

# YOUNG FOREST RESTORERS

Project Progress Report  
April 2022 – March 2023



FORRU-CMU Co-Directors:

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<b>Project Title:</b>	Young Forest Restorers (Year 1)
<b>From Donors:</b>	Keidanren Nature Conservation Fund
<b>Project Period (full proposed):</b>	4/22-3/25 (3 years)
<b>This report Period:</b>	1/4/22 – 31/3/23
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## SUMMARY

Building on “Forests on Blackboards” (FoB, our previous KNCF sponsored project), “Young Forest Restorers” addressed the frustration of today’s youth with lack of political action on climate change, by providing them with the knowledge and skills they need to take direct individual action to restore forest ecosystems. The project is aimed at mid-secondary schools in and around Chiang Mai city (including international schools). Following a kick-off event, a “needs assessment” procedure and individual school visits, 5 school were selected for Y1 activities. Funds were provided to enable each school to build a tree nursery on campus. Seed collection events were implemented in nearby forests, followed by setting up a seed bank and seed swapping system among schools. Training in nursery techniques at all Y1 school nurseries was then provided, enabling students to grow saplings of a total of 25 native forest tree species, ready for planting later this year. In 2022, students joined tree planting events at two locations and learnt about maintenance and monitoring at 3 locations. A total of 900 trees were planted, which the students maintained by fertilizer application and weeding and monitored for survival rates and growth. A “YFR Action Book” was produced to guide students through all project activities enabling them to track their progress by collecting stamps for tasks achieved. The book was printed and distributed to all schools and made available online in English, Thai and German. A total of 46 training events were run (totally 938 event-persons, averaging 20.4 participants per event). This greatly exceeded the target of 14 events (280 event-persons) conceived in the original proposal. The project year ended with a Forest Celebration, at which the 5 Y1 schools presented their achievements and 4 Y2 schools were prepared for joining the project. Seventy-six pupils and 17 teachers contributed to the event. A grant of 2.42 mill JPY from KNCF was awarded to continue the project. The Chiang Mai teachers’ manual (Thai version) published under the FoB project was acknowledged with a [Green Globe Institute – Writing award](#), which will be presented in Bangkok in June 2023.

### 1. Objectives, Rationale and Background

The recent UN Climate Change Conference (COP26) in Glasgow re-affirmed the need for immediate action to reverse global climate change (GCC). The younger generation has the most to gain from solving the climate crisis, since they will have to live with the repercussions of inactivity for longer than today's adults. Consequently, young people are becoming increasingly prominent in protest movements, yet they have limited influence on climate-change politics, as exemplified by the COP26's failure to adopt the required steps to keep global warming below 1.5 degrees Celsius. On the other hand, young people have a lot of energy and enthusiasm for positive direct action, to reduce or sequester greenhouse gases, although they often lack the skills and knowledge needed to ensure that such direct action is effective. National schools' curricula do not currently provide such skills and knowledge. Therefore, the need to enable young people to channel their energy into activities that remove greenhouse gases from the atmosphere, is urgent—both to address their frustration with the inaction of global leaders, and to contribute directly to GCC mitigation.

Tropical forests are major sinks for atmospheric carbon dioxide, provided they are protected. For example, FORRU-CMU's research has shown that in northern Thailand, forest restoration sequesters more than 150 tonnes of carbon per hectare over the first 14 years (<https://www.forru.org/library/0000228>). Consequently, enabling young people to run their own forest restoration projects has enormous potential to satisfy their need for direct climate action. Not only could it sequester enormous quantities of carbon dioxide, but it could also reduce both biodiversity losses and rural poverty, by providing watershed services (flood/drought mitigation), forest products and opportunities for eco-tourism. All around the world, massive tree-planting projects are underway, but the wrong tree species are often planted in the wrong places and both maintenance of the planted trees and monitoring results are frequently neglected ([Di Saco et al., 2021](#)). So, to restore forest ecosystems effectively, young people need skills and knowledge, based on sound science. With nearly 30 years' experience of forest restoration research, FORRU-CMU has the expertise to deliver such skills and knowledge to the school children of Chiang Mai, and to provide them with the practical and technical support needed to become effective "Young Forest Restorers".

## **Goal**

To provide secondary school children and their teachers with science-based skills, knowledge and technical support, enabling them to perform effective forest ecosystem restoration.

## 2. Project objectives (over 3 years)

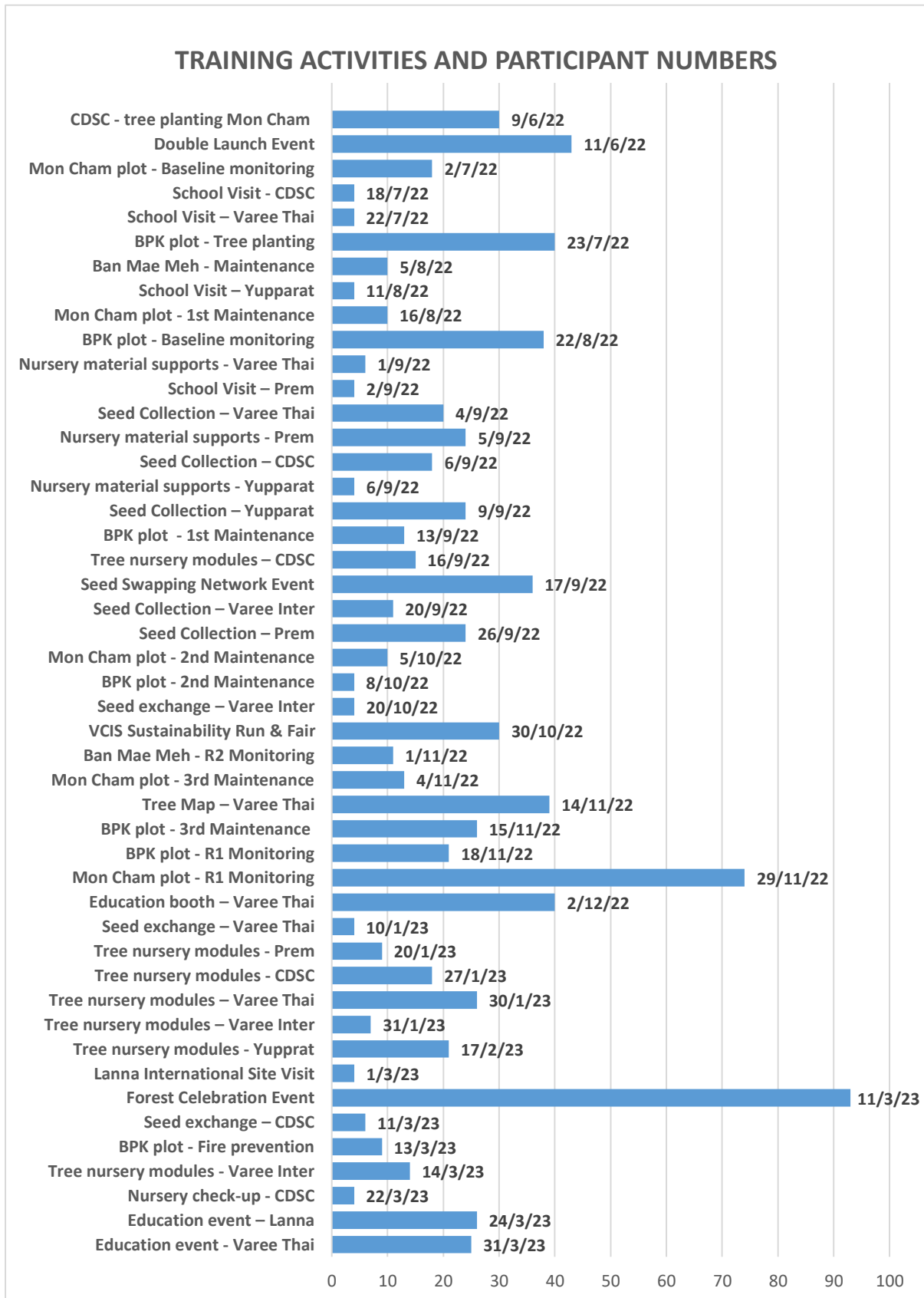
1. To provide training to school children and their teachers in the tasks and techniques of forest ecosystem restoration (12 schools, at least 240 pupils, and their teachers).
2. To produce teaching materials to support the above.
3. To provide technical and financial support for establishment of native forest-tree nurseries in schools (up to 12).
4. To establish a schools' network, which facilitates swapping of tree seed species among schools, via a central seed bank (run by CMU).
5. To assist schools with tree planting and follow-up, including maintenance and monitoring.
6. To expand the "Forest on Blackboard" online learning platform (funded by a previous KNCF-supported project), to make the new teaching materials freely available, monitor uptake and effectiveness and award certificates as required.
7. To run teachers' meetings, to plan training events and nurseries and an annual "Forest Celebration" event to allow participants to present their work and raise awareness of forest issues amongst the general public (3 times).

