The Third Regional Training on Forest Genetic Resources: Spatial approaches for assessing the status and trends of native tree species

10-15 October, 2018

Binzhou City, Shandong, China

Organized by

National Forest Genetic Resource Platform of China
Research Institute of Forestry, Chinese Academy of Forestry
Bioversity International
Asia Pacific Forest Genetic Resources Programme
National University of Colombia
APAFRI
China Happy Ecology Industrial Co., Ltd.

Sponsor:

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Government of the Federal Republic of Germany

Introduction

Thousands of ecologically and socio-economically important tree species in Asia are threatened, yet very little information is available on their historical and current distribution, patterns of genetic diversity, intensity of threats across their distribution ranges, or availability of seed sources to support restoration. Effective conservation strategies for these species and their genetic resources cannot be identified without improving knowledge on the species' distributions and the threats they are facing. Improving the availability of, and access to, information on forest genetic resources is the first and foundational Priority Area in the *Global Plan of Action on Forest Genetic Resources* by the *United Nations Food and Agriculture Organization* (FAO, 2013).

This training is aimed at strengthening technical skills in assessing the status and trends of native tree species in Asia-Pacific countries. The training uses tools developed to help implement the *International Treaty on Plant Genetic Resources for Food and Agriculture*. The Treaty encourages countries to "Survey and inventory plant genetic resources for food and agriculture, taking into account the status and degree of variation in existing populations, including those that are of potential use and, as feasible, assess any threats to them" (FAO 2009, article 5.1).

Vast majority of the species included in the International Treaty are annual crops, and they have benefited from numerous research efforts stimulated by the Treaty. Similar initiatives are lacking for tropical tree species, despite of their socio-economic importance, threatened status, and roles in mitigating climate change and restoring degraded landscapes and ecosystem functions. However, the available technical tools for mapping species distributions and threats are equally suitable for trees, and can importantly support national efforts to survey and inventory forest genetic resources.

The tools used in this training were developed as part of a Program *to Strengthen Capabilities in National Plant Genetic Resources Programs in Latin America (CAPFITOGEN)*. The main objective of the CAPFITOGEN Program is to develop and transfer practical tools for ecogeographical studies in biodiversity-rich countries. The tools have been widely adopted and used in regional and national trainings. The training is led by Mauricio Parra of National University of Colombia, who has developed the original tools and conducted numerous trainings for FAO and national partners.

Training topics

The course will cover the following topics and tools:

- Introduction: uses of spatial approaches in ecogeographic studies
- Cleaning and quality check of species occurrence data
- Identification of the most important and complementary variables for ecogeographic land characterization maps and species distribution modeling
- Ecogeographic zoning to assist in identification of seed transfer zones, under current and future conditions
- Complementarity analysis of ecogeographic diversity captured within protected areas (demonstration)
- Species distribution modeling under current and future conditions (demonstration)

For more information see: http://www.capfitogen.net/en/

Participants

This course is aimed at forest managers, researchers, research technicians and conservation practitioners from South, East and Southeast Asian countries. Relevant areas of work include forest inventories, studies of species distribution and conservation planning.

The course includes many hands-on exercises using GIS software. Participants should have at least basic experience with GIS and Office software (Excel), to allow them to follow the course and experiment with the different tools. Although CAPFITOGEN tools run on R software, skills in R language is not required. CAPFITOGEN tools will be installed in the user's laptop PC (only Windows environment), therefore each attendant must bring their own laptops. After the course, it is expected that participants will share information about the tools with colleagues or students in their home institutions or beyond.

Training language

The training will be conducted in English. Participants need to be sufficiently fluent in English to read course materials and participate in group discussions in English.

Venue

The course will be held in Binzhou, Shandong Province, China. Transportation will be arranged from and to Beijing on 9 and 16 October, respectively.

Cost

The course is free of charge for 15 selected, fully-funded participants. The organizers will cover travel to and from the training venue, accommodation costs and meals for these participants.

