

# YOUNG FOREST RESTORERS

Year 2 Report to KNCF:

April 2023 – March 2024



*Making an herbarium specimen – an activity station at the Forest Celebration Event*

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## SUMMARY

<b>Project Title:</b>	Young Forest Restorers (Year 2)
<b>Sponsor:</b>	Keidanren Nature Conservation Fund
<b>Project Period (full proposed):</b>	4/22-3/25 (3 years)
<b>This report Period:</b>	1/4/23 – 30/3/24 (Y2)
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The [Young Forest Restorers \(YFR\) project](#) provides Chiang Mai teachers and pupils with science-based skills, knowledge, and funding support, to enable them to take direct action to mitigate climate change, through effective forest-ecosystem restoration. This report reviews activities during the 2nd project year, from April 2023 to March 2024 (Y2). [Click here for a 4-minute VDO summary of Y2 project activities.](#) <https://youtu.be/wy1VHUB8Amc?feature=shared>

In year 2, FORRU-CMU's YFR team supported 4 local schools to establish on-campus nurseries to grow seedlings of indigenous “framework” tree species, of known value for forest ecosystem restoration. Funding and technical support were provided to Chiang Mai International School (CMIS), Dara Academy, Kawila Wittayalai School, and Doi Saket Wittayakom School. Activity events included seed collection in forest, seed banking, nursery techniques, tree planting, maintenance and monitoring. Forty-four activity events were implemented (in Thai and English) for both Y2 schools and the new classes of Y1 schools, reaching 1,317 students and teachers. A seed-swapping facility at CMU's Seed Bank, established in Y1, was continued, using a LINE group to co-ordinate stock, withdrawals and deposits. Seeds of 19 tree species were distributed to school nurseries from the seed bank in year 2. Students participated in planting approximately 1,500 native tree species over ½ hectare at the Ban Pong Krai restoration plot, and they returned throughout the rainy season, to learn field skills and contribute to tree maintenance and monitoring. The project also produced a [YFR booklet](#), with nursery and field instructions, in which students record the skills and knowledge they acquire, receiving stamps to track progress of their efforts. The project also maintains an online learning platform, where participants can track their knowledge acquisition and earn a certificate. Fifty-five students earned certificates in Y2. The project was also widely disseminated on social media (mostly FaceBook, see appendix 1) and a [project page on forru.org](#).

## 1. Background, Rationale and Objectives

### 1.1 Background

In November 2021, the UN Climate Change Conference (COP26) in Glasgow reaffirmed the need for immediate action to reverse global climate change (GCC). The [Glasgow Climate Pact](#) emphasized the critical importance of ... “protecting and restoring forests, to reduce emissions, enhance removals and protect biodiversity.” The younger generation has the most to gain from solving the climate crisis, since they will have to live with the repercussions of failed policies or inactivity for much longer than today’s adults. Consequently, young people are becoming increasingly prominent in climate-change protest movements, yet they have limited influence on politics. On the other hand, they 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 their actions are effective. National schools’ curricula do not currently provide such skills and knowledge. Therefore, enabling 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 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, 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, extensive tree-planting projects are underway. However, often the wrong tree species are planted in the wrong places and both maintenance of planted trees and monitoring are frequently neglected ([Di Saco et al., 2021](#)). So, for young people to restore forest ecosystems effectively, they 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 provide them with the practical and technical support needed to become effective “Young Forest Restorers”.

### 1.2 Rational - Contributions Towards Targets of “Post-2020 Global Biodiversity Framework” (GBF)

This project focusses on tropical forest-ecosystem restoration, which supports biodiversity conservation and recovery, and on providing the younger generation them with the skills and knowledge needed to achieve it. The project also provides opportunities for young people to work directly on implementing ecosystem

restoration.

Both ecological restoration, and applicable education are central to the core aims of the GBF. The vision of the GBF is to restore biodiversity by 2050, benefiting people. This can only be achieved by restoring plant and animal habitats. Our project contributes particularly towards restoration of terrestrial ecosystems — Target 2.

“Target 2. Ensure that at least 20 per cent of degraded freshwater, marine and terrestrial ecosystems are under restoration, ensuring connectivity among them and focusing on priority ecosystems.”

YFR focuses on restoring tropical forest ecosystems—the most biodiversity-rich habitat on Earth. Furthermore, the positioning of forest plots being restored under YFR increases connectivity among remaining forest fragments.

The educational focus of YFR supports GBF Target 20.

“Target 20. Ensure that relevant knowledge, including the traditional knowledge, innovations and practices of indigenous and local communities with their free, prior, and informed consent, guides decision-making for the effective management of biodiversity, enabling monitoring, and by promoting awareness, education and research.”

The skills and knowledge provided to the younger generation through YFR are based on FORRU-CMU’s research outputs, as well as the indigenous knowledge of the many communities we’ve worked with, compiled over nearly 30 years. YFR aims to educate the decision makers of the future, enabling them to better revive and manage biodiversity and the habitats that support it.

Finally, YFR contributes towards an enabling condition, identified as critical in the GBF for its successful implementation, notably “greater access to education”: Enabling Condition 17. “... success depends on ... greater access to education...and addressing the full range of indirect drivers of biodiversity loss...”

### **1.3 Project Goal**

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

## 1.4 Objectives

	Over 3 years	Y1	Y2	Y3
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).	4 schools	4 schools	4 schools
2	To produce teaching materials to support the above.	Production and distribution to 4 schools	Distribution to 4 schools	Reprint and distribution to 4 schools
3	To provide technical and financial support for establishment of native forest-tree nurseries in schools (up to 12).	4 schools	4 schools	4 schools
4	To establish a schools' network, which facilitates swapping of tree seed species among schools, via a central seed bank (run by CMU).	Development and operation in 4 schools	Operation in 4 schools	Operation in 4 schools
5	To assist schools with tree planting and follow-up, including maintenance and monitoring.	4 schools	4 schools	4 schools
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.	Development	Used by Y1 and Y2 Schools	Used by additional 4 Y3 schools
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).	Needs-assessment, kick-off meeting. School meetings (4 schools) and Forest Celebration Event	Schools planning meetings (4 schools) and Forest Celebration event	School planning meetings (4 schools) and Forest Celebration event

## 2. Summary of Achievements of the Expected Concrete Activity Results (listed in proposal) for current year (Y2) so far.

*2.1 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.*

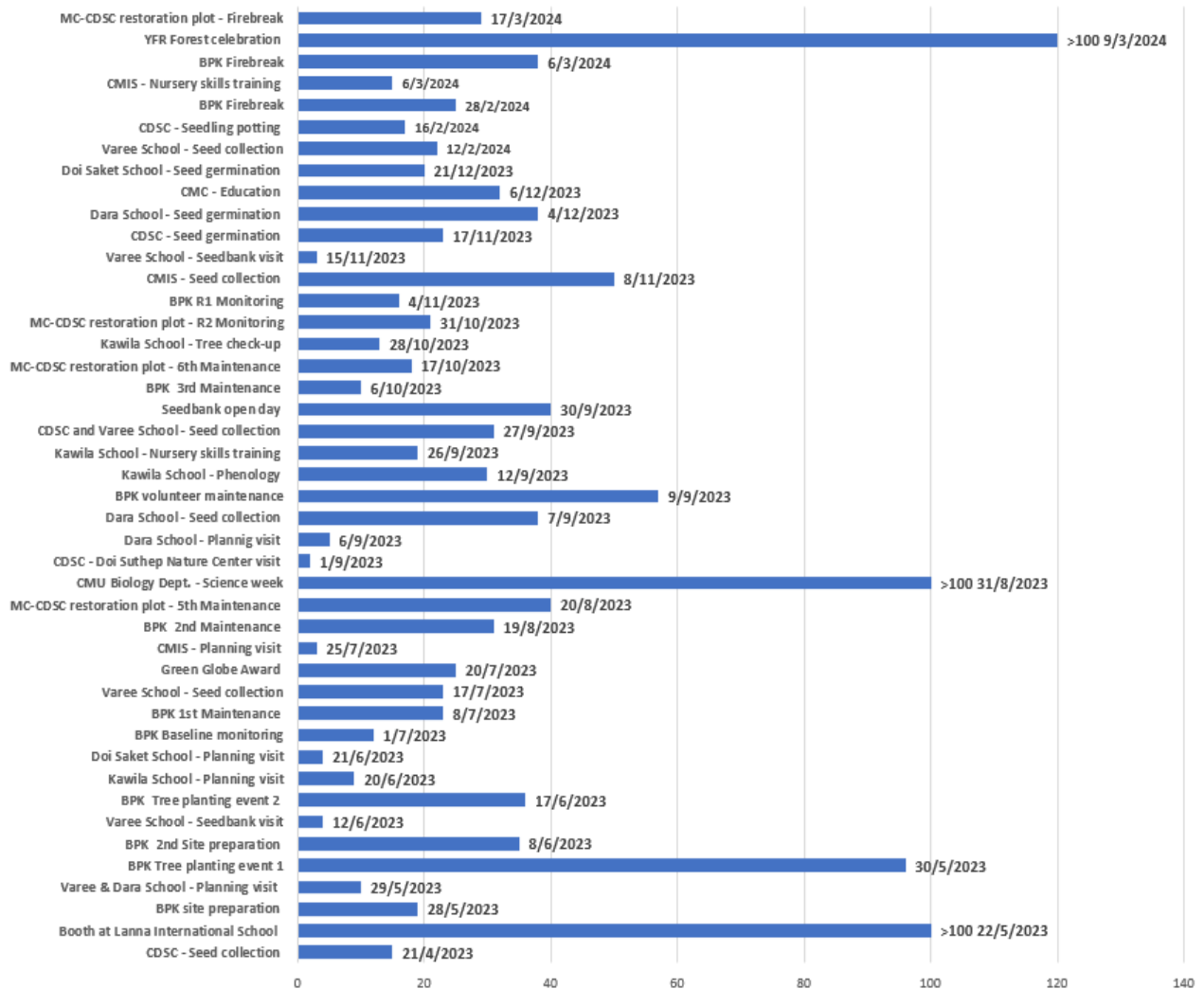
The second year of the project continued with the selection of four target schools (in addition to the 5 we worked with in Y1), following on from the "Expression of Interest" documents of each school prepared after last year's project-launch event. The 4 schools selected for Y2 activities were: Chiang Mai International School (CMIS), Dara Academy, Kawila Wittayalai School, and Doi Saket Wittayakom School.

Schools selected for each project years (latest update)

Y1	Y2	Y3
Varee Chiang Mai School <i>(this is 2 schools, an international and Thai school on the same campus)</i>	Chiang Mai International School (CMIS)	Chiang Mai Christian 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	Chiang Mai University Demonstration School

Forty-four events were run in Y2. Dates, and numbers of participants are illustrated in the bar chart below.