## 3. Summary of Achievements of Expected Concrete Activity Results (listed in proposal)

*3.1 Four schools selected for the first year of the project at the first teachers' conference. Three training events provided to each of them (at least 20 pupils per event), covering: a. seed collection, germination and seed banking; b. tree nursery skills and c. tree planting, maintenance and monitoring*

Five schools were selected. On 11th June 2022, FORRU-CMU launched the YFR project at a ½-day event hosted at the Doi Suthep Nature Centre, attended by 43 participants from 11 Thai schools and 6 international schools. A needs-assessment was performed and a discussion session to plan project participation and logistics. From returned "Expression of Interest" forms, 11 schools signed up for the project, of which 5 were subsequently selected for support during Y1: Varee Chiang Mai School (International and Thai schools, 2 schools), Christian German School Chiang Mai (CDSC), Prem Tinsulanonda International School and Yupparaj Wittayalai School. Following 1:1 planning sessions with teachers at each of the 5 selected schools, a total of 46 training events were subsequently run, on setting up and running school tree nurseries, seed collection and banking, activities in restoration sites (tree planting, maintenance and monitoring) and a year-end forest celebration event: totally 938 event-persons and averaging 20.4 participants per event. This greatly exceeded the minimum target of 14 events (280 event-persons) conceived in the original proposal.

To prepare for Y2, 4 schools have already been selected: Chiang Mai International School (CMIS), Dara Academy, Doi Saket Wittayakom School, and Kawila Wittayalai School



***3.2 Student activity-book written, illustrated, printed and distributed (100 per school).***

FORRU-CMU staff drafted a student “activity book” with supportive instructions for all activity sessions. The book has a handy 23-page A5 designed, with comic characters as guides. It covers forest degradation, the framework species method of restoration and nursery modules. It includes various worksheets, which the students can complete and get stamped at the end of events to mark their progress. The book was published in Thai and English in November 2022 and printed copies distributed to all project participants.

***3.3 Native forest-tree nurseries established in each of 4 schools, with trees growing ready for planting in 2023.***

FORRU-CMU continued to provide funding and technical support to establish and run native tree nurseries at 4 schools (the two Varee schools share a nursery) followed by seed collection trips to Doi Suthep-Pui National Park to begin seedling production. Seeds of 24 tree species were collected over the year, distributed to schools and stored in the CMU seedbank facility.

***3.4 A networking mechanism established, enabling schools to swap seeds of tree species via a central seed-bank facility (provided by CMU).***

The project reserved space in CMU Seed Bank to enable excess seed collected to be stored until needed and swapped among the schools. We ran an open day on September 17<sup>th</sup> 2022 at the seed bank to acquaint teachers and pupils with using the facility and train them in seed banking techniques. We also set up a LINE group, which allows schools to inform each other when they deposit or withdraw seeds at the bank.

***3.5 At least 1 rai (40x40 m) planted by each school, with a total of at least 2,000 trees.***

Three rai (1/2 ha) at Ban Pong Khrai over-mature pine plantation were planted with trees on 23<sup>rd</sup> July 2022, in collaboration with the Pong Khrai Watershed Management Unit. Tree planting (8 species, which FORRU-CMU’s previous research has shown grow well under pines) was combined with assisted natural regeneration (ANR) to convert to increase stocking density to 500 trees per rai and convert the mono-species plantation into a diverse natural evergreen forest (>1,500 trees planted or assisted). Varee Thai School students participated on planting day, whilst both Varee Thai and International Schools performed monitoring and maintenance subsequently. FORRU staff also assisted CDSC to plant a different site with 600 trees to restore 2 rai (about 1/3 ha) of evergreen forest on degraded land at Mon Cham. CDSC pupils have subsequently participated in maintenance and monitoring that site. The other two Y1 schools will perform tree planting next rainy season. All Y1 schools participated in maintenance and monitoring event at one or other of the planted sites.

**3.6 Student workbook added to the “Forest on Blackboard” online learning platform - monitoring uptake and effectiveness of new teaching materials. Certificates awarded to participating pupils.**

A PDF version of the book was also made available on line at <https://www.forru.org/library/0000264> . We are currently working on technical issues with adding it the FoB website and with the examination and certificate-awarding components.

**3.7 One kick-off teachers’ conference implemented, for selecting the first participating schools and for project co-ordination. One “Forest Celebration” event implemented, allowing participants to present their work, and raise awareness of forest issues amongst the broader community, towards the end of Y1.**

The kick-off conference was completed on June 11<sup>th</sup>, 2022 with 43 participants from 11 Thai schools and 6 international schools. The Forest Celebration event was completed in March 11<sup>th</sup>, 2023 with 74 students and 17 teachers from 9 schools: 5 Y1 schools and 4 Y2 schools.

**Project Schedule**

Activities/Tasks	2022												2023												2024												2025			
	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A			
Teachers' conferences - Kick-off meeting & school selection meetings			X											X																										
School teaching events			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Workbook drafting and testing & publication			X	X	X	X	X	X																																
School nursery/seed bank establishment						X								X	X												X	X												
Seed-swapping network					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Planting events			X	X									X	X	X										X	X	X													
Tree maintenance					X	X							X	X	X	X										X	X	X	X	X	X	X	X	X	X	X	X			
Monitoring planted sites					X			X	X							X	X	X										X		X	X									
Action book online with quiz and certification												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Forest Celebration events											X												X												X					
Reporting and annual re-application						X	X					X						X	X						X						X	X					X			

## 4. Detailed Project Report

### Young Forest Restorers – Launch Event (11<sup>th</sup> June 2022)

FORRU-CMU launched Young Forest Restorers (YFR) at the first teachers' conference on Saturday 11<sup>th</sup> June 2022 at the Doi Suthep Nature, attended by 43 school- teachers from 11 Thai and 6 International schools from around Chiang Mai Province. The event also served to launch the English version of the teachers' handbook: "Exploring the Environment & Nature of Chiang Mai", prepared under our previous KNCF-sponsored project (Forests on Blackboards (FoB)).



The event included a special lecture by Dr. Rungsrit Kanjanavanit who penned the foreword of the book. He presented about the need for nature education in schools to inspire teachers to connect nature in the classroom. FORRU then presented 5 copies of the book to the teachers from each international school in attendance.



The YFR Team then introduced the project, explaining the projects objectives—to provide teachers and their pupils with science-based skills, knowledge, and funding support, to enable them to perform effective forest ecosystem restoration. One model school in this respect is the Christliche Deutsche Schule Chiang Mai (CDSC), which has already been involved in tree planting since 2020. We invited Calvin Yunkun Ji- marketing manager to present about the school's experiences to inspire the other schools represented at the event.

A participatory discussion session was run as part of a "needs-assessment" to help design the implementation plan of the YFR project. There were three main topics: i) in-school nurseries, ii) education events and iii) administration (particularly timing of events, safety etc.). The FORRU team summarized and organized



questions and suggestions submitted by the participants on post-its, which then formed the basis for discussion. “Expression of Interest” forms were circulated, on which individual schools recorded their needs from the project and willingness to participate.