In addition, 5-10 partially funded or self-funded participants will be invited to the course:

- Partially funded participants: The course is free of charge and the organizers will cover accommodation costs, meals and transportation during the course. Participants are responsible for covering and arranging their international travel
- Self-funding participants: The course fee is 3000 RMB and covers tuition and training materials, accommodation costs, meals and transportation during the course. Participants are responsible for covering and arranging their international travel.

Application process

To apply to the course,

1. Please complete the online application form at: https://www.surveymonkey.com/r/3rd-FGR-training-course, and
2. Email your CV to Dr. HUANG Ping (pippin09@163.com)

Online applications are encouraged, but in case of technical difficulties, candidates may also request for a .doc application form and email it along with their CV.

Applications must be made no later than 12 August 2018.
Selected participants will be notified by 3 September 2018.

Selection criteria

A total of thirty participants will be selected based on the quality of their application and the extent to which they meet the following criteria:

- Ability to directly apply the lessons and tools from the course to own work on species inventories or conservation planning
- At least basic experience with GIS software
- Ability and interest to share lessons learned with colleagues or students

Additional considerations in selection include:

- Applicants from the member countries of the Asia Pacific Forest Genetic Resources Programme APFORGEN will be given preference (Cambodia, China, India, Indonesia, Republic of Korea, Lao PDR, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam)
- Selection will aim at a geographical balance between APFORGEN member countries, to have at least 2 representatives from each country
- Applicants who actively participate in the regional project *APFORGIS – Establishing an Information System for conserving native tree species and their genetic resources in Asia-Pacific* will be given preference among otherwise equal candidates. For more information on the project, please see http://www.apforgen.org/activities/apforgis/
- Women are encouraged to apply and gender balance will be considered in selection

Partially funded and self-funded participants apply under a separate quota from fully-funded participants, and may not be required to fully meet the above criteria, depending on the number of applications.

Contact information

Chair of the Organizing Committee:
Prof. ZHENG Yongqi (zyq8565@126.com)

Registration, logistics and inquiries:
Dr. HUANG Ping (pippin09@163.com)
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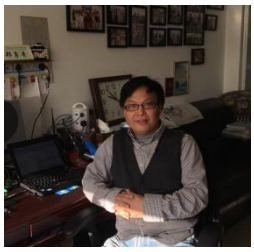
Trainers:

Mauricio Parra Quijano, Faculty of Agricultural Sciences, National University of Colombia - Bogota

Mauricio is a Colombian Agricultural Engineer, specialized in Plant Genetic Resources, MSc in genetics and plant breeding and PhD in Biotechnology and Plant Genetic Resources. His research topics have been spatial adaptation analysis applied to efficient strategies for agrobiodiversity conservation and utilization, crop wild relatives and neglected and underutilized plant species. Mauricio has been teaching in Spanish and Colombian universities, coordinating capacity building and technology transfer programs for FAO and ITPGRFA, working as a consultant for Bioversity international and other national agriculture institutions. He has offered 14 CAPFITOGEN training workshops in 13 different countries, training about 320 technicians from 33 different nationalities.

Hannes Gaisberger, Bioversity International, Italy

Hannes Gaisberger, an Austrian national, is GIS Specialist at Bioversity International since 2009. He has worked on the development and data integration of Bioversity's Collecting Mission database representing the geo-referenced germplasm samples collected over the last 35 years by the institute. He also carried out the spatial analysis of genetic data and climatic variables to define conservation priorities for *Prunus africana.* Currently he is working on multiple projects including ecological niche and climate modeling, threat mapping, georeferencing, spatial analysis of genetic data and other GIS related activities.



Yongqi Zheng, Research Institute of Forestry, Chinese Academy of Forestry

Yongqi is Research Professor, Principal Scientist and Director of Forest Genetic Resources at the Chinese Academy of Forestry, and Adjunct Professor at Nanjing Forestry University. He is also the Program manager of China's National Forest Genetic Resources Platform and project leader of the national priority research projects "Key Technologies for Conservation and Sustainable Utilization of FGR" and "Exploration and innovative use of critical genes from FGR". He is also supervising MSc and PhD students working on genetic conservation projects and teaching population genetics at the Graduate School of Chinese Academy of Forestry. He is also advisor to government agencies and forestry industries on issues related to forest genetic resources and tree breeding.