NO. STUDENTS/TEACHERS AT EACH EVENT



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

We continued to distribute the YFR activity booklet, produced in Y1, to all students who joined in activity events. Each student received a stamp in the booklet acknowledging their achievements during the events. In addition to Thai and English editions, we also translated and printed a German edition, specifically for one of the Y1 target schools (CDSC), which teaches in German.

***2.3 Native forest-tree nurseries established in each of 4 schools, with trees growing ready for planting in 2024.***

Four school surveys were surveyed during May to July for locating and establishing tree nurseries. All 4 schools completed tree nursery construction in their school grounds, and have begun raising tree seedlings. We supported each nursery with a grant of 10,000 THB from the project funding (for materials and equipment). All four schools planted seeds and took care of seedlings using nursery space. It is expected that all schools will have several hundred trees of 10-20 species each, ready for planting in June 2024.

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

We continued building a network for swapping seeds among all project schools, via the seed bank at the Doi Suthep Nature Study Centre, which includes a large upright freezer, reserved for the YFR seed-swapping scheme. News of seed collection were spread via the project LINE group and most of the YFR schools either donated seeds into the bank with withdrew seeds for germinating in their school's nurseries. Twenty species were distributed through the system this year.

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

Ban Pong Khrai over-mature pine plantation was re-planted following a powerful storm which destroyed the site on March 18<sup>th</sup>, followed by fires which burnt some parts of the site. The aim was to compare performance of trees planted on burnt and non-burnt parts of the site (1-rai of burnt plot and 1-rai of non-burnt plot). In addition, another 1 rai was planted around the edge of the plot as a buffer zone, in collaboration with the local Watershed Unit. Many of the trees planted were those grown by Y1 schools in their on-campus tree nurseries. Trees were delivered to the site and planted by participating YFR pupils during two planting events: May 30<sup>th</sup> and June 17<sup>th</sup> 2024. Y2 schools also participated in tree-planting and tree maintenance. Furthermore, CDSC school pupils (a new class) continued to participate in maintenance of another 2-rai site, planted in 2022 (Mon Cham site), where the objective is to compare performance among planted tree species and the effects of hand-weeding vs. herbicide.

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

The student workbook was made available online both on the [FORRU website](#) and at the [FoB online learning platform](#), allowing students to sign up to the system, test their knowledge with quizzes and gain a certificate. Twenty-nine students gained online certificates this year (Y2).

**2.7 “Forest Celebration” event implemented, allowing participants to present their work, and raise awareness of forest issues amongst the broader community, towards the end of Y2.**

The second Forest Celebration event was held on Saturday, March 9th, 2024, at the Doi Suthep Nature Study Centre. A total of 10 schools participated, including 7 Thai schools and 3 international schools. This comprised 4 schools from the Y1 project, 4 schools from Y2, and 2 schools signed up for Y3 of the project, totalling 93 students and teachers.

### 3 Project Schedule (Revised)

Activities/Tasks	2023									2024			
	A	M	J	J	A	S	O	N	D	J	F	M	A
Teachers' conferences - Kick-off meeting & school selection meetings	X												
School teaching events	X	X	X	X	X	X	X	X	X		X	X	
Workbook distribution	X	X	X	X	X	X	X	X	X		X	X	
School nursery establishment			X	X						X			
Seed-swapping network tool development and launch (X) and operating (x)	X	X	X	X	X	X	X	X	X	X	X	X	
Planting events		X	X										
Tree maintenance				X		X		X					
Monitoring planted sites									X				
Training materials online used for monitoring uptake and effectiveness and certificates (x)	X	X	X	X	X	X	X	X	X	X	X	X	
Forest Celebration event												X	
Reporting and annual re-application	X						X	X					X



#### 4. Detailed Project Report - Activities

##### 4.1 School Selection, Teachers' Meetings and Education Events

Acting on the “Expression of Interest” forms, submitted by school key persons at the kick off meeting in 2021, three joined the project: Chiang Mai International School (CMIS), Dara Academy and Doi Saket Wittayakom School, matching their needs as indicated on the forms. In addition, Kawila Wittayalai School was invited to join the project, to make the number up to 4 schools in total for Y2, as teachers there had expressed a keen interest in upgrading environmental education at their school.

The FORRU-YFR team visited all the schools in May to July to plan nursery establishment, material needs and participation in education events for the rest of the years. We also reviewed the species being grown in the Y1 Schools nurseries ready for the planting event at Ban Pong Khrai in May and June.

*Some of the trees grown are Varee International School – 29<sup>th</sup> May. Ready for the June tree planting event*



We visited Kawila Wittayalai School on 20<sup>th</sup> July as the director agreed to share school facilities for nursery buildings and suggested implementing a tree survey around the school, so that students could learn to recognise species and collect seeds. On June 21<sup>st</sup>, we went out to Doi Saket Wittayakom school to discuss project implementation and locate the site for tree nursery construction and to set up a tree survey trail around the school.

*Kawila Wittayalai School – 20th June*



*Doi Saket Wittayakom School – 21st June*



On 25<sup>th</sup> July, the FORRU-YFR team travelled to CMIS to confirm activity lists with Troy Regis (Middle School Principal). He mentioned that school's tree nursery construction would be delayed but invited the FORRU-YFR team to implement seed collection during the school's camp in November in Sankampheang district.



On September 1<sup>st</sup>, the FORRU-YFR team hosted a meeting with teachers from two of the Y1 schools (Christian German International School (CDSC) and Varee Chiang Mai International School (VCIS), as new staff took over responsibility for forest restoration activities from those previously involved. We discussed further opportunities for these two schools to participate in Y2 activities, in view of the reduced budget for Y2. We decided to support additional merged activities with CDSC and VCIS, Y2 target schools. The new school staff were introduced to Nature Centre facilities including nursery and seed bank.



The FORRU-YFR team continued to provide activity programs on forest restoration techniques, enabling all Y2-participating schools to begin to produce planting stock of native forest tree species. We also provided additional events for Y1 schools for continuity. Events covered in-school events (using trees on campus), seed collection along forest trails and field trips to plant, maintain and monitor planted trees.

On 21<sup>st</sup> April, we set up an activity day for CDSC (Y1 school), collecting the seeds of various tree species (*Prunus cerasoides*, *Ficus hispida*, *Dalbergia cultrata* etc.) in the morning, followed by nursery-skills training at the Doi Suthep Tree Research Nursery focusing on techniques of seed handling and extraction. Students prepared seed collection datasheets and received a stamp in their YFR action books.

The FORRU-YFR team was invited to set up booth at Lanna International School on May 22nd. The school was hosting a “Biodiversity Day”, to promote environmental sustainability. We displayed seed samples and provided various educational materials and games for the event.



*Seed collection with CDSC – 21st April*



*Biodiversity Day – 22nd May*

Varee school participated in activities at the seed bank and withdrew seeds of *Holoptelea integrifolia*, *Artocarpus lakoocha*, *Cassia bakeriana* to sow in their tree nursery. Following a seed collection trip, the pupils deposited seeds of *Podocarpus neriifolius* and *Choerospondias axillaris* into the seed bank, after processing them. On the trip they also learned how climate affects tree phenology, seed collection and how to distinguish forest types in the national park.



*Seedbank with Varee School – 12th July*



*Seed collection, Varee School – 17th July*

The FORRU-YFR team provided activities with the theme of raising awareness about global climate change and the role of forests for mitigation during Science Week (31<sup>st</sup> August, an annual event in sciences and higher education. We created a game to recognize which land-use type sequestered most carbon. Scarification of *Azelia xylocarpa* seeds, to promote germination, was an additional activity.

*Science Week event – 31st August*



The FORRU-YFR team set up an education event for Dara Academy (Y2 school) on tree phenology, seed collection techniques and seed processing in Doi Suthep-Pui National Park on 7<sup>th</sup> September. Students were taken along forest trails to collect *Mesua ferrea* from 5 different trees.



*Seed collecting with Dara Academy – 7th September*

The FORRU-YFR team worked Kawila school pupils on 12<sup>th</sup> September, on mapping and measuring the seed trees around their school campus. We provided additional data for tree identification by our nursery staff and collected *Azelia xylocarpa*. Additionally, we delivered media, and equipment for the on-school nursery purchased with the project funds.



*Phenology around Kawila School campus – 12th September*

On 26<sup>th</sup> September we ran training sessions with the same school on seed extraction and seed germination using some of the seeds provided from the seed bank. The planted seeds species were *Cassia bakeriana*, *Cassia fistula*, *Cassia grandis*, *Mesua ferrea*, *Antidesma bunius*, and *Azelia xylocarpa*. Seedlings of *Eugenia sp*, and *Gardinia sootepensis* were potted up. We also trained the students how to water and take care of the seedlings and to arrange a duty roster for these tasks with the class.



*Nursery work with Kawila – 26th September*

The FORRU-YFR team set up an *ad hoc* event for CDSC and VCIS (Y1 schools) on 27<sup>th</sup> September. The program involved seed collection of *Diospyros glandulosa* and *Mesua ferrea*. Students also enjoyed walking along forest trails, learning about forest types, tree characteristics and wildlife management. Seeds collected were prepared for germination at the school tree nursery.

On October 28<sup>th</sup>, the FORRU-YFR team continued nursery training at Kawila School. Planting stock was reviewed and additional nursery-skills training on monitoring germination, seedling transplantation.



*Nursery check-up and transfer seedling at Kawila School*

Seed collection with CMIS at San Kamphaeng was implemented on November 8<sup>th</sup>, 2023, as part of the school’s summer camp. The activity was held for two days at Huai Lan Reservoir in San Kamphaeng. Participants collected seeds from the surrounding area (including *Peltophorum dasyrrhachis* and *Azelia xylocarpa*) and learned seed-extraction techniques and germination trials.

*8th November – Group 1 Seed collection at Huai Lan Reservoir*



*9th November – Group 2 Seed collection at Huai Lan Reservoir.*



On 8th November, the FORRU-YFR team worked with CDSC pupils (new class) on setting up seed germination trials with *Holoptelea integrifolia* and *Mesua ferrea*, how to provide the correct amount of water and other seedling care techniques.



*Seed germination hands-on activities at CDSC*

On November 15th we hosted a group from Varee School at the seed bank to withdraw seeds of 4 species: *Holoptelea integrifolia*, *Terminalia bellirica*, *Cassia bakeriana*, and *Antidesma bunius* and provided information on how to germinate them and care for the seedlings.



*Seeds for Varee School*

On December 4<sup>th</sup>, the FORRU-YFR crew ran activities on seed germination, potting and seedling care for Dara School pupils. The students worked on *Holoptelea integrifolia*, *Cassia bakeriana*, and *Mesua ferrea*. The seedlings provided to the children were *Gardinia sootepensis* and *Podocarpus neriifolius*. We also delivered the necessary equipment and materials for use in the nursery.