Demonstration activities were then run (in both Thai and English) on seed banking and tree nursery techniques to show how topics would be presented during YFR schools’ events.



### School Selection and Teachers’ Meetings

After the launch event, we reviewed “Expression of Interest” forms and selected schools for each of the 3 years of the YFR project (see table below) and prepared a schedule of events, to match the needs indicated on the forms

We then sent out invitation letters to schools and set up school visits to discuss further details of the project at each school, at the same time exploring for a location for each school tree nursery. The FORRU team then supplied nursery

materials to the value of up to 10,000 THB from the KNCF grant over the subsequent few weeks.

Schools selected for each project years based on returned forms (updated)

1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year
Varee Chiang Mai School ( <i>this is 2 schools, an international and Thai school who share the same campus</i> )	Chiang Mai International School (CMIS)	Arunothai Wittayakom School
Christian German School Chiang Mai (CDSC)	Dara Academy	Mae Ho Pra School
Prem Tinsulanonda International School Chiang Mai	Doi Saket Wittayakom School	Lanna International School
Yupparaj Wittayalai School	Kawila Wittayalai School	TBA



CDSC planning visit – 18<sup>th</sup> July 2022



Varee Thai visit – 22<sup>nd</sup> July 2022



Tree nursery material supports for Varee School - 1st September 2022



On 11<sup>th</sup> August, FORRU team set up school visit with Yupparat school to propose project details and select a location for the tree nursery on campus. This school has been working with FORRU under the FoB project and wanted to deepen its involvement with forest restoration. FORRU presented a set of nursery materials to the school on 6<sup>th</sup> September.



Yupparat visit 11<sup>th</sup> August 2022



Tree nursery material supports for Yupparat School – 6<sup>th</sup> September 2022

On 2<sup>nd</sup> September, the FORRU team set up a school visit with Prem Tinsulanonda International School Chiang Mai to discuss further details, coordinated by Sam Carroll (Senior School Assistant) with grade-5 students involved in the project. Nursery materials were presented to the school during seed collection activities on 26<sup>th</sup> September.



Tree nursery material supports for Prem School - 26<sup>th</sup> September 2022

**Lanna international school** belatedly indicated their willingness to join YFR program in March 2023. We invited teachers for discussions at the Doi Suthep Nature Studies Centre on March 1st. Their requirement was to develop learning opportunity for their students for their upcoming project to promote Biodiversity Day at Lanna International School. We provided them a quick tour at DSNC site and details about YFR project which they could register as one of school for Y3 project and invited them to join an educational event featuring nursery technique modules at the Doi Suthep tree nursery.

## Training Events

A total of 47 activity sessions were run (several with each school)

### Activity Sessions—Seeds and Nursery Skills

FORRU provided full-day events on forest restoration techniques, enabling all Y1-participating schools to produce planting stock of native forest tree species on their own school grounds. This involved collecting native tree seeds at various locations (including seed collection methods and how to fill in the collection record data sheets). Training in techniques of seed storage was also provided and lessons in tree nursery design, how to prepare seeds and sowing techniques, and seed germination procedures.

#### *Seed collection trips*



CDSC – 6<sup>th</sup> September 2022



Varee Thai – 4<sup>th</sup> September 2022



Varee Inter – 20<sup>th</sup> September 2022



Prem – 26<sup>th</sup> September 2022



Yupparat – 9<sup>th</sup> September 2022

### *Tree nursery-technique modules in school*

All Y1 schools have constructed tree nurseries and are producing planting stock for the early rainy season 2023. As some schools lacked knowledge of tree growing, FORRU taught various nursery techniques such as seed extraction cleaning, scarification, etc., sowing seeds into germination trays, seedling potting and grading etc. Schools were urged to merge nursery modules with students' project or create new research projects within science classes.



Varee Thai – 4<sup>th</sup> September 2022



Varee Inter – 20<sup>th</sup> September 2022

### *Seed Swapping Network*

FORRU set up *ad hoc* event on seed banking and tree-nursery techniques to support the YFR school community and initiate a seed-swapping mechanism on 17th September. The event took the form of a structured open day at the seed bank and nursery centre at the Doi Suthep Nature Center, with four 90-minute sessions. (40 mins nursery, 40 mins seed bank) included:

- **Seed Bank** – seed extraction, cleaning, drying, weighing, packing and seed bank operation, using seeds brought along to the sessions from previous seed-collection sessions.
- **Tree nursery** – setting up germination experiments, potting seedlings and measuring seedling growth and grading.



Chiang Mai International School (CMIS)



Yupparaj Wittayalai School

We used the occasion to launch a LINE group for seed swapping among YFR schools and provided instructions for use. Teachers or students can make a withdraw or deposit seeds to/from the bank, informing the network of seed availability. We also provided a time slot for Chiang Mai International School (CMIS) (a prospective Y2 school), since Prem and CDSC were not available.



Varee International School  
– 20<sup>th</sup> October



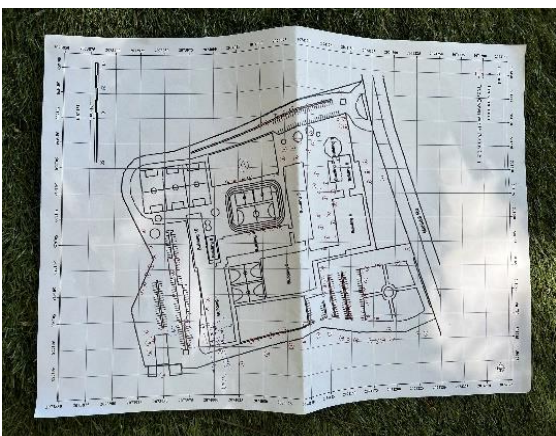
Varee Chiang Mai School  
– 10<sup>th</sup> January

### *VCIS Sustainability Run & Fair (30th October 2022)*

FORRU-CMU were invited to participate in the school fund-raising event with Varee international school. There were two routes for participants including 1.5 kilometer and 4 kilometers. Funds raised went towards the planting and maintenance costs of a 1-rai forest restoration plot, The FORRU team set up a booth to educate children in techniques of forest restoration, display forest seeds, hand out booklets, and play a crossword puzzle game.



### *Tree map with Varee Chiang Mai School (14<sup>th</sup> November 2022)*



FORRU-CMU set up additional activities with the Varee Conservation Club to draw a tree map around the school, introducing topography and GPS coordinate concepts for point of interest (POI) selection and principles of phenology studies of when and how to collect seeds, as well as introducing iNaturalist applications for species identification. We demonstrated tree measuring techniques including tree height and girth at breast height and the score system for phenology.

***Education booth at Varee Chiang Mai School (2nd December 2022)***

FORRU team were invited to set up educational event with kindergarten students. We brought desk-games to get more interaction from kids such as displayed camera trap animals, animals puzzle games, forest leaf drawing.

***Tree nursery-skills at Prem School (20th January 2023) CDSC (27th January 2023) Varee Chiang Mai School (30th January 2023) Varee International School (31st January 2023) Yupparaj Wittayalai School (17th February 2023)***

Nursery techniques training was provided to all Y1 schools once they had established their on-site tree nurseries, using the YFR action books. The events involved checking seed availability, transplanting more seeds and seedlings to schools if needed. Sometimes, germination and seedling growth rates were low due to lack of watering (during school holidays). Schools were advised to ask ground staff to water the plants at weekends and during school holidays. FORRU-CMU donated *Podocarpus neriifolius* and *Turpinia pomifera* seedlings from Doi Suthep nursery and withdrew seeds from the seedbank to supply schools. Furthermore, we supported extra nursery materials especially media and fertilizer which are applied after moving seedling to the standing down areas. The schools will be more careful about drought condition when dry season was coming and school breaks.



Prem – 20<sup>th</sup> January 2023

CDSC – 27<sup>th</sup> January 2023





Yupparat – 17<sup>th</sup> February 2023

***Tree nursery-skills training at Varee International School (14<sup>th</sup> March 2023)***

The event included training in transfer of seedlings from germination trays into plastic bags to increase growth rate of school’s seedling production and provided knowledge on caring for trees including root pruning, grading and weeding.