Christopher Kettle, Bioversity International, Italy, and ETH Zurich

An ecologist and geneticist, Christopher Kettle specializes in tropical forest trees, their reproductive ecology and the importance of forest genetic resources for resilient landscapes. Since August 2017, Christopher is leading Bioversity International's cross-cutting research team working on conservation and sustainable use of socio–economically and ecologically important trees and their genetic diversity. He holds a joint appointment and is also Group Leader in Applied Molecular Ecology, in the Department of Environmental System Science, ETH Zurich, Switzerland. He leads research programmes across the tropics, and the Safeguarding Forest Genetic Resources Cluster of CGIAR's Research Program on Forests, Trees and Agroforestry.

Programme

Tuesday, 9 October 2018
Arrivals
Transportation to Binzhou from Beijing

Wednesday, 10 October 2018

08:30	*Registration*
09:30	Opening, Welcome and participant introductions *Zheng Yongqi, Chinese Academy of Forestry*
10:15	Global Plan of Action on Forest Genetic Resources *Chris Kettle, Bioversity International*
10:30	*Tea break*
11:00	Introduction: Origin and structure of CAPFITOGEN tools *Mauricio Parra Quijano, National University of Colombia*
11:30	Introduction: Basis of the application of ecogeography in plant genetic resources
12:15	Practical session 1a: Installation of CAPFITOGEN tools and related data. Solving installation issues.
13:00	*Lunch*
14:00	Practical session 1b: Installation of CAPFITOGEN tools and related data. Solving installation issues.
15:30	*Tea break*
16:00	Asia Pacific Forest Genetic Resources Programme *Zheng Yongqi, Chinese Academy of Forestry*
16:30	APFORGIS - Establishing an Information System for conserving native tree species and their genetic resources in Asia-Pacific *Hannes Gaisberger, Bioversity International*
17:30	Closing day 1
18:30	Welcome Dinner

Thursday, 11 October 2018

09:00	Practical session 2: Review of type of data required for the tools selected for practical sessions
10:00	Practical session 3: Testing CAPFITOGEN tools connection and user's tables through TesTable tool
11:00	*Tea break*
11:30	GEOQUAL, the tool for assess the geo-referencing quality on species presence data.
12:30	Practical session 3: Using GEOQUAL tool
13:15	*Lunch*
14:15	SelecVar, the tool for selecting the most important environmental variables for species adaptation.
15:15	Practical session 4a: Using SelecVar tool for the study case
16:00	*Tea break*
16:30	Practical session 4b: Using SelecVar tool for the study case
17:30	Announcements and closing of day 2

Friday, 12 October 2018

09:00	Principles of Ecogeographic Land Characterization Maps (ELC maps) as a zoning strategy
09:30	ELCmapas, the tool to create ELC maps for present conditions
10:00	Practical session 5: Using ELCmapas tool
10:30	*Tea break*
11:00	Practical session 5: Using ELCmapas tool
12:00	Seed Transfer Zones concept and its application in a climate change
12:30	*Lunch*
14:00	Tzones, the tool for Seed Transfer Zones for future conditions
14:40	Practical session 6: Using Tzones tool
15:30	*Tea break*
16:00	Roundtable discussion: Applications of spatial analyses for species conservation and restoration
17:30	Announcements and closing of day 3

Saturday, 13 October 2018

09:00	Practical session 6: Using Tzones tool
11:00	*Tea break*
11:00	Complementarity analysis of species richness
13:00	*Lunch*
14:00	Demonstration of Complementa and Modela tools
14:40	Demonstration of Modela (species model distribution) tool
15:30	*Tea break*
16:00	Roundtable discussion: future training needs and collaboration opportunities
17:30	Announcements and closing of day 4

Sunday, 14 October 2018

8:30-16:00	Field visit
18:00	Closing Banquet including presentation of certificates to participants

Monday, 15 October 2018
Transport to Beijing
Departures

Organizers gratefully acknowledge the generosity and support of China Happy Ecology Industrial Co., Ltd. for the training programme