*Seed germination hands-on activities at Dara School*



### Education event at CMC – December 6<sup>th</sup>, 2023

Activities were organized within the classroom to provide basic knowledge about types of plants, how to restore the forest, and to play knowledge games about wild animals. This included distributing prizes and certificates as part of the activities.

*Education event at CMC*



The FORRU-YFR team ran nursery techniques training for Doi Saket School pupils on December 21<sup>st</sup>, including sowing seeds in germination trays, potting seedlings, and caring for them. They worked with *Antidesma bunius*, *Cassia fistula*, *Peltophorum dasyrrhachis* and *Mesua ferrea*. The seedlings provided to the children from FORRU's nursery were *Gardinia sootepensis* and *Mesua ferrea*. We also delivered necessary equipment and materials for use in the nursery on the same day.



*Nursery skills training at Doi Saket School*

On December 22<sup>nd</sup> we organized seed collection for students from Varee School around CMU campus. Three seed collection methods were demonstrated.

The children had the opportunity to collect seeds from the ground or from trees by using cutter pole or sandbags. The species collected were: *Terminalia bellirica* and *Bauhinia purpurea*.



*Seed collection and Seed extraction with Varee School*

Furthermore, seed extraction techniques were taught for both types of seeds, before students took them back to their school nurseries for germination.

On February 16<sup>th</sup> the FORRU-YFR team organized nursery activities at CDSC, The school pupils present their data on seedling growth rates and survival rates,



followed by a session on seedling potting techniques and ending with training on how to properly care for the seedlings after transplantation.

*Nursery day at CDSC*



On March 6<sup>th</sup> the FORRU-YFR team delivered nursery materials and equipment to CMIS, funded by the project grant, and ran sessions in tree propagation techniques there. This was the last nursery to be set up under Y2 of the project due to delays in construction of the nursery at the school. Nursery skills provided included soil mixing, seed germination trials, seedling potting and after care. After the demonstrations, the students practiced these skills themselves. Students worked with the seeds of *Terminalia bellirica* and *Irvingia malayana* and with young seedlings of *Gardenia sootepensis* brought over from FORRU's nursery.



*Nursery skills training at CMIS*

## 4.2 Student activity-book

There was no further work to do on the student activity book in Y2, since we had printed enough hard copies for both Y1 and Y2 the previous year. The book continued to be distributed to all participants at all events. Students used it both as a source of instructions and to collect stamps every time they completed each activity model described in the book, as a pre-requisite for signing on to the YFR learning platform for quiz and certificate award. The book was also made available as a PDF download through [FORRU's Website](#) and the [YFR Online Learning Platform](#).

## 4.3 Forest-tree nurseries

Generally speaking, the four new schools, participating in YFR this year, were slower at bringing their on-campus tree nurseries into operation than last year. Following discussion of needs with each school, we purchased nursery start-up kits up to a value of 10,000 for each school and delivered them to Kawila on 12<sup>th</sup> September, Dara on 4<sup>th</sup> December, Doi Saket on 21<sup>st</sup> December and CMIS on March 6<sup>th</sup>. The kits consisted of media, germination trays, seedling containers, trowels, hose pipes, shade netting etc. Despite delays, planting-stock production is well underway in all 4 schools, and we expect several hundred tree saplings per school (of collectively 19 species) to be produced by the planting session next June.

## 4.4 Seed swapping and seed banking

We continued to build the seed-swapping network in Y2, depositing seed batches into the seed bank at the Doi Suthep Nature Study Centre, whenever students collected seeds from trees in the forest and from around their school campuses (see 4.1). News of seed species collected were spread via the project LINE group, which now has 82 members, and most of the YFR schools either donated seeds into the bank with withdrew seeds for germinating in their school's nurseries. Nineteen species were distributed through the system this year (see Appendix 3).

Furthermore, on September 30<sup>th</sup>, the FORRU-YFR team provided an additional event to promote the seed-bank and seed swapping network. Three sessions were provided for 4 schools: (1) Dara Academy and Kawila school (2) Doi Saket school (3) Varee school.

The sessions included seed extraction, cleaning, drying, weighing, packing and seed-bank operation, using seeds brought along to the sessions from the schools' previous seed-collection activities (see 4.1) (*Cassia fistula*, *Choerospondias axillaris* etc.). We demonstrated how teachers/students can deposit and withdraw seeds from the bank using the LINE group.



*Group photo of Session 1 participants : Dara school and Kawila*

We also ran complementary sessions on nursery skills - setting up germination experiments, using seeds of various species (*Miliusa velutina*, *Cassia bakeriana*, *Holoptelea integrifolia*, and *Antidesma bunius*). Seedling potting was practiced with *Artocarpus Gomezianus*, and *Holoptelea integrifolia*. Students implemented hands-on activities, with species data written into their YFR action books. The FORRU-YFR team also introduced seedling care techniques.



*Nursery techniques for Doi Saket school*

#### 4.5 Tree planting, maintenance and monitoring

##### 4.5.1 The Ban Pong Krai Plot

Tree planting, maintenance and monitoring activities for YFR schools (both Y1 and Y2 schools) continued at the Ban Pong Krai plot—an overmature pine plantation, which had been devastated by a storm in March 2023. The aim was to increase diversity of native tree species to levels typical of indigenous evergreen forest, amongst remaining plantation trees (*Pinus kesiya*).

Site preparation and sapling transportation were implemented May 28<sup>th</sup> ahead of the first planting event and on June 8<sup>th</sup>, ahead of the second planting event. Bamboo poles were used to mark planting sites and holes dug. Weeds were removed from around the planting spots.



*Site condition after hailstorm and fire*

Tree planting was implemented over two events on May 30<sup>th</sup> and June 17<sup>th</sup>. The first involved Y1 schools (Christian German School Chiang Mai, Varee International School and Yupparaj Wittayalai School), planting trees they had raised in their school nurseries since Y1 of the project. Furthermore, Doi Saket Wittayakom School (a Y2 school) also participated, as well as 40 visiting Canadian undergrad students from CMU's Environmental Science program. The restoration site was divided into two zones: 1) burnt and 2) non-burnt. After planting, 50 g fertilizer was applied round each tree.



The 2<sup>nd</sup> tree-planting event at BPK involved pupils from Varee Chiang Mai School (Y1 school), Kawila Wittayalai School (Y2 school) and foreign volunteers; the former providing saplings grown in their school nursery. The aim of the second event on June 17<sup>th</sup> was to establish a buffer zone around the burnt/non-burnt experimental plots, established during the 1<sup>st</sup> event. Participants were welcomed at the local watershed office and provided with instructions on planting and fertilizer application.



***Tree planting at BPK restoration plot – 2nd event***

Baseline monitoring was performed by the FORRU-YFR team and volunteers on July 1<sup>st</sup>, for all trees planted in experimental plots, to enable subsequent growth and survival rates to be calculated.

Tree maintenance (including weeding and fertilizer application) was scheduled three times in the first rainy season (at 4-6 weeks intervals). Watershed officers performed site-level weeding a few days before maintenance events, to improve access. Students performed intensive weeding around each individual tree and removed vines, before applying 50 grams of organic fertilizer per tree. The first tree maintenance was performed by CMU's dormitory volunteers, running a campaign to raise awareness on environmental issues in Chiang Mai on July 8<sup>th</sup>. The second maintenance was performed on August 19<sup>th</sup> by Y2 schools (Dara and Kawila schools) with technical support from FORRU. CMIS performed the 3<sup>rd</sup> maintenance operation on October 6<sup>th</sup>.

*Tree maintenance at BPK restoration plot*

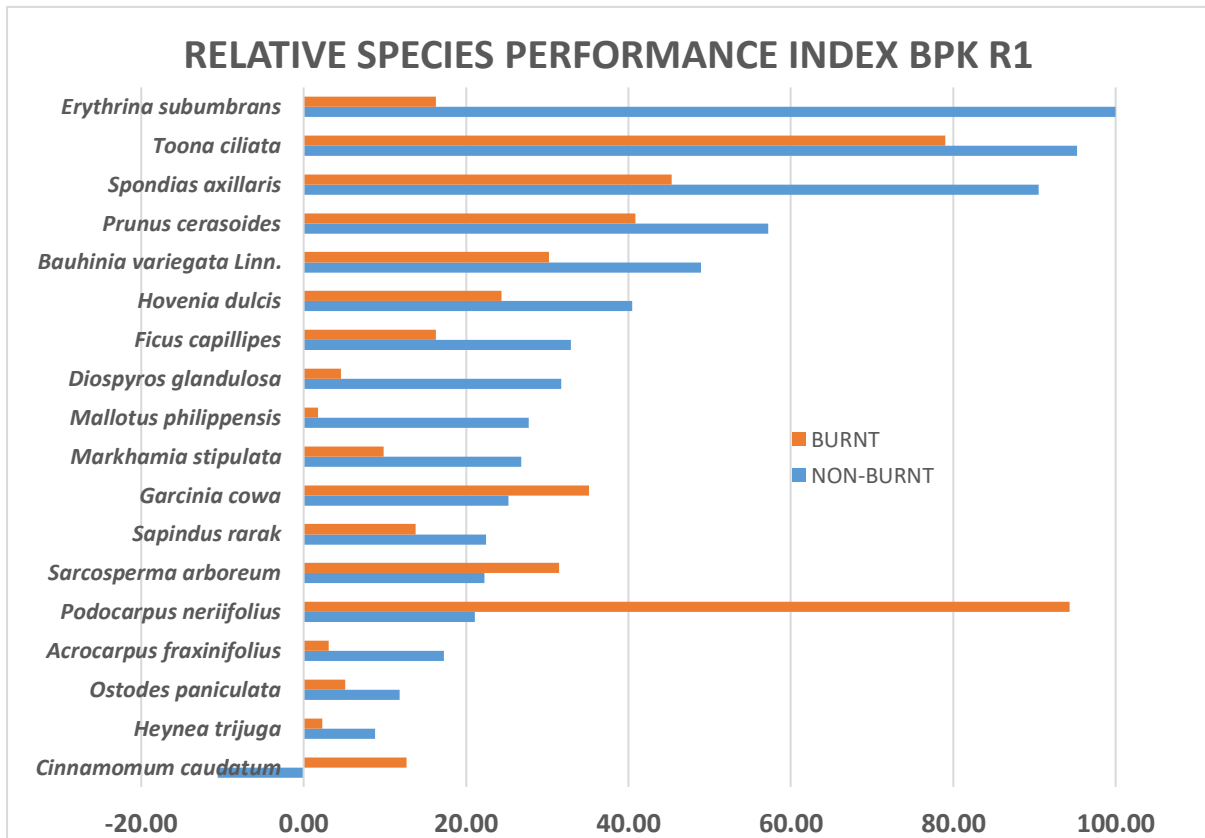


End-of-first-rainy-season monitoring (R1) was performed on 4<sup>th</sup> November by FORRU staff and 17 volunteers. Data collected included sapling height, root-collar diameter (RCD), canopy width, health score, weed score.