Tree nursery activity at Varee – 14<sup>th</sup> March 2023

***Nursery check-up and seed collection at CDSC (22<sup>nd</sup> March 2023)***

The FORRU team set up a nursery check-up for CDSC’s seedlings, due to the school break during March to April. We also went out with the CDSC nursery staff to collect *Albizia procera* near the school playground (a target species for international seed banking) and brought back seeds to the CMU Seedbank and Doi Suthep nursery for seed extraction.



Nursery and seed collection at CDSC– 22<sup>th</sup> March 2023



***Lanna Education event at the Doi Suthep tree nursery and forest (24th March 2023)***

We provided half day skills development for seed collection and nursery techniques.



Lanna Education event – 24<sup>th</sup> March 2023

***Varee Education event on Doi Suthep tree nursery (31st March 2023)***

FORRU-CMU set up a full day program for Varee Chiang Mai School (Thai School) to explore nature on Doi Suthep. The event was started at 9 AM introducing seed structure and seed collecting instruction. *Alseodaphne andersonii*, and *Cassia bakeriana* were collected on the ground and team demonstrated how to prepare different seed species as well as learning of how to take care seedling after planting. All seeds that school prepared was being kept in seedbank facility.



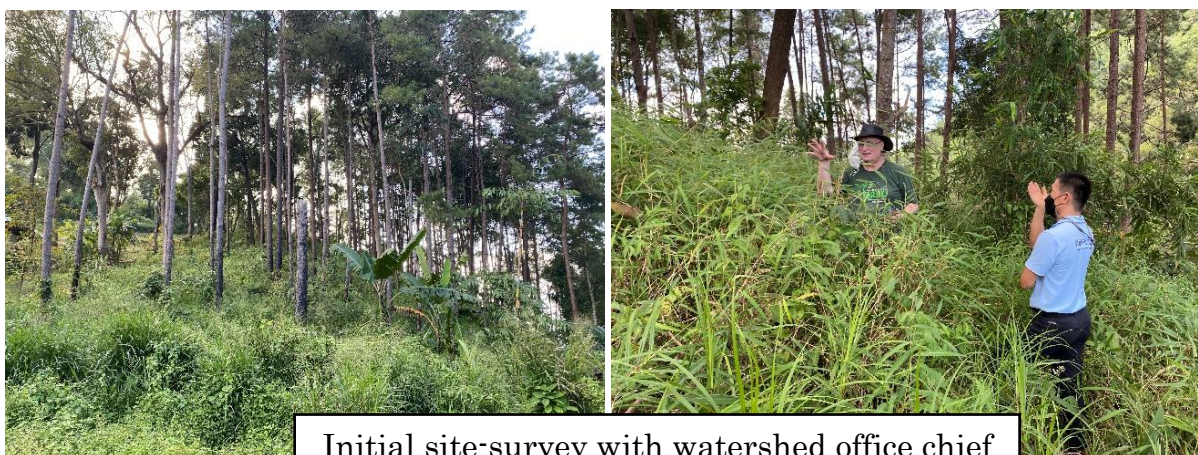
Varee Education event – 31<sup>st</sup> March 2023

## Activity Sessions in Field Plots—Tree planting, maintenance and monitoring

Field skills teaching for YFR including planting, maintenance and monitoring, was done in 3 forest-restoration plots of different ages, all in the Upper Mae Sa Valley, about an hour's drive out from Chiang Mai city: Ban Pong Krai, Mon Cham and Ban Meh Meh.

### Ban Pong Krai Restoration Plot

The head of the local Pong Krai Watershed Office, Mr. Manop requested FORRU-CMU's assistance with restoring an over mature pine plantation into a more natural evergreen forest ecosystem, as the pine trees die back. The area had been planted with *Pinus kesiya*, about 50 years previously, near Pong Krai Village, Mae Rim District, Chiang Mai. The restoration target area for 2022 was 3 rai, on steep slopes, about 1,100 m above sea level. The restoration strategy was to complement the natural regeneration, already occurring with tree planting, to increase tree species diversity. The research aim was to compare restoration with and without tree planting (i.e. active vs passive restoration).



Initial site-survey with watershed office chief

A rapid site assessment estimated that about 564 natural regenerants per rai were already present, but with gaps requiring the planting of about 300 trees (8 species) to increase biodiversity. We selected 8 tree species already know to grow well under pine (from our previous research).

### *Tree Planting (23<sup>rd</sup> July 2022)*

The restoration activity (including tree planting and assisted natural regeneration (ANR)) was implemented on 23<sup>rd</sup> July with Varee Thai School and Chiang Mai Rajabhat University students. All seedlings were transported to the site in advance, as well as bamboo stake with supported from the watershed office staff. Participants were divided into two groups: tree planters and ANR (removing weeds from natural regenerants and apply fertilizer) – swapping halfway through the event.

Tree planting on 23<sup>rd</sup> July



***Baseline monitoring (22nd August 2022)***

Baseline monitoring was performed by Varee Chiang Mai Schools (both Thai and International) and Yupparaj Wittayalai School in the afternoon session on all planted trees and a sample for the natural regenerants to enable future growth and survival rates to be calculated.



Baseline monitoring on 22<sup>nd</sup> August.

***Maintenance (13th September, 8th October & 15th November 2022)***

This activity is routinely done 3 times in the first rainy season (at 4-6 weeks intervals) and another 3 times in the second rainy season. Weeding and fertilizer application were performed for the first time with Varee Thai and International schools.



1<sup>st</sup> tree maintenance on 13<sup>th</sup> September

The second maintenance was performed by FORRU team, because due to a big flood during first week of October, the schools was shut down and pupils could not make the trip to BPK plot, except for two volunteer high school students from Lanna International School. We applied fertilizer around tree stem. IN Addition, we offered to participate in this event.



2<sup>nd</sup> tree maintenance on 8<sup>th</sup> October

The last maintenance of the 1<sup>st</sup> year at the BPK pine site was with Grade 6 students from Prem Tinsulanonda International School. The event included an introduction to history of the pine plantation and plot maintenance. Then the group split into two groups to work on weeding + pulling vines off the trees, and apply fertilizer.



3<sup>rd</sup> tree maintenance on 15<sup>th</sup> November

***End-first rainy-season (R1) Monitoring (18th November 2022)***

Due to the exam period, no schools could participate in R1 monitoring. Therefore the FORRU team set up a “volunteer day” via FaceBook which attracted 10 participants – to collect tree survival and height data, to compare with baseline monitoring data.



R1 monitoring on 18<sup>th</sup> November.

***Fire prevention (13th March 2023)***

Varee Chiang Mai school children, supervised by Pong Krai watershed officers, helped to prepare a fire break by clearing flammable vegetation in a strip 6 m wide around the whole area. This reduces the risk of fire burning the newly planted trees and young natural regeneration during the dry season.



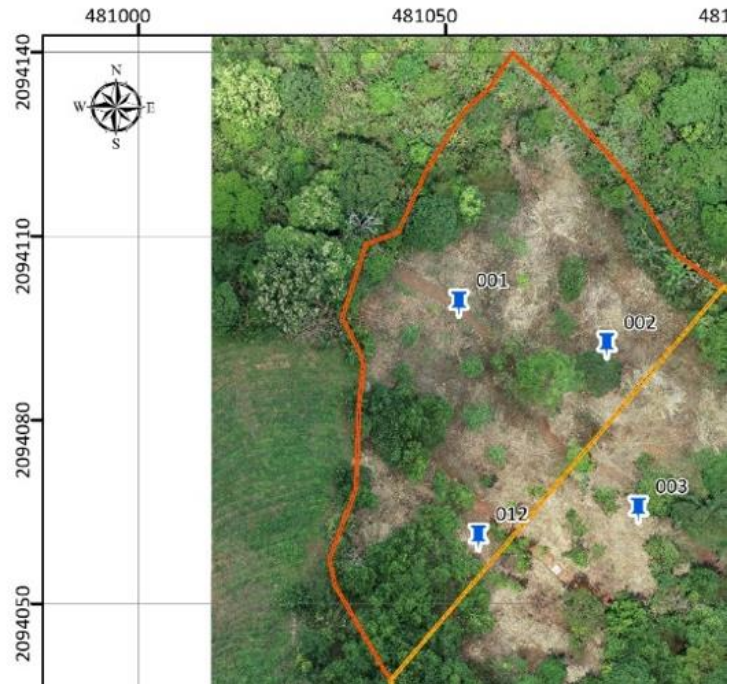
Fire prevention on 13<sup>th</sup> March.

