I thank Dr. Viliawan Anusarnsunthorn, Dr. Stephen Elliott and Dr. Sutthathorn Suwannarattana for selecting me to work on this exciting project.

Thanakorn Lattirasuvan



FORRU Welcomes New AYAD Volunteer

In March this year the FORRU team welcomed a new staff member - Susan Doust. Susan is a Youth Ambassador volunteer from Australia and will be working with the FORRU team for the next twelve months. She will be helping us to improve our education program and disseminate our research results.

Susan - "My background is in ecology and botanical sciences. I studied for my science degree in Tasmania, Australia, where I am originally from. I have since worked in Japan and more recently in Antarctica as a research assistant with marine and zoological research. In March this year, I completed my PhD in botany at the University of Queensland in Brisbane, Australia.

My PhD research was in the field of restoration ecology, focussing on tropical rainforest tree seed and seedling ecology and the effects of plant competition on tree growth performance in early stage rainforest restorations. My project investigated the low cost re-vegetation method of direct seeding and attempted to address some of the problems associated with restoring native tree cover to degraded sites that have been deforested for many years and suffered intense or prolonged disturbance. It investigated barriers and constraints to tree establishment and plant community assembly in early successional communities. I worked predominantly in the wet tropical region of North-East Queensland in Australia.

Having a background in restoration ecology and a strong interest in conservation, I am looking forward to an exciting and challenging year of working in Thailand with FORRU. I hope to contribute much to the FORRU team and their endeavors to build lasting capacity amongst local communities to restore native forests to degraded land in northern Thailand.

Susan Doust

Back to the Northern Forests

The Darwin Team is happy to welcome back Mr. Kunakorn Boonsai, one of our original Darwin Education Officers, who left the project for a while to work on forest conservation in the southern province of Krabi.

Kunakorn - "In March 2004, I finished my assigned work with the Bird Conservation Society of Thailand and waved goodbye to the forests of Khao Nor Chuchi Wildlife Sanctuary in Khlong Thom district of Krabi Province. Since August 2003, I had left FORRU and spent eight months working for The Gurney's Pitta Recovery Plan, implementing the project's work programmes. However, I found out later that my energy was spent more on policy planning and solving local political conflicts, rather than focusing on forest restoration. So after a while, I began to miss the forests of the north and longed to get back to more direct conservation work. This experience made me realize where I belong. So, I am glad to be back again to carry on with the environmental work of FORRU and the Darwin team.

Kunakorn Boonsai: Yai

More Education services with FORRU

From February to April, the education team have launched 13 activities including 7 school events, 3 workshops and 3 extension visits. Please enjoy viewing the photos below.



Extension visit to Payao province



Nursery Technician's Workshop



Villager workshop



Monk workshop



Extension visit to Nanoi District, Nan province and to Chiangrai province on February

We also broadcast on the 'Young Zone' radio 100 MHz for an hour, talking about the upcoming Forru Camp called "Friends of the forest". During the radio time, we had a quiz session and gave out the 'Forest for the future' book as prizes to callers who gave us the correct answer.

We are proud and happy to give the people our knowledge from the research and most of all, we believe that if we can grow the forest in people's mind, surely they will become good friends of the forest and a green future is not far away.

Wasan Leerat

Quiz for FORRU newsletter / May 2004

1. Where was the 7th Conference of the Parties (COP7) for the Convention on Biological Diversity held in February 2004? (city and country)
2. What is the meaning of "direct seeding"?
3. Give two examples of biodegradable materials.

Visitors to FORRU's nursery

FORRU has enjoyed hosting many visitors of all kinds. It was great to see such a high level of interest and enthusiasm among visitors. Thank you for visiting us.



FORRU tree seedlings in the nursery

Saplings of more than 50 different species of native forest trees are now available from the FORRU's nursery. Improve the environment around your house, school, roads, etc, or restore forest to abandoned land by planting native forest trees. Available free to schools, NGOs and environmental groups. Information on how to take care of the tree is also provided.

Please contact the Forest Restoration Research Unit, Biology Department, Faculty of Science, Chiang Mai University. Tel: 0 5394 3346 or 0 5394 3348 ext. 1134 or 1135 Fax: 0 53892259 E-mail: forru@science.cmu.ac.th Website: www.forru.org



Note:
1 Doi Suthep-Pui National Park HQ
2 FORRU's Nursery
3. Wat Prathat Doi Suthep
4. Chiang mai University



Forest Restoration Research Unit