*BPK R1 Monitoring with volunteer group*

Mean tree survival over the first rainy season was 87%. The performance indices (survival x growth rate) of each of the species planted, relative to the highest-performing species (*Erythrina subumbrans* in non-burnt plot) are shown in the figure above. Most species thrived better in non-burnt areas compared with burnt areas, with the exception of *Podocarpus neriifolius*, which attained significantly higher growth in the burn plots.



At the start of the dry season in 2024, a firebreak was cut around the BPK plot system on February 28<sup>th</sup> and March 6<sup>th</sup> to prevent fire entering the plot system. Firebreak building was organized together with a group of students from Prem School's VSP (Visiting Schools Program). The students cleared flammable dry grass and weeds, to create a firebreak of 8-10 meters wide.



#### 4.5.1 The Mon Cham (CDSC) Plot

In Y2, the Christian German School Chiang Mai (CDSC) continued to take care of the restoration plot that they had established in Y1 of the project at Mon Cham. This was an abandoned agricultural field adjacent to an evergreen forest remnant. See the Y1 report for plot details and establishment. The school children performed maintenance on the 1-year old trees 3 times in the rainy season of Y2 on 28<sup>th</sup> June, 20<sup>th</sup> August and 22<sup>nd</sup> October.

*Tree maintenance at Mon Cham restoration plot*

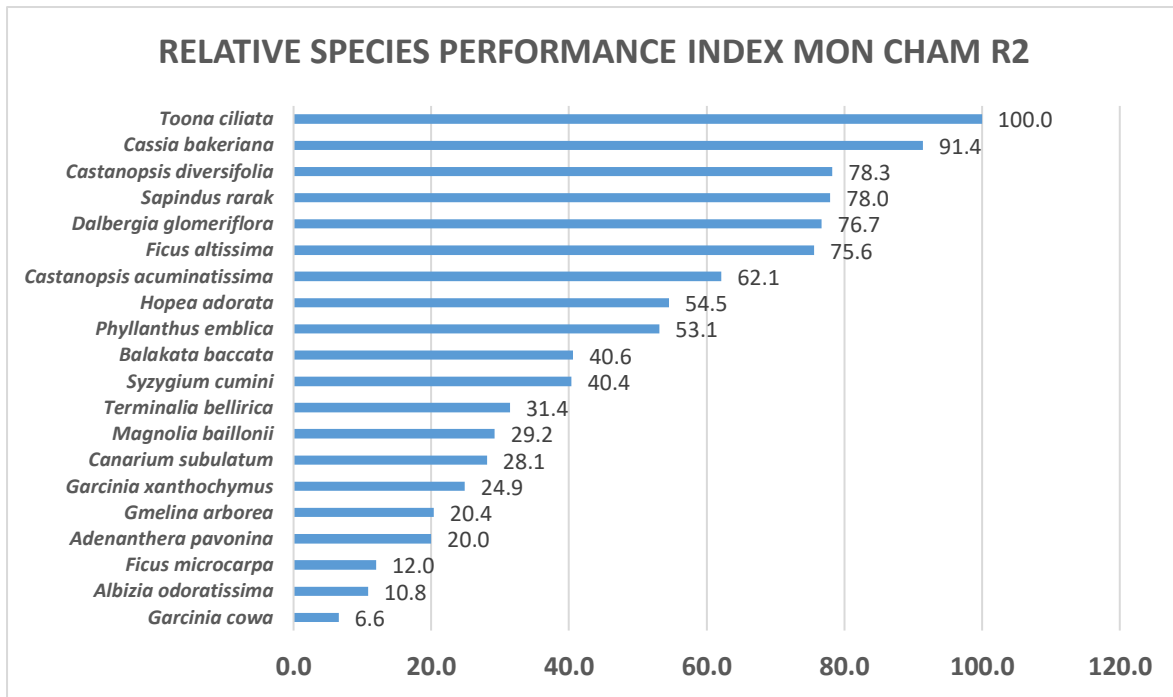


CDSC students also performed monitoring of the planted trees on October 31<sup>st</sup>. After receiving instructions from the FORRU staff the pupils then collected data on tree height, RCD, canopy width, health score and weed cover.

*Mon Cham R2 monitoring with CDSC – October 31st*

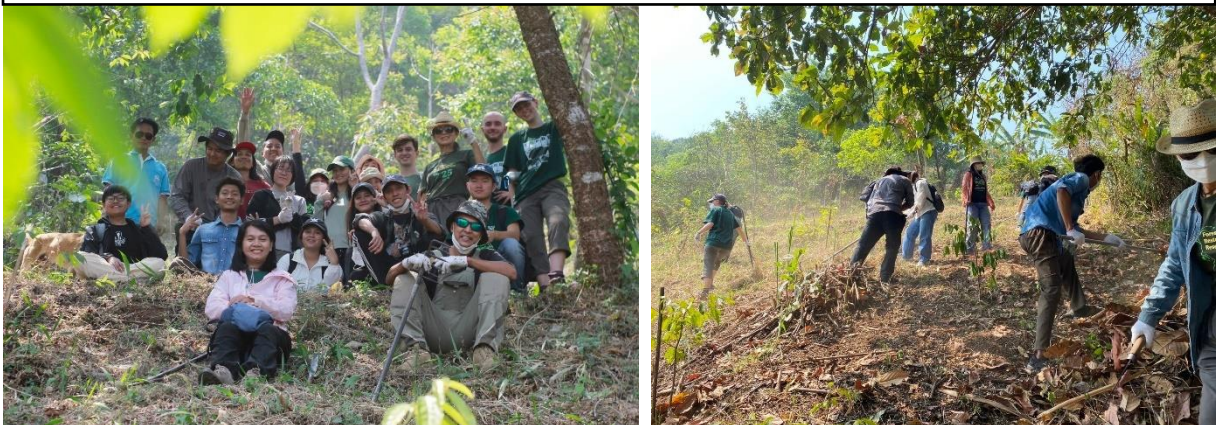


Mean tree survival over two rainy seasons was 75%. The performance indices (survival x growth rate) of each of the species planted, relative to the highest-performing species (*Toona ciliata*) are shown in the figure below.



On March 17<sup>th</sup>, a fire break was cut around the plot system with FORRU and Royal Project staff joined by 18 volunteers. FORRU staff explained the techniques before the participants cleared dried vegetation along the fire break 8-10 m wide to prevent fires from spreading into the plot.

*Firebreak cutting at Mon Cham March 17th*



#### 4.6 YFR Online

We maintained a [web page dedicated to the project](#) on our website at [www.forru.org](http://www.forru.org) making project information and the activity booklet freely available to all those interested. We also continued to display YFR activities through our Facebook pages – see Appendix 1.



#### 4.7 Forest Celebration event

The second Forest Celebration event of the YFR project was held on Saturday, March 9th, 2024, at the Doi Suthep Nature Study Centre. Ten schools participated, including 7 Thai schools and 3 international schools (4 Y1 schools, 4 Y2 schools and 2 of the schools signed up for Y3 of the project) totalling 98 students and teachers. The program for the event is presented in Appendix 4.

Dr. Stephen Elliott and Dr. Sutthathorn Chairuang斯里 opened the event with speeches, followed by a short [VDO entitled “Achievements in the past year”](#) showcasing tree nursery and field trip activities of Y1 and Y2 schools to inspire the prospective Y3 schools. Our field officer, Mr. Worayut Takaew then updated everyone about progress of tree survival and growth in the restoration plots.

Next, Y2 schools presented various performances. Dara Wittayalai School presented a short story followed by a song they had written about forest restoration. Doi Saket School presented a slide show about the various activities they have joined in the past year. Kawila Wittayalai School concluded with a multimedia performance: a short VDO clip of students participating in YFR activities, a slide show about seedlings grown in the nursery and a short drama about greed, conscience, and giving thoughts on forest preservation.

After a break, both Y1 and Y2 schools presented their booths showcasing their achievements under the YFR project. Seven schools made booths this year. It was a great opportunity for prospective Y3 schools to build expectations for their participation in the project in the coming year. Next, the participations rotated around various activity stations, which the FORRU team had set up around the Doi Suthep Nature Study Center grounds:

- 1) Forest Charades – a game (organized by our education officer Phai) in which students convey meaning of forest-related vocabulary by actions only.
- 2) Making an herbarium specimen - (organized by Gawmai, our education officer). Students collected specimens of tree flowers and foliage and learnt how to press them, emphasizing the need for correct tree species identification.
- 3) How to monitor restoration with drones – organized by Nan our field officer. Student learnt basic drone control and how to create 3D forest models from drone-captured imagery.
- 4) Seed matching and a visit to the YFR seed bank – organized by Aom, our field assistant. Participants learnt how to use the seed bank and played a game matching seeds with corresponding information reinforcing the tree species names they learnt during the YFR project.

The final activity was a collaborative art work called “Forest of the Imagination”, during which all schools worked simultaneously on sections of a massive artwork displayed along the amphitheater.

*The Forest Celebration Event*





*Forest of the Imagination – Collaborative Art Project*





After the event – Thanks to the FORRR-YFR Crew

## 4.8 Other Notable Affiliated Events

### 4.8.1 Green Globe Award

We received a Green Globe Institute Award (from PTT Ltd.) (3<sup>rd</sup> prize in the writing category) for the teacher’s manual “Exploring the Environment & Nature of Chiang Mai” produced by the “Forests on Blackboards” project— predecessor of the YFR project and also sponsored by KNCF. Phai and Som (our education officers), who were primary writers and designers of the book, collected the award at a ceremony in Bangkok on July 19<sup>th</sup>. Our booth at the award event also provided an opportunity to promote both FoB and YFR project outputs at the award event.

*Green Globe Institute Award – 19th July*



### 4.8.2 City Nature Challenge 2023 (CNC 2023)

FORRU’s YFR team was the main organizer of the 2023 City Nature Challenge in Chiang Mai run over four days (28<sup>th</sup> April – 1<sup>st</sup> May) using the iNaturalist application to survey biodiversity both after forest restoration and around town generally. Up to 40 participants joined each day.