## Mon Cham Restoration Plot

The second tree-planting site (2 rai) was implemented by CDSC, with technical support from FORRU. This project arose from an initial request from CDSC in 2019 for scientific advice and technical assistance with tree-planting to offset the School's carbon footprint and provide environmental education opportunities for pupils.

The plot is degraded agricultural land, with a previous patchy history of tree planting attempts with limited results. Tree cover remained sparse across the plot. The site was dominated by herbaceous weeds, amongst which various native tree species could still be found.

A rapid site assessment, using sample plots and a drones, as performed on 21st April, to determine the density of natural regenerants across the site, and to identify that tree species that are present as seedlings, saplings or live tree stumps. The average number of natural regenerants recorded was 178 per rai (extrapolated from sample data). Consequently, 322/rai was the recommended tree planting density, to bring overall tree density up to 500/rai. Therefore, for the 2-rai site, 600 trees were prepared for planting.



MC22 plot for CDSC – site map from drone survey 21<sup>st</sup> April

### *Tree planting*

FORRU-CMU staff assisted 30 CDSC pupils, teachers and parents to plant the trees on 9<sup>th</sup> June.



Tree planting event with CDSC on 9<sup>th</sup> June.

***1st Maintenance (16th August 2022) 2nd Maintenance (5th October 2022) 3rd maintenance (4th November 2022)***

Field trips were arranged for Christian German School Chiang Mai (CDSC) pupils to perform weeding and fertilizer application on the 600 planted trees along with natural regenerants on 3 occasions throughout the 1<sup>st</sup> rainy season at 4-6-week intervals.



2<sup>nd</sup> maintenance on 5<sup>th</sup> October.

***Baseline monitoring (2nd July 2022) R1 Monitoring (29th November 2022)***

The FORRU team supported CDSC students to monitor the planted trees for survival and growth just after planting to provide baseline data and at the end of the first rainy season (growth season)—R1 monitoring—to calculate relative growth rates and survival rates.



R1 Monitoring on 29<sup>th</sup> November.



## The Ban Mae Meh Restoration Plot

This plot had been planted the previous year as part of CDSC's carbon footprint project. For the YFR project, it was used as a venue to teach restoration maintenance and monitoring skills on larger (2-year old) trees for the older students.

### Maintenance (5<sup>th</sup> August 2022) and end-second-rainy-season R2 Monitoring (1<sup>st</sup> November 2022)

CDSC students participated in plot monitoring measuring tree heights, tree crown cover, and the scoring system for shade, health and weed cover.



R2 Monitoring on 1st November.

## YFR Action Book

A student “action book” was designed, with instructions for each activity and space for students to record their actions and register participation (by collecting stamps).

The print version of the book (in black and white) was published on 11<sup>th</sup> November and distributed to all schools. Many students have made use of it to track their progress with project activities, collecting a stamp at the end of each session, making it a “passport to restoration”.

The booklet was also made available free of charge in colour as a PDF through FORRU's website (<https://www.forru.org/library/0000264>), so that other schools can make use of it. A [German language edition](#) was also prepared, to cater for the German-speaking school, CDSC.

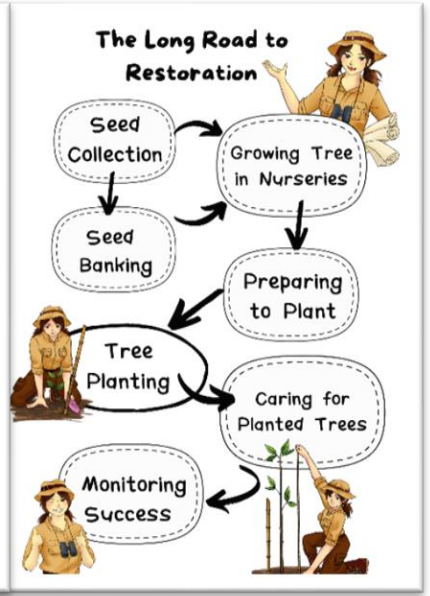
The book is A5 size and covers the 5 stages of forest degradation, the framework tree species method, seed collection, seed banking, seed germination, seedling potting, seedling care, pre-planting tasks, tree planting, maintenance and monitoring.



**WELCOME TO YFR ...**

The Young Forest Restorers (YFR) project provides teachers and pupils with science-based skills, knowledge and funding support, to enable them to perform effective forest ecosystem restoration :

- 1) Hands-on experience with seed collection, germination and growing forest trees in nurseries, as well as technical assistance with tree-planting.
- 2) User-friendly teaching materials including online learning and awarding of certificates to participating students.
- 3) Technical and financial support to establish on-campus tree nurseries to 4 schools per year.
- 4) A network, for swapping of tree-seed species among schools, via CMU's central seed bank, establishing a YFR community.
- 5) An annual "Forest Celebration" where schools can share their experiences and raise awareness of forest issues with the general public.



### แบบบันทึกข้อมูลอาคารเมล็ด

ข้อมูลของเมล็ด (ชนิด) Ambo

ชื่อวิทยาศาสตร์: Abutilon ชื่อวงศ์: Malvaceae

สกุล: Abutilon วงศ์: Malvaceae

ลักษณะเมล็ด: สีน้ำตาลเข้มอมดำ มีขนสั้นนุ่มปกคลุมทั่วทั้งเมล็ด

ขนาดเมล็ด / ไซส์: 2.5 - 3 มม. จำนวนเมล็ด: 50

ข้อมูลของตัวอย่าง

วันที่เก็บ: 17/7/2022 หมายเลข: \_\_\_\_\_

พื้นที่: สวนพฤกษศาสตร์

จำนวนต้นที่เก็บเมล็ด: 5

จำนวนเมล็ด: 50 ตัวอย่างที่เพาะเลี้ยง: 5

ค่าความชื้นสัมพัทธ์: 85 อุณหภูมิที่เพาะเลี้ยง: 28

ชนิดไม้: ไม้พุ่มกลางแจ้ง ความสูงของพื้นที่ (ม.): 813 เมตร

หมายเหตุ: \_\_\_\_\_

### แบบบันทึกการเก็บเมล็ด

ชื่อ: นิชพักรู

วงศ์: Fabaceae ชื่อวิทยาศาสตร์: Mimosa xylocarpa

วันที่เก็บเมล็ด: กุมภาพันธ์ 4 2022 วิธีเก็บเมล็ด: เก็บจากต้น

จำนวนเมล็ดที่เก็บ: ประมาณ 250-300 เมล็ด

ตำแหน่งของต้นไม้: ป่า ไม้ป่า: \_\_\_\_\_

พิกัด GPS: 13.968776, 101.9649714 ความสูงพื้นที่: 300-400 ม.

เส้นแวง (ชม.): \_\_\_\_\_ ความสูง (ม.): \_\_\_\_\_

รายละเอียดการเก็บรักษา / เครื่องมือที่ใช้: มีดตัดกิ่ง

วันที่เพาะ: 31/9/2022

ผู้บันทึกข้อมูล / ต้นไม้: \_\_\_\_\_

บันทึกภาพและเมล็ด

### ดูเมล็ดไม้ที่ปลูก

บันทึกข้อมูลการปลูก: ปลูก 10 เมล็ด

สถานที่: สวนพฤกษศาสตร์มหาวิทยาลัยเชียงใหม่

กำลังศึกษาอยู่ในโครงการที่จัดทำ: \_\_\_\_\_

กำลังศึกษาอยู่คณะ/ภาควิชา: คณะวิทยาศาสตร์และเทคโนโลยี

กำลังศึกษาอยู่ชั้นปี: ปีที่ 1

ชื่อผู้จัดทำ: นิชพักรู

ชื่อของต้นกล้าที่ปลูก: Tree species เช่น 475, 014, 091, 024, 073, 076, 124 ต้น

ภาพถ่ายการเพาะเมล็ดไม้ที่ปลูก

#จู๋จนเห็นหูช้าง

### SETZLINGE UMTOPFEN

Es ist Zeit, deinen Setzlingen etwas Platz zum Wachsen zu geben! Pflanze sie in Gefäße um, die groß genug sind, damit sich ihre Wurzeln gut entwickeln können.

FORRU empfiehlt schwarze Pflanztöpfe mit den Maßen 9 x 2,5 Zoll (ca. 23 x 7 cm). Sie sind stabil, leicht und günstig.

Um eine Verdichtung des Bodens zu vermeiden, mische etwas organisches Material wie Reishölzchen, Kokosnusssubstrat oder Erdrnussschalen unter die Erde. Dies verbessert die Fähigkeit des Bodens Wasser abzuleiten und die Luftzirkulation.

Vielleicht könnt ihr sogar euren eigenen Kompost aus organischem Material aus der Umgebung herstellen.

Eine gute Mischung besteht aus 2 Teilen Erde, 1 Teil Erdrnussschalen und 1 Teil Kokosnussschalen.

### Vorbereitung des Substrats:

- Siebe alles durch, um große Klumpen und Steine zu entfernen.
- Mische alles auf einer flachen und festen Oberfläche, z.B. mit einer Schaufel zusammen. Es geht auch ein größerer Behälter.
- Halte das Substrat feucht.

### Schütze deine Pflanzen

- Der Behälter schützt den Wurzelballen während des gesamten Transports bis zum Pflanzen

1. Stelle sicher, dass genug Platz für die Wurzeln vorhanden ist.
2. Halte den Setzling vorsichtig an den Blättern fest.
3. Setze ihn in den Behälter und fülle es mit Substrat auf.
4. Drücke es leicht an.
5. Fülle es bis ca. 1-2 cm (1 Fingerbreit) unter den Rand.

Sobald du deine Setzlinge gepflanzt hast, stelle die Behälter an einem schattigen Ort und gieße sie, damit die Wurzeln nicht austrocknen.

Young Forest Restorers – Forest Celebration event (11<sup>th</sup> March 2023)

<b>YOUNG FOREST RESTORERS - FOREST CELEBRATION</b>			
<b>11th March 2023 Doi Suthep Nature Conservation Centre (DSNC), Chiang Mai, Thailand</b>			
<b>Date &amp; time</b>	<b>Activity</b>	<b>Facilitator</b>	<b>Loacation</b>
09:00	Registration	Elsa	Main Hall
	Set up booths	FORRU & NC staff	"
	<b>Opening</b>	<b>Phai and Som MCs</b>	"
09:30	Welcome speech and YFR background	Ach Gwang and Steve	"
	YFR – a year to celebrate (video)	Som	"
	Progress with tree-planting	Nan	"
	<b>School performances</b>	<b>Phai and Som MCs</b>	"
09:45	Yupparaj Wittayalai School		"
09:55	Varee Chiangmai School – Year of Miracles: Planting the seeds of change		"
10:05	Varee Chiangmai International School - performance		"
10:15	Christian German School Chiang Mai		"
10:25	Prem Tinsulanonda International School		"
10:35	<b>Coffee Break</b>	<b>NC Staff</b>	Main Hall
10:45	Browse the booths – CDSC video, Varee (Thai) Restoration Road Map, Doi Suthep Nature centre, recyclable plant pots etc.		"
	<b>Activity Stations</b>		
	1. Win a prize at restoration Bingo	Phai Cleo	Main Hall
	2. Learn how to monitor restoration with drones	Nan and Steve	Amphitheatre
	3. Kids-teach-kids - nursery skills	Aom, Yoi, Thonglaw	Nursery
	4. Visit the YFR Seed Bank	Natanit	Seed Bank
11:45	Painted Forest – collaborative art activity	Som Nut Mathilde	Amphitheatre
12:30	Group photo		Amphitheatre
12:40	<b>Relax with Lunch</b>		Main Hall

FORRU-CMU ran the YFR Forest Celebration event on Saturday 11<sup>th</sup> March 2023 at Doi Suthep Nature Study Center, to celebrate the achievements of Year 1 schools, allowing them to present their work to the general public and other schools. The event involved with 9 schools in total including 5 schools from Y1 and 4 schools from Y2 as listed below.

	<b>School List</b>	<b>No. Student</b>	<b>No. Teacher</b>
<b>Y1</b>	Prem Tinsulanonda International School	2	1
	Varee Chiangmai School (Thai)	13	3
	Varee Chiangmai International School	10	2
	Christian German School Chiang Mai	9	2
	Yupparaj Wittayalai School	4	1
<b>Y2</b>	Dara Academy	8	3
	Kawila Wittayalai School	13	2
	Doi Saket Wittayakom School	8	2
	Chiang Mai International School	9	1

Dr. Stephen Elliott and Dr. Sutthathorn Chairuangstri opened the event with speeches followed by a short VDO entitled “A year to celebrate”—showcasing tree nursery and field trip activities of Y1 schools to inspire the Y2 schools.



Our field officer, Mr. Worayut Takaew updated everyone about progress of Ban Pong Krai restoration plots, applying the Framework Species Method to transform a pine plantation into an evergreen forest ecosystem. He showed that *Prunus cerasoides* had the highest survival rates of the tree species planted.

The event included 10-minutes performances of Y1 schools, including music, drama, and slide shows. Yupparaj Wittayalai School presented a short VDO about seed collection activities, seed treatments and seedling care in their nursery. They also presented a PowerPoint on the results of their seed germination experiments of 5 native species: *Terminalia nigrovenulosa*, *Choerospondias axillaris*, *Antidesma bunius*, *Elaeocarpus prunifolius* and *Cassia bakeriana*. Next, Varee Chiangmai School presented a drama “Year of Miracles: planting seeds of change”, whilst Varee Chiangmai International School stages a recital and movement dance performance. Christian German School Chiang Mai, students presented their photos of project activities and shared their thoughts about the YFR project with the audience. Prem Tinsulanonda International School Grade-6 students present their achievements with the YFR project linked with the UB Sustainable Development Goals.





Varee Thai School

Yupparaj Wittayalai School



Varee International School



Furthermore, the Y1 schools also prepared static booths, which included pictures or posters of their YFR activities. They displayed student projects, games, leaflets etc. FORRU also set up booth to distribute useful education materials for children and the YFR action books for any students who had not yet picked up their copy.



Booth interviews

The FORRU team also set up various activity stations in collaboration with Doi Suthep Nature Study Center, to raise awareness of environmental issues and connect nature with the classroom. Groups from both the Y1 and prospective Y2 schools circulated around the stations:

- 1) Win a prize at restoration Bingo by education officer (Phai), students played card bingo by recognizing pictures of wildlife of Thailand to win prizes.
- 2) Learn how to monitor restoration with drones by our field officer (Nan), teaching the basic of droning, control and fly the drones, and how to create 3D model with drones.
- 3) Kids-teach-kids - nursery skills by field officer (Aom), Y1 school children taught prospective Y2 children how to do seed germination and seedling potting, supervised by FORRU nursery staff Thonglaw and Aom.
- 4) Visit the YFR Seed Bank by field officer (Somtam), one of our staff who is based in Seed Back facility where we store seed species for restoration purposes. We opened the facility to students to learn how seeds are stored as well as learning about seed structure and seed germination behavior.