*28th April – Night survey for insects, amphibians, reptiles*



*29th April – Morning session for birds and insects*



*30th April – Morning session for birds and insects*



*1st May – Morning session for plants, lichens, and insects*



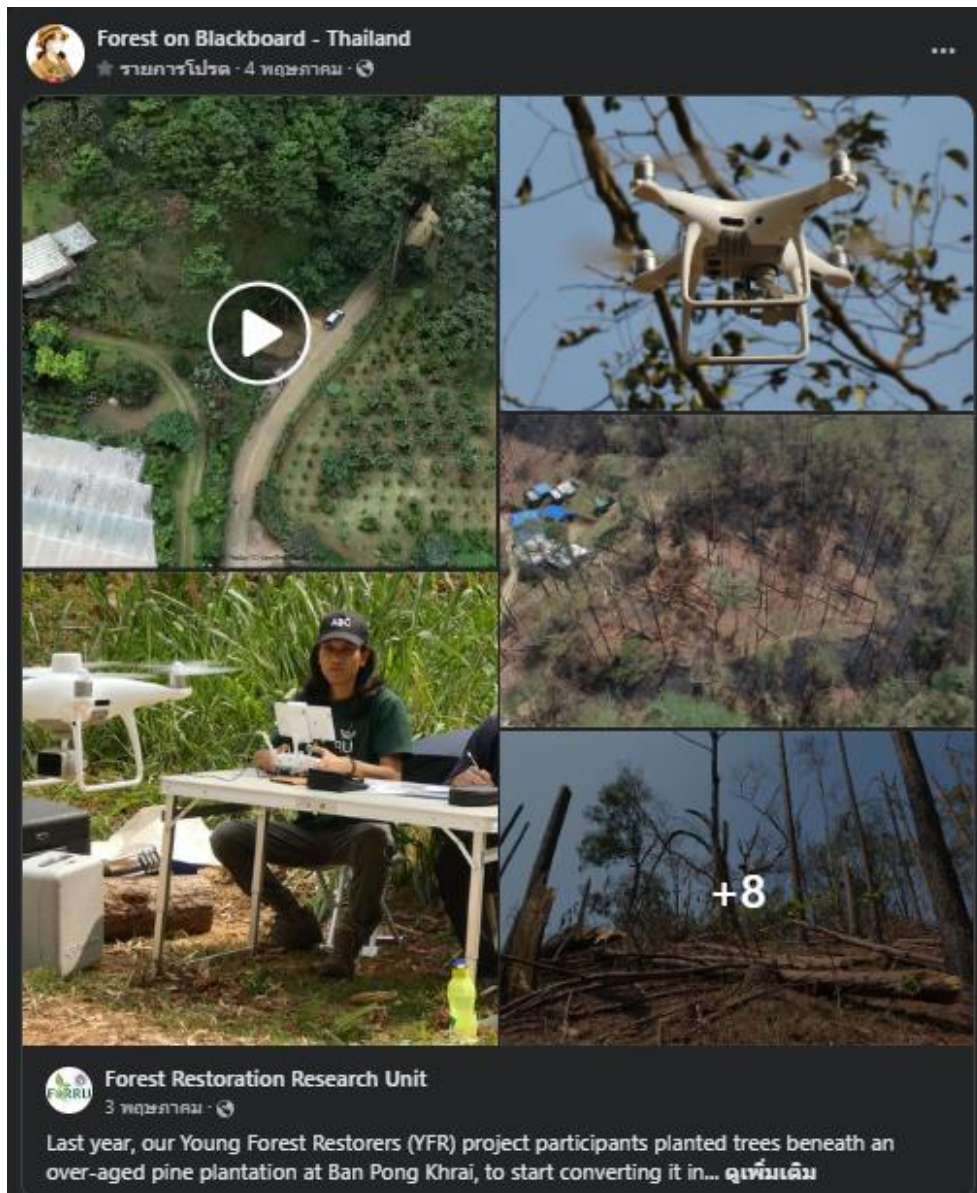
## References

- Jantawong, K., N. Kavinchan, P. Wangpakapattanawong & S. Elliott, 2022. [Financial analysis of potential carbon value over 14 years of forest restoration using the framework species method](https://doi.org/10.3390/f13020144). *Forests* 13: 144. <https://doi.org/10.3390/f13020144>
- Di Sacco, A., K. Hardwick, D. Blakesley, P.H.S. Brancalion, E. Breman, L.C. Rebola, S. Chomba, K. Dixon, S. Elliott, G. Ruyonga, K. Shaw, P. Smith, R.J. Smith & A. Antonelli, 2021. [Ten guidelines for tree planting initiatives to optimize carbon sequestration, biodiversity recovery and livelihood benefits](https://doi.org/10.1111/gcb.15498). *Global Change Biology* 27:1328-1348. (doi.org/10.1111/gcb.15498)

## APPENDIX 1

A selection of YFR Project Activities posted on Facebook.