Droning station



Tree nursery station

The final activity was a massive collaborative art work called “Painted Forest” at which all schools worked simultaneously on sections of the artwork to be displayed along the amphitheater, organized by our education officer Som. was a collaborative artwork after four group activities by education officer (Som),







## APPENDIX 1 - ONLINE YFR PROJECT PROMOTION

DATE	POST TITLE	LINK
30-May-22	Promote YFR register for launch event	<a href="https://www.facebook.com/FOBThai/photos/a.1577483979215186/2818095485154023/">https://www.facebook.com/FOBThai/photos/a.1577483979215186/2818095485154023/</a>
6-Jun-22	Promote YFR project and register for launch event	<a href="https://www.facebook.com/FOBThai/photos/a.1577483979215186/2823115277985377/">https://www.facebook.com/FOBThai/photos/a.1577483979215186/2823115277985377/</a>
21-Jun-22	YFR project launch event	<a href="https://www.facebook.com/1570415129922071/posts/pfbid0Nk5LuqBAU2cr1kZW4QbjgeG1Aswv8KdP9nPgMei2JuPrBo7M4C3VQksfCoyQ2aQl/?mibextid=kdkkhi">https://www.facebook.com/1570415129922071/posts/pfbid0Nk5LuqBAU2cr1kZW4QbjgeG1Aswv8KdP9nPgMei2JuPrBo7M4C3VQksfCoyQ2aQl/?mibextid=kdkkhi</a>
5-Sep-22	Big planting day at Ban Pong Krai	<a href="https://www.facebook.com/100064900021799/posts/455841233255874/?">https://www.facebook.com/100064900021799/posts/455841233255874/?</a>
6-Sep-22	How to collect the seed	<a href="https://www.facebook.com/100064900021799/posts/456249389881725/?">https://www.facebook.com/100064900021799/posts/456249389881725/?</a>
7-Sep-22	Seed collection with students at CMU (Varee school (Thai))	<a href="https://www.facebook.com/100064900021799/posts/457239369782727/?">https://www.facebook.com/100064900021799/posts/457239369782727/?</a>
7-Sep-22	Share post from Varee Chiangmai School (YFR school visit)	<a href="https://www.facebook.com/100064900021799/posts/457249063115091/?">https://www.facebook.com/100064900021799/posts/457249063115091/?</a>
7-Sep-22	Share post from Varee Chiangmai School (seed collection)	<a href="https://www.facebook.com/100064900021799/posts/457251523114845/?">https://www.facebook.com/100064900021799/posts/457251523114845/?</a>
12-Sep-22	Share post from Christliche Deutsche Schule Chiang Mai (CDSC)	<a href="https://www.facebook.com/100064900021799/posts/460966179410046/?">https://www.facebook.com/100064900021799/posts/460966179410046/?</a>
13-Sep-22	Seed collection with students at Doi Suthep (Yupparaj school)	<a href="https://www.facebook.com/100064900021799/posts/461717082668289/?">https://www.facebook.com/100064900021799/posts/461717082668289/?</a>
14-Sep-22	1st plot maintenance	<a href="https://www.facebook.com/100064900021799/posts/462209862619011/?vh=e">https://www.facebook.com/100064900021799/posts/462209862619011/?vh=e</a>
21-Sep-22	YFR open day, DSNC	<a href="https://www.facebook.com/100064900021799/posts/467962105377120/?">https://www.facebook.com/100064900021799/posts/467962105377120/?</a>
27-Sep-22	Share post from Chiang Mai International School	<a href="https://www.facebook.com/100064900021799/posts/472508254922505/?">https://www.facebook.com/100064900021799/posts/472508254922505/?</a>
19-Oct-22	Share post from Varee Chiangmai Promote VCI Sustainability Run)	<a href="https://www.facebook.com/100064900021799/posts/492007326305931/?">https://www.facebook.com/100064900021799/posts/492007326305931/?</a>
27-Oct-22	How to do seedling potting	<a href="https://www.facebook.com/100064900021799/posts/499046222268708/?">https://www.facebook.com/100064900021799/posts/499046222268708/?</a>
14-Nov-22	2nd plot maintenance	<a href="https://www.facebook.com/100064900021799/posts/513444277495569/?">https://www.facebook.com/100064900021799/posts/513444277495569/?</a>
14-Nov-22	Booth YFR in VCI Sustainability Fair	<a href="https://www.facebook.com/100064900021799/posts/513460360827294/?">https://www.facebook.com/100064900021799/posts/513460360827294/?</a>
14-Nov-22	Share post from The VCS Eco Active Club (Show seedling in nursery)	<a href="https://www.facebook.com/100064900021799/posts/513524797487517/?">https://www.facebook.com/100064900021799/posts/513524797487517/?</a>
14-Nov-22	Share post from Varee Chiangmai School (Tree map and phenology activities)	<a href="https://www.facebook.com/100064900021799/posts/513525580820772/?">https://www.facebook.com/100064900021799/posts/513525580820772/?</a>
15-Nov-22	3rd plot maintenance	<a href="https://www.facebook.com/100064900021799/posts/514175780755752/?">https://www.facebook.com/100064900021799/posts/514175780755752/?</a>
24-Nov-22	Tree monitoring	<a href="https://www.facebook.com/100064900021799/posts/521335096706487/?">https://www.facebook.com/100064900021799/posts/521335096706487/?</a>
11-Mar-23	YFR celebration	<a href="https://www.facebook.com/100064900021799/posts/602924955214167/?">https://www.facebook.com/100064900021799/posts/602924955214167/?</a>
3-Apr-23	Share post from The VCS Eco Active Club (Seed collection at Doi Suthep)	<a href="https://www.facebook.com/100064900021799/posts/617261590447170/?">https://www.facebook.com/100064900021799/posts/617261590447170/?</a>
18-Apr-23	Fire prevention	<a href="https://www.facebook.com/FOBThai/posts/pfbid0qqcJuTT9Yhja63J7ookjEHpnjeXcx3NQyh5E3j9kSkRpL6S2BDdkzFTG37upNbNXI">https://www.facebook.com/FOBThai/posts/pfbid0qqcJuTT9Yhja63J7ookjEHpnjeXcx3NQyh5E3j9kSkRpL6S2BDdkzFTG37upNbNXI</a>
18-Apr-23	Seed collection with students at Doi Suthep (Varee school)	<a href="https://www.facebook.com/100064900021799/posts/626164929556836/">https://www.facebook.com/100064900021799/posts/626164929556836/</a>
18-Apr-23	YFR celebration	<a href="https://www.facebook.com/100064900021799/posts/626204402886222/">https://www.facebook.com/100064900021799/posts/626204402886222/</a>

## APPENDIX 2

Forests on Blackboard (our previous KNCF project) won Green Globe Institute Award in Bangkok for publication of the Chiang Mai Teachers' Manual (Thai Version)



### ประกาศผลรางวัลลูกโลกสีเขียว

ผลงานทั้งหมด 7 ประเภท จำนวน 44 ผลงาน

ครั้งที่ 21

**ประเภทชุมชน จำนวน 8 ผลงาน**

1. ป่าชุ่มน้ำลุ่มน้ำอิง บนวิถีการจัดการที่ยั่งยืนโดยชุมชน จังหวัดเชียงราย
2. ชุมชนบ้านดอยช้าง (ป่าเป็) จังหวัดลำพูน
3. กลุ่มองค์กรชุมชนประมงท้องถิ่น ตำบลหาดเล็ก จังหวัดตราด
4. ชุมชนบ้านมะม่วง จังหวัดตราด
5. ชุมชนกุดหมากไฟ จังหวัดอุดรธานี
6. ชุมชนป่าภูตะเกกา จังหวัดชัยภูมิ
7. ชุมชนบ้านต้นตาล จังหวัดนราธิวาส
8. กลุ่มอนุรักษ์ป่าชายเลนชุมชนบ้านอ่าวทุ่ง จังหวัดภูเก็ต

**ประเภทความเรียงเยาวชนอายุไม่เกิน 15 ปี จำนวน 2 ผลงาน**

1. โทที่บ้านโดน โดย ค.ญ.ดิฟฉายาณี ใจดี จังหวัดสตูล ตีเด่น
2. ...