<https://www.facebook.com/FOBThai>

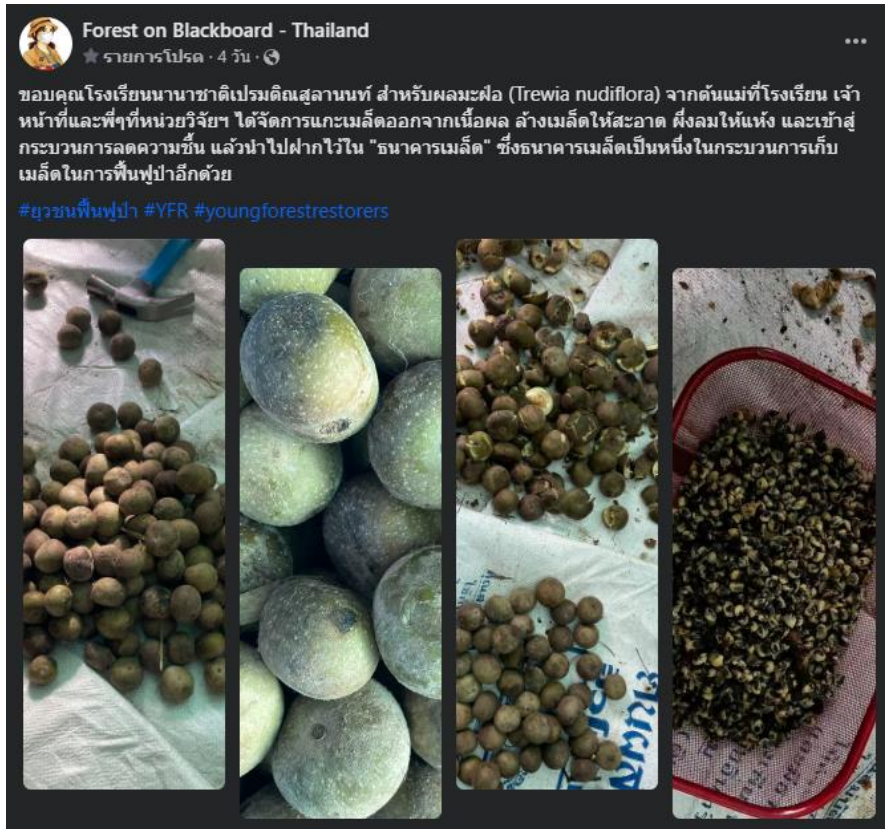




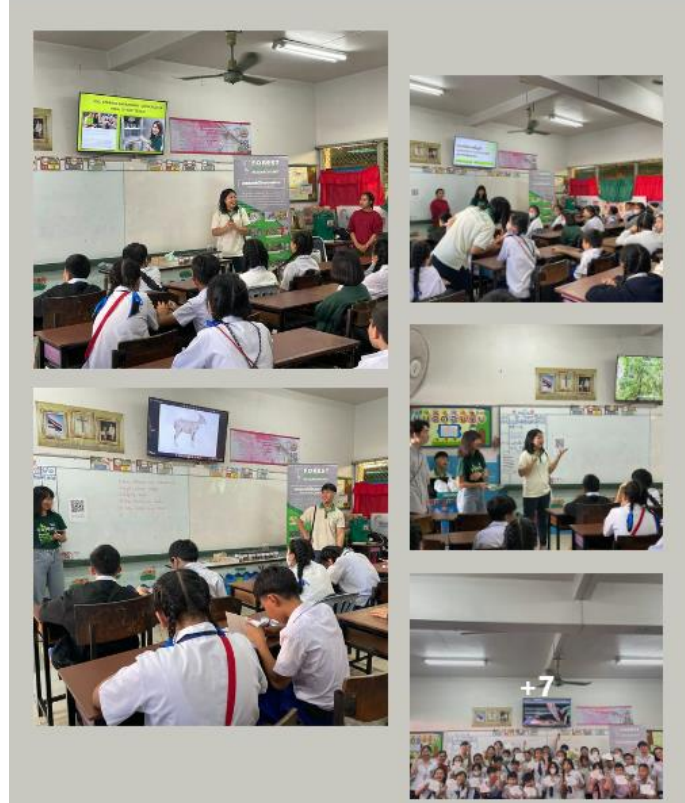




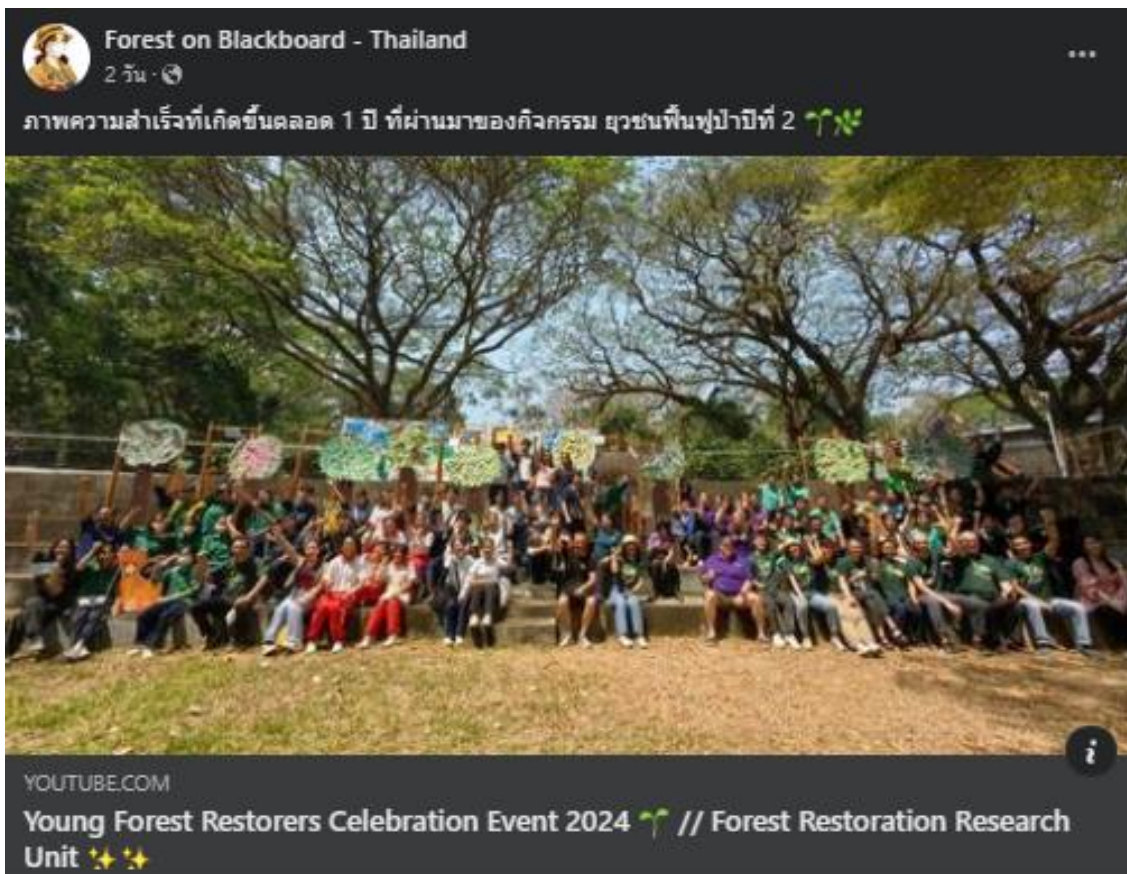
















Interim Report to KNCF March 2022 – YOUNG FOREST RESTORERS

YFR PROJECT - ONLINE PRESENCE			REACH		
DATE	POST TITLE	LINK	SHARED	LIKES	OTHER
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>	0	3	0
18-Apr-23	Fire prevention	<a href="https://www.facebook.com/FOBThai/posts/pfbid0qqclUtt9Yhja6317ookjEHpnjexcx3NQyh5E3j9kSkRpL6S2BDdkzFTG37upNbNXL">https://www.facebook.com/FOBThai/posts/pfbid0qqclUtt9Yhja6317ookjEHpnjexcx3NQyh5E3j9kSkRpL6S2BDdkzFTG37upNbNXL</a>	1	3	0
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>	3	7	0
18-Apr-23	YFR celebration	<a href="https://www.facebook.com/100064900021799/posts/626204402886222/">https://www.facebook.com/100064900021799/posts/626204402886222/</a>	1	2	0
18-Apr-23	YFR celebration vdo clip	<a href="https://fb.watch/nlKFh5sAuu/">https://fb.watch/nlKFh5sAuu/</a>	1	8	0
19-Apr-23	Share post from Nature Plearn Club :promote CNC activity	<a href="https://www.facebook.com/photo/?fbid=746475590401054&amp;set=pcb.746475757067704">https://www.facebook.com/photo/?fbid=746475590401054&amp;set=pcb.746475757067704</a>	0	4	0
19-Apr-23	Promote CNC Chiang Mai and register	<a href="https://www.facebook.com/photo/?fbid=626835449489784&amp;set=ca.450561523783845">https://www.facebook.com/photo/?fbid=626835449489784&amp;set=ca.450561523783845</a>	39	45	2
22-Apr-23	Share post from Nature Plearn Club :promote CNC activity	<a href="https://www.facebook.com/NaturePlayandLearnClub/videos/608906057945070">https://www.facebook.com/NaturePlayandLearnClub/videos/608906057945070</a>	0	2	0
27-Apr-23	Share post from Nature Plearn Club :promote CNC activity	<a href="https://www.facebook.com/photo/?fbid=753443053037641&amp;set=ca.743275477387732">https://www.facebook.com/photo/?fbid=753443053037641&amp;set=ca.743275477387732</a>	2	6	0
27-Apr-23	Promote CNC Chiang Mai 1st day	<a href="https://www.facebook.com/photo/?fbid=632251882281474&amp;set=ca.450561523783845">https://www.facebook.com/photo/?fbid=632251882281474&amp;set=ca.450561523783845</a>	4	9	4
29-Apr-23	Promote CNC Chiang Mai 2nd day	<a href="https://www.facebook.com/photo/?fbid=632714948901834&amp;set=ca.450561523783845">https://www.facebook.com/photo/?fbid=632714948901834&amp;set=ca.450561523783845</a>	2	16	1
29-Apr-23	Summary and pictures from CNC 1st day activity	<a href="https://www.facebook.com/photo/?fbid=633121888861140&amp;set=pcb.633198398853489">https://www.facebook.com/photo/?fbid=633121888861140&amp;set=pcb.633198398853489</a>	8	24	1
30-Apr-23	Promote CNC Chiang Mai 3rd day	<a href="https://www.facebook.com/photo/?fbid=633413748831954&amp;set=ca.450561523783845">https://www.facebook.com/photo/?fbid=633413748831954&amp;set=ca.450561523783845</a>	2	6	9
30-Apr-23	Promote CNC Chiang Mai 4th day	<a href="https://www.facebook.com/photo/?fbid=633753872131275&amp;set=ca.450561523783845">https://www.facebook.com/photo/?fbid=633753872131275&amp;set=ca.450561523783845</a>	9	16	3
30-Apr-23	Summary and photo album CNC 2nd day activity	<a href="https://www.facebook.com/photo/?fbid=633831598790169&amp;set=pcb.633833582123304">https://www.facebook.com/photo/?fbid=633831598790169&amp;set=pcb.633833582123304</a>	6	13	1
2-May-23	Summary and photo album CNC 3rd day activity (Bird watching)	<a href="https://www.facebook.com/media/set/?vanity=FOBThai&amp;set=a.634944168678912">https://www.facebook.com/media/set/?vanity=FOBThai&amp;set=a.634944168678912</a>	7	30	0
2-May-23	Summary and photo album CNC 3rd day activity (aquatic insects)	<a href="https://www.facebook.com/media/set/?vanity=FOBThai&amp;set=a.634966322010030">https://www.facebook.com/media/set/?vanity=FOBThai&amp;set=a.634966322010030</a>	1	11	0
3-May-23	Summary and photo album CNC 4th day activity	<a href="https://www.facebook.com/media/set/?vanity=FOBThai&amp;set=a.635380795301916">https://www.facebook.com/media/set/?vanity=FOBThai&amp;set=a.635380795301916</a>	5	24	3
3-May-23	Share post from The VCS Eco Active Club (CNC activity)	<a href="https://www.facebook.com/photo/?fbid=205592298923520&amp;set=pcb.205592455590171">https://www.facebook.com/photo/?fbid=205592298923520&amp;set=pcb.205592455590171</a>	1	9	0
4-May-23	Share post from forest restoration research unit : droning YFR plot and announcement about replanting	<a href="https://www.facebook.com/100063803192495/videos/pcb.680612114075556/950779342777123">https://www.facebook.com/100063803192495/videos/pcb.680612114075556/950779342777123</a>	0	1	0
4-May-23	Share post from The VCS Eco Active Club (CNC activity)	<a href="https://www.facebook.com/permalink.php?story_fbid=pfbid05pvcadG4mh5RoZCnnL4G5iBk5xRdIeFH7HF64rAPqsfAT8RMATfMxUQTn7l&amp;id=100084182524605">https://www.facebook.com/permalink.php?story_fbid=pfbid05pvcadG4mh5RoZCnnL4G5iBk5xRdIeFH7HF64rAPqsfAT8RMATfMxUQTn7l&amp;id=100084182524605</a>	0	8	0
4-May-23	Vdo clip : YFR plot	<a href="https://www.facebook.com/FOBThai/videos/64214057741782">https://www.facebook.com/FOBThai/videos/64214057741782</a>	0	1	0
5-May-23	CNC activity	<a href="https://www.facebook.com/photo/?fbid=636800265159969&amp;set=ca.450561523783845">https://www.facebook.com/photo/?fbid=636800265159969&amp;set=ca.450561523783845</a>	3	8	0
20-May-23	CNC activity	<a href="https://www.facebook.com/photo/?fbid=645943520912310&amp;set=ca.450561523783845">https://www.facebook.com/photo/?fbid=645943520912310&amp;set=ca.450561523783845</a>	3	9	0
20-May-23	Share post from Nature Plearn Club :summary CNC activity	<a href="https://www.facebook.com/photo/?fbid=768241324891147&amp;set=ca.743275477387732">https://www.facebook.com/photo/?fbid=768241324891147&amp;set=ca.743275477387732</a>	0	11	0
27-May-23	Share post from GYBN Thailand: reflect city nature challenge 2023, results in Thailand	<a href="https://www.facebook.com/gybnthailand/videos/163800623126857">https://www.facebook.com/gybnthailand/videos/163800623126857</a>	0	2	0
30-May-23	YFR big planting day	<a href="https://www.facebook.com/photo/?fbid=699801455489955&amp;set=pcb.699802485489852">https://www.facebook.com/photo/?fbid=699801455489955&amp;set=pcb.699802485489852</a>	0	9	0
6-Jun-23	Share post from The VCS Eco Active Club (YFR experience)	<a href="https://www.facebook.com/photo/?fbid=225741530241930&amp;set=pcb.225742293575187">https://www.facebook.com/photo/?fbid=225741530241930&amp;set=pcb.225742293575187</a>	0	2	0
18-Jun-23	Share post from The VCS Eco Active Club (YFR big planting day)	<a href="https://www.facebook.com/photo/?fbid=232655662883850&amp;set=pcb.232655769550506">https://www.facebook.com/photo/?fbid=232655662883850&amp;set=pcb.232655769550506</a>	0	7	0
27-Jun-23	YFR big planting day	<a href="https://www.facebook.com/photo/?fbid=719393066864127&amp;set=pcb.719393680197399">https://www.facebook.com/photo/?fbid=719393066864127&amp;set=pcb.719393680197399</a>	0	3	0
20-Jul-23	Green globe award	<a href="https://www.facebook.com/FOBThai/posts/pfbid0U7KQPE5w3on3Z7s1NVENCrEhVcavhVHqV8s5HVYRiDskcSiPF7m38yC6T4g8CII">https://www.facebook.com/FOBThai/posts/pfbid0U7KQPE5w3on3Z7s1NVENCrEhVcavhVHqV8s5HVYRiDskcSiPF7m38yC6T4g8CII</a>	12	40	0
25-Jul-23	Share post from RIF : plot preparation	<a href="https://www.facebook.com/raiajpruekfoundation/posts/pfbid02tuzE9DcpgsSImj689E7Ve3GnD3HxeVfmdtqihGileXU1AZNayQFKmmdhax6e15l">https://www.facebook.com/raiajpruekfoundation/posts/pfbid02tuzE9DcpgsSImj689E7Ve3GnD3HxeVfmdtqihGileXU1AZNayQFKmmdhax6e15l</a>	0	9	0
25-Jul-23	Share post form IUFR0	<a href="https://www.facebook.com/iufru/posts/pfbid02L3F2DnitWkrzRUzz7QDzPuzYBZURVEVScAq6aQ2voAYZH352o99RgtVzUjzai">https://www.facebook.com/iufru/posts/pfbid02L3F2DnitWkrzRUzz7QDzPuzYBZURVEVScAq6aQ2voAYZH352o99RgtVzUjzai</a>	3	3	0
9-Sep-23	2nd plot maintenance	<a href="https://www.facebook.com/FOBThai/posts/pfbid0VLCbpmFqSaxXWJdhyXgiBoHvRpnY1G5veVhYr2A8x4mk8S6evhYCoZnSYKINZUol">https://www.facebook.com/FOBThai/posts/pfbid0VLCbpmFqSaxXWJdhyXgiBoHvRpnY1G5veVhYr2A8x4mk8S6evhYCoZnSYKINZUol</a>	4	16	0
9-Sep-23	Science week at Biology department	<a href="https://www.facebook.com/FOBThai/posts/pfbid02GszHJWwYV1Mbk87Rsc83vU9lhm7fx3mPnWuhtD5s2UnaThfUjHokH4kUwe7zbyl">https://www.facebook.com/FOBThai/posts/pfbid02GszHJWwYV1Mbk87Rsc83vU9lhm7fx3mPnWuhtD5s2UnaThfUjHokH4kUwe7zbyl</a>	6	12	0
6-Oct-23	Seed collection at Doi suthep	<a href="https://www.facebook.com/FOBThai/posts/pfbid0FWiGib18d1pbguYEq8KDCJhb3zuo1VCImD9cs318neCnDwdTRetJagm5zrz5Ab9al">https://www.facebook.com/FOBThai/posts/pfbid0FWiGib18d1pbguYEq8KDCJhb3zuo1VCImD9cs318neCnDwdTRetJagm5zrz5Ab9al</a>	5	20	0
6-Oct-23	Seed preparation and seed bank	<a href="https://www.facebook.com/FOBThai/posts/pfbid017eWVnZ3prx83DwHfJAqzARMYJ5KCUzI6RNIbYGNAt4RHCPtwel2XchUHe1E3gl">https://www.facebook.com/FOBThai/posts/pfbid017eWVnZ3prx83DwHfJAqzARMYJ5KCUzI6RNIbYGNAt4RHCPtwel2XchUHe1E3gl</a>	1	10	3
6-Oct-23	Phenology study at Kawela school	<a href="https://www.facebook.com/FOBThai/posts/pfbid02auBUJlYuuVp7M4t4CowqgRB9rtwDvoL3heX18WIMZvm5i11UaVn3LbmpxxeLL">https://www.facebook.com/FOBThai/posts/pfbid02auBUJlYuuVp7M4t4CowqgRB9rtwDvoL3heX18WIMZvm5i11UaVn3LbmpxxeLL</a>	0	6	0
6-Oct-23	Seed germination and seedling potting at Kewela school	<a href="https://www.facebook.com/FOBThai/posts/pfbid02XppJF5XIQEYER4ivkxniBflpYrT6CfSpnHWsMan4o4u4j1k11eKDwtLD7Dv9NZl">https://www.facebook.com/FOBThai/posts/pfbid02XppJF5XIQEYER4ivkxniBflpYrT6CfSpnHWsMan4o4u4j1k11eKDwtLD7Dv9NZl</a>	0	7	0
6-Oct-23	YFR open day	<a href="https://www.facebook.com/FOBThai/posts/pfbid02kwsdxGNeveQrimrx33WuWniUVYkH9Q2rmzUnGvNRe3BgeiGbuXkC335QlJkka382l">https://www.facebook.com/FOBThai/posts/pfbid02kwsdxGNeveQrimrx33WuWniUVYkH9Q2rmzUnGvNRe3BgeiGbuXkC335QlJkka382l</a>	0	10	0
16-Oct-23	VDO clip : YFR plot maintenance	<a href="https://www.facebook.com/watch/?v=3164809063824157">https://www.facebook.com/watch/?v=3164809063824157</a>	2	3	0

Interim Report to KNCF March 2022 – YOUNG FOREST RESTORERS

YFR PROJECT - ONLINE PRESENCE			REACH		
DATE	POST TITLE	LINK	SHARED	LIKE	OTHER
2-Nov-23	Share post from forest restoration research unit : Volunteer event.	Facebook	0	3	0
19-Nov-23	Share post from NatureMind-ED : Recruiting participants for conservation camps.	<a href="https://www.facebook.com/atNatureMindED/posts/pfbid02Tb3nUnk6xkjoQqNes47L4BznT3xCdgTr6eXxrvHxiu9RMyyqqS2BsBKjdcCICMZ3sl">https://www.facebook.com/atNatureMindED/posts/pfbid02Tb3nUnk6xkjoQqNes47L4BznT3xCdgTr6eXxrvHxiu9RMyyqqS2BsBKjdcCICMZ3sl</a>	1	4	0
7-Dec-23	Volunteer event for monitoring YFR plot.	<a href="https://www.facebook.com/FOBThai/posts/pfbid02ccVZhQpzUzrYNKZY64hwbAaNcfhZsefJbkQy2nR9kfNAQnaADXYisRAJw6LPQLKl">https://www.facebook.com/FOBThai/posts/pfbid02ccVZhQpzUzrYNKZY64hwbAaNcfhZsefJbkQy2nR9kfNAQnaADXYisRAJw6LPQLKl</a>	0	10	0
7-Dec-23	Share post from Darawittayalai School FB post : Nursery skills training .	<a href="https://www.facebook.com/pagedara/posts/pfbid0377pnYN7yDsbKVA2ooGPPep1foPoYSEKfG5hVqKtNeVaEic6VFzGaiZUkj1YdI">https://www.facebook.com/pagedara/posts/pfbid0377pnYN7yDsbKVA2ooGPPep1foPoYSEKfG5hVqKtNeVaEic6VFzGaiZUkj1YdI</a>	0	8	0
11-Dec-23	The event at CMC will focus on "Education for Citizenship."	<a href="https://www.facebook.com/FOBThai/posts/pfbid0268i4obJ17hzi3KK4EZGyhswnsFcCT7HkgGWNWeQE2opM6Tv2Tso1zE5cxyJaFzkl">https://www.facebook.com/FOBThai/posts/pfbid0268i4obJ17hzi3KK4EZGyhswnsFcCT7HkgGWNWeQE2opM6Tv2Tso1zE5cxyJaFzkl</a>	2	7	0
13-Dec-23	Share post from forest restoration research unit : Volunteer event.	<a href="https://www.facebook.com/forestrestorationresearchunit/posts/pfbid02nmMseUd6EeKbchsCMz7eu6mErCYWV95iMmRRvdRP6PoH9KvnbfcacFDyfs9DL3JkGI">https://www.facebook.com/forestrestorationresearchunit/posts/pfbid02nmMseUd6EeKbchsCMz7eu6mErCYWV95iMmRRvdRP6PoH9KvnbfcacFDyfs9DL3JkGI</a>	0	1	0
16-Dec-23	Share post from GODJI : Recruiting participants to write articles to compete for prizes at Green Globe.	<a href="https://www.facebook.com/GodjiOfficial/posts/pfbid0EBfmcRNYbAeaiqTJvoHW36e5Abd7vrFtpTHsiho8SFXQ7uKtrJq7GNoJz1wMeal">https://www.facebook.com/GodjiOfficial/posts/pfbid0EBfmcRNYbAeaiqTJvoHW36e5Abd7vrFtpTHsiho8SFXQ7uKtrJq7GNoJz1wMeal</a>	0	2	0
18-Dec-23	Share post from news.yahoo.com : Drone help solve forest carbon capture riddle	<a href="https://l.facebook.com/l.php?u=https%3A%2F%2Fnews.yahoo.com%2Fdrone-help-solve-forest-carbon-060159662.html%3Ffr%3Dsyrcsrp_catchall&amp;h=AT0fGE3k8ktHuE1iQ-rB4lyXxh8pemLBDkHep-RmYjqXVUu8I-ABioxf-vf9Zc74ilQUR2rdsGU8rg42lxekyXyb4bUzVRhYgnrw9FpUrH-fA1226h4JmZq9fK0y9-9pxm6&amp;s=1">https://l.facebook.com/l.php?u=https%3A%2F%2Fnews.yahoo.com%2Fdrone-help-solve-forest-carbon-060159662.html%3Ffr%3Dsyrcsrp_catchall&amp;h=AT0fGE3k8ktHuE1iQ-rB4lyXxh8pemLBDkHep-RmYjqXVUu8I-ABioxf-vf9Zc74ilQUR2rdsGU8rg42lxekyXyb4bUzVRhYgnrw9FpUrH-fA1226h4JmZq9fK0y9-9pxm6&amp;s=1</a>	0	3	0
5-Jan-24	Establishing a nursery and providing nursery skills training.	<a href="https://www.facebook.com/FOBThai/posts/pfbid08nhMTp1VPbF4">https://www.facebook.com/FOBThai/posts/pfbid08nhMTp1VPbF4</a>	2	8	0
19-Feb-23	Seed collection with Varee School.	<a href="https://www.facebook.com/FOBThai/posts/pfbid0N2LKm8QF4XrWnNVmd1WS3qS28g9ErcrjZm5xiKhQLFXFHuYRX6jhYHUFGRAAPMgMI">https://www.facebook.com/FOBThai/posts/pfbid0N2LKm8QF4XrWnNVmd1WS3qS28g9ErcrjZm5xiKhQLFXFHuYRX6jhYHUFGRAAPMgMI</a>	3	6	0
26-Feb-23	Share VDO from FOREST RESTORATION RESEARCH UNIT CMU chanel. : New MOOC course.	<a href="https://l.facebook.com/l.php?u=https%3A%2F%2Fyoutu.be%2FNuDKqVBijHE%3Fsi%3DCHdRP83pM0yloSdT&amp;h=AT2GogrEVqkCp1tLdejODWya_h19pTSB7wGWwOKccbFdTDAq5zeghaG4FgJglojUxx_Oe5G6B0V_BUvGiszzkAQn8Mqqy1UoIbaFLaaqtVYpuzokMkGMqfa0trhsdxpIY&amp;s=1">https://l.facebook.com/l.php?u=https%3A%2F%2Fyoutu.be%2FNuDKqVBijHE%3Fsi%3DCHdRP83pM0yloSdT&amp;h=AT2GogrEVqkCp1tLdejODWya_h19pTSB7wGWwOKccbFdTDAq5zeghaG4FgJglojUxx_Oe5G6B0V_BUvGiszzkAQn8Mqqy1UoIbaFLaaqtVYpuzokMkGMqfa0trhsdxpIY&amp;s=1</a>	0	8	0
7-Mar-23	fire burning around Chiang Mai	<a href="https://www.facebook.com/FOBThai/posts/pfbid023qoPNBRP8UNpHXQ7epg7xsJmfudAMgTL9JtuPtegiXZmQzuR2UJ7iuUZifv42yl">https://www.facebook.com/FOBThai/posts/pfbid023qoPNBRP8UNpHXQ7epg7xsJmfudAMgTL9JtuPtegiXZmQzuR2UJ7iuUZifv42yl</a>	1	4	0
9-Mar-23	Share post from The VCS Eco Active Club : YFR Forest Celebration Event Year2	<a href="https://www.facebook.com/permalink.php?story_fbid=pfbid02weAptLYGjpnhkWbNfyR8qwdtUvh7wNVUzkNTRJFSAmQCbcQsZA9feUjTUbaAHKnI&amp;id=100084182524605">https://www.facebook.com/permalink.php?story_fbid=pfbid02weAptLYGjpnhkWbNfyR8qwdtUvh7wNVUzkNTRJFSAmQCbcQsZA9feUjTUbaAHKnI&amp;id=100084182524605</a>	0	5	1
9-Mar-23	Share post from Chiang Mai International School : Establishing a nursery and providing nursery skills training.	<a href="https://www.facebook.com/cmis.th/posts/pfbid02U42L2rASGbp34wG74p53BLW56yyUf8DiopUFXUbyEknAh23Xd5tMPqD8LAhbRgSxl">https://www.facebook.com/cmis.th/posts/pfbid02U42L2rASGbp34wG74p53BLW56yyUf8DiopUFXUbyEknAh23Xd5tMPqD8LAhbRgSxl</a>	0	2	0
9-Mar-23	Share post from Forru CMU : YFR Forest Celebration Event Year2	<a href="https://www.facebook.com/forru.cmu.th/posts/pfbid0mMshwqzQ5QzrvTLCeUHCsq6ZpJ4iY4UWFLsQpRidgmaRBgsiogokC2unxuJNZrl">https://www.facebook.com/forru.cmu.th/posts/pfbid0mMshwqzQ5QzrvTLCeUHCsq6ZpJ4iY4UWFLsQpRidgmaRBgsiogokC2unxuJNZrl</a>	0	0	0
9-Mar-23	YFR Forest Celebration Event Year2 - the Performances	<a href="https://www.facebook.com/FOBThai/posts/pfbid02EGH5kiEqpMjXZMnFRplqmwBxR1HbU5uSPfBe7n41m4t57Z8sh4hpuaoyoZcsvd7Pyl">https://www.facebook.com/FOBThai/posts/pfbid02EGH5kiEqpMjXZMnFRplqmwBxR1HbU5uSPfBe7n41m4t57Z8sh4hpuaoyoZcsvd7Pyl</a>	1	12	0
9-Mar-23	YFR Forest Celebration Event Year2 - YFR School with booths	<a href="https://www.facebook.com/FOBThai/posts/pfbid031nm4e3rsn7g52ZmVzUf6U5B7XiqGohrFQ7phxzDtMtsGg1SURAwo5dWt4BRxizl">https://www.facebook.com/FOBThai/posts/pfbid031nm4e3rsn7g52ZmVzUf6U5B7XiqGohrFQ7phxzDtMtsGg1SURAwo5dWt4BRxizl</a>	1	8	0
11-Mar-23	MSC SCHOLARSHIP RESTORATION GENETICS WITH FORRU-CMU AND RBG KEW	<a href="https://www.facebook.com/FOBThai/posts/pfbid0rrfk5pJd2L4UGwAnCT8j3GKcdeZKynG9CnpqwkVjPTMTsvUK9pM9ZXXkujawXLNAI">https://www.facebook.com/FOBThai/posts/pfbid0rrfk5pJd2L4UGwAnCT8j3GKcdeZKynG9CnpqwkVjPTMTsvUK9pM9ZXXkujawXLNAI</a>	0	0	0
27-Mar-23	Share VDO from FOREST RESTORATION RESEARCH UNIT CMU chanel. : YFR Forest Celebration Event 2024.	<a href="https://l.facebook.com/l.php?u=https%3A%2F%2Fyoutu.be%2FwylVHUB8Amc%3Fsi%3D6FNuHlar1uYFo2l&amp;h=AT1Yi0noQNd-">https://l.facebook.com/l.php?u=https%3A%2F%2Fyoutu.be%2FwylVHUB8Amc%3Fsi%3D6FNuHlar1uYFo2l&amp;h=AT1Yi0noQNd-</a>	2	8	0