**ประเภทความรู้เรื่องธรรมชาติ อายุ 16 - 25 ปี จำนวน 6 ผลงาน**

1. ...
2. ...
3. ...
4. ...
5. ...
6. ...

**ประเภทสิ่งพิมพ์ที่เกี่วข้อง จำนวน 13 ผลงาน**

1. เครื่องจักรจัดการทรัพยากรธรรมชาติลุ่มน้ำตาบห้วยปู่ลึง จังหวัดแม่ฮ่องสอน
2. ชุมชนบ้านสนลาน จังหวัดเชียงใหม่
3. ชุมชนบ้านส้อและบ้านเด่นพัฒนา จังหวัดน่าน
4. ชุมชนบ้านร่องบอน จังหวัดเชียงราย
5. กลุ่มอนุรักษ์ป่าชายเลนบ้านท่าหาด จังหวัดตราด
6. กลุ่มอนุรักษ์แม่น้ำระยองและป่าชายเลน จังหวัดระยอง

**ประเภทงานสื่อมวลชน จำนวน 1 ผลงาน**

Facebook : ไพควา ไร่ดักจับ ชมเขย



3. คู่มือครูสิ่งแวดล้อมจังหวัดเชียงใหม่ โดย โครงการพัฒนูปถัมภ์คนค้าหน่วยวิจัยการฟื้นฟูป่า มหาวิทยาลัยเชียงใหม่ จังหวัดเชียงใหม่ ชมเขย



สถาบันลูกโลกสีเขียว อาคาร 1 สนง. ปตท. ชั้น 5  
555 ถนนวิภาวดีรังสิต เขตจตุจักร กรุงเทพฯ 10900  
โทรศัพท์ 0 2537 1998 , 08 9492 6776 ,  
08 9924 6885 , 08 1372 1110



Green Globe Institute



Green Globe Institute

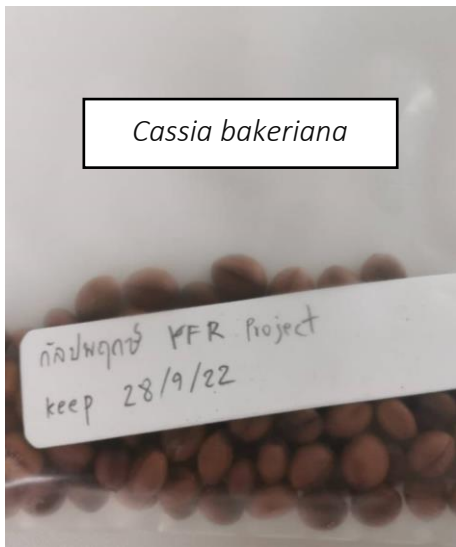


www.greenglobeinstitute.com

APPENDIX 3 - YFR – VCIS Sustainability Run & Fair



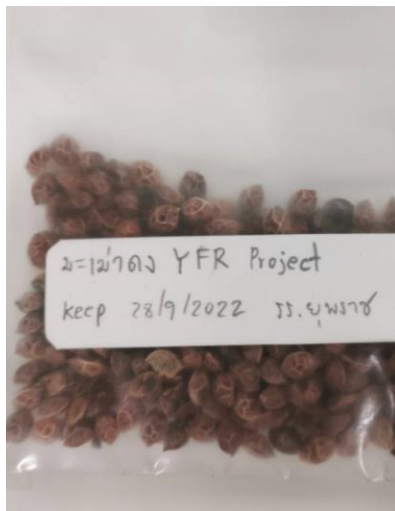
APPENDIX 5 – Seed banking - Doi Suthep Nature Study Center (DSNC)



*Turpinia pomifera*



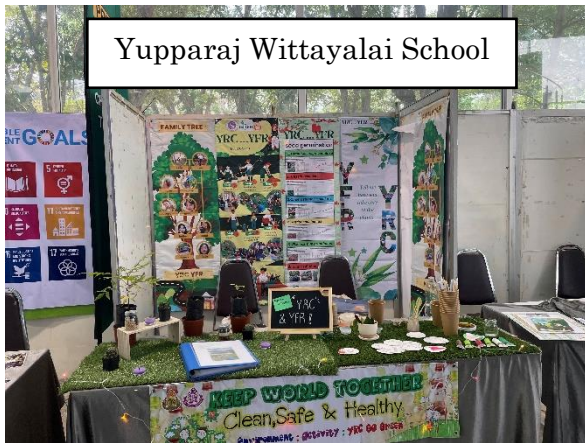
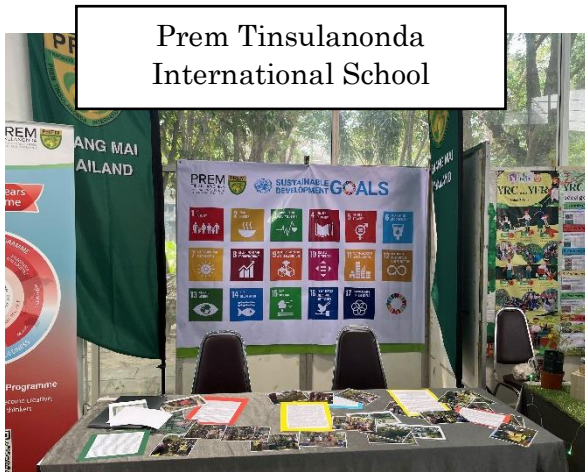
*Antidesma bunius*



*Choerospondias axillaris*



## APPENDIX 6 - YFR Forest Celebration school booths



## APPENDIX 7

**Tree species seeds collected and germinating in school nurseries  
(April 2022 – September 2022)**

Species	Thai name	Family
<i>Protium serratum</i>	มะแฟน	Burseraceae
<i>Cassia fistula</i>	ราชพฤกษ์	Fabaceae
<i>Peltophorum pterocarpum</i>	นนทรี	Fabaceae
<i>Senna siamea</i>	ซี่เหล็กบ้าน	Fabaceae
<i>Pterocarpus macrocarpus</i>	ประดู่ป่า	Fabaceae
<i>Azalia xylocarpa</i>	มะค่าโมง	Fabaceae
<i>Cassia bakeriana</i>	กัลปพฤกษ์	Fabaceae
<i>Turpinia pomifera</i>	มะกอกฟาน	Staphyleaceae
<i>Cinnamomum iners</i>	อบเชย	Lauraceae
<i>Terminalia nigrovenulosa</i>	หมากขี้ฮ้าย	Combretaceae
<i>Antidesma bunius</i>	มะเฝ้า	Phyllanthaceae
<i>Choerospondias axillaris</i>	มะกัก	Anacardiaceae
<i>Trewia nudiflora</i>	มะฝ่อ	Euphorbiaceae
<i>Elaeocarpus prunifolius</i>	พอหะแย้	Elaeocarpaceae

**Tree species seeds collected and germinating in school nurseries  
(October 2022 – March 2023)**

Species	Thai name	Family
<i>Adenanthera microsperma</i>	มะกล่ำตาควาย	Fabaceae
<i>Diospyros mollis</i>	มะเกลือ	Ebenaceae
<i>Podocarpus neriifolius</i>	พญาไม้	Podocarpaceae
<i>Syzygium claviflorum</i>	หว้าขี้กวาง	Myrtaceae
<i>Phyllanthus emblica</i>	มะขามข้อม	Phyllanthaceae
<i>Terminalia bellirica</i>	สมอพิเภก	Combretaceae
<i>Stereospermum colais</i>	แคหิน	Bignoniaceae
<i>Sapindus rarak</i>	มะซึก	Sapindaceae
<i>Albizia procera</i>	ทิ้งถ่อน	Fabaceae
<i>Alseodaphne andersonii</i>	ทั้งใบช่อ	Lauraceae
<i>Cinnamomum caudatum</i>	จวงหอม	Lauraceae