## APPENDIX 2 - Tree Planting Invite



### YOUNG FOREST RESTORERS (YFR) PROJECT RESTORATION TREE-PLANTING EVENT – HEAL A STORM-DAMAGED FOREST

Dear YFR School Directors and Teachers,

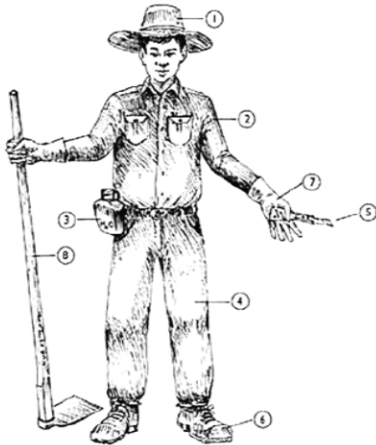
Last year some of you participated in planting trees at the Ban Pong Krai Pine Plantation in collaboration with the local Watershed Unit to transform an over-mature plantation into a natural evergreen forest. Unfortunately a powerful storm destroyed the site on March 18<sup>th</sup> and fire burnt some parts too. Although some of the planted trees survived, we need to replant most of the site to restore a natural forest ecosystem.

There will be two planting events on May 30<sup>th</sup> and June 17<sup>th</sup>.

Please let us know if a group from your school would like to join either these events.

#### Learning outcomes:

- 1) observe the impact of natural disasters on a forest ecosystem;
- 2) learn how to plant trees the right way;
- 3) learn what it takes to get planted trees to establish in a destroyed forest;
- 4) learn about the Framework Species Method of forest ecosystem restoration;
- 5) appreciate the need for perseverance in the face of setback.



The perfectly prepared planter, with (1) a hat for sun protection; (2) a long-sleeved shirt; (3) plenty of water to drink; (4) long trousers; (5) a box cutter for slashing open plastic bags; (6) strong boots; (7) gloves and (8) a hoe for digging the planting holes.

**When?** – May 30<sup>th</sup> or June 17<sup>th</sup> 2023 – assemble at site 09.00 am (sorry FORRU cannot provide transport).

**Where?** – Ban Pong Krai pine plantation: 18°55'6.39"N, 98°47'55.11"E. Google maps route: <https://maps.app.goo.gl/o2bFd49sr5esLzeNA>

**What to bring?** – boots or strong lace-up shoes, long trousers and long-sleeved shirt to protect from insect bites, hat, mask, sunscreen, protection from rain, mosquito repellent, gardening gloves, and a box cutter, plenty of water and snacks<sup>1</sup> and a first aid kit (because accidents can happen).

Likely finishing around midday. Lunch provided (if you can confirm number of people attending in your group and inform us of any food allergies etc. at least 5 days before).

Suitable for ages 14+ physically fit - Site is steep

Please email [forru.cmu@gmail.com](mailto:forru.cmu@gmail.com) to register and for further info or call 081 531 0894 (English) or 088 253 6438 (Thai).

Please see more details about the site in this [FACEBOOK POST](#) and the effects of the storm graphically illustrated in [this video](#).

<sup>1</sup> FORRU-CMU will provide some ... but just in case we run out, please bring some yourself

### APPENDIX 3 - Tree species seeds collected, germinated and deposited in the CMU seedbank in Y2

Species	Thai name	Family
<i>Choerospondias axillaris</i>	มะกัก	Anacardiaceae
<i>Milusa velutina</i>	ขางหัวหมู	Annonaceae
<i>Mesua ferrea</i>	ปุนภาค	Calophyllaceae
<i>Terminalia glaucifolia</i>	แทนนา	Combretaceae
<i>Diospyros glandulosa</i>	กล้วยถาซี	Ebenaceae
<i>Trewia nudiflora</i>	มะฝ่อ	Euphorbiaceae
<i>Cassia bakeriana</i>	กัลปพฤกษ์	Fabaceae
<i>Azelia xylocarpa</i>	มะค่าโมง	Fabaceae
<i>Cassia fistula</i>	ราชพฤกษ์	Fabaceae
<i>Cassia grandis</i>	กาพพฤกษ์	Fabaceae
<i>Dalbergia cultrate</i>	กระพี้เขาควาง	Leguminosae
<i>Ficus hispida</i>	มะเดื่อปล้อง	Moraceae
<i>Artocarpus lakoocha</i>	มะหาด	Moraceae
<i>Artocarpus gomezianus</i>	หาดหนูน	Moraceae
<i>Antidesma bunius</i>	มะเมาดง	Phyllanthaceae
<i>Podocarpus neriifolius</i>	พญาไม้	Podocarpaceae
<i>Prunus cerasoides</i>	นางพญาเสือโคร่ง	Rosaceae
<i>Gardenia sootepensis</i>	คำมอกหลวง	Rubiaceae
<i>Holoptelea integrifolia</i>	กระเขา	Ulmaceae

## APPENDIX 4 - YFR FOREST CELEBRATION - MARCH 9<sup>TH</sup> 2024 SCHEDULE AND ATTENDANCE

<b>YOUNG FOREST RESTORERS- FOREST CELEBRATION</b>			
Saturday March 9th 2024 DOI SUTHEP NATURE STUDY CENTRE			
TIME	ACTIVITY	LOCATION	Time
8:30	Registration	Lobby	
	Set up booths (7)	Main Hall	
	<b>Opening</b>	"	
9:00	Welcome speech and YFR background	"	10m
	YFR - a year to celebrate (video)	"	5 min
	Progress with tree-planting	"	5 min
	FOB	"	5 min
	<b>School performances</b>	"	
9:25	Dara Academy	"	15 min
9:40	Doi Saket Wittayakom School	"	15 min
9:55	Kawila Wittayalai School	"	15 min
<b>10:10</b>	<b>Coffee Break</b>	<b>Main Hall</b>	10 min
	Browse the booths	Main Hall	15 min
	<b>Activity Stations</b>		
	Game : Forest Charades (Station 1)	Main Hall	15 min
10:20	Learn : How to make an herbarium plant specimen (Station 2)	Main Hall	15 min
	Learn : How to monitor forest restoration with drones (Station 3)	Amphitheatre	15 min
	Game : Seed matching (and visit the YFR seed bank) (Station 4)	Nursery	15 min
11:40	<b>Collaborative art project : Create a "forest of the imagination"</b>	Amphitheatre	30 min
12:15	Group Photo	Amphitheatre	
<b>12:30</b>	<b>Relax with Lunch</b>	<b>Main Hall</b>	

	School List	Number of Student	Number of Teacher
Y1	Prem Tinsulanonda International School	2	4
	Varee Chiangmai School (Thai)	11	2
	Christian German School Chiang Mai	8	2
	Yupparaj Wittayalai School	4	1
Y2	Dara Academy	8	2
	Kawila Wittayalai School	8	2
	Doi Saket Wittayakom School	9	1
	Chiang Mai International School	6	3
Y3	Chiang Mai Christian School	5	2
	Mae Ho Pra School	8	2