Double Helix sampling training

Yangon, Myanmar February 1-4 2016

Double Helix Tracking Technologies, together with University of Adelaide worked to:

- Identify local partners for field work collaborate and oversee the collection of reference samples required for development of genetic markers.
- With local partner Ecosystem conservation and Community Development initiative (ECCDI) collect samples matching sawn wood and cambium samples from 30 individuals and cambium samples from 10 teak populations totalling a minimum 190 samples.

Collected samples were subject to two different genetic development outputs

- Individual assignment and chain of custody verification proof of concept
- The development of population based DNA markers

ECCDI was approached and contracted as a local on-the-ground partner. ECCDI have the experience and connections required to gain access to teak populations for sample collection. DoubleHelix trained ECCDI staff in sampling according to well established and proven DoubleHelix sampling procedures. These procedures are designed to ensure

- Samples are properly collected and remain in good condition
- Strong sample chain of custody and process documentation is maintained
- Relevant data is recorded in a clear, transparent and well documented way

A document package was generated and customised to facilitate and manage sampling including:

- Sample management system - An excel book which generates all sample identification names and is pre-formatted to show how many of each sample type from each region needs to be collected. Additionally all relevant data for each sample is entered after it is collected.
- Field data collection table - This document was used by the field teams to record all required data for each sample at the time of sampling in the field.
- Field standard operating procedure - A quick field reference standard operating procedure for sampling specifically designed to guide samplers through the sampling process in order to produce samples for the two outputs required.
- Full sampling SOP - A full detail procedural guide describing proper cambium sampling process in exacting detail and with example photographs.

All the necessary equipment for sampling was provided throughout the project. This involved ordering from local and foreign suppliers and arranging logistics for delivery to Yangon including

- Colour indicating silica gel
- 10mm steal hollow punches

Topic	Description	Outcomes
Training session 1 February 2nd		
Project overview	• Why are we sampling • What kinds of samples • For what purpose • How many samples • From what locations	Understanding of project goals and required outcomes from the sampling exercise
Equipment for sampling	• Review each required piece of equipment • What its purpose is • How to use it • Any required set up prior to use • Alternatives if failure in field occurs	Participants have a solid understanding of all required equipment and their use
Preparation for the field	• What needs to be prepared prior to sampling to ensure smooth operation in the field • Preparing samples bags, ID cards, silica etc.	Participants understand what to prepare prior to field operations to ensure smooth and efficient sampling. Understanding of how to use the sample management system
General Requirements	• Minimum data to collect • Basic sample management rules • Photographing the process	An understanding of general guidelines to follow concerning sample collection.
Cambium sampling	• Review what cambium is • Proper collection procedure using hollow punch and axe if punch fails • Sample size • Data recording • How to use provided sample data sheet	Thorough understanding of cambium sampling procedure, data collection, and data recording. Understanding of all provided documents and how to use them
Sawn wood sampling	• Identifying hardwood • Suitable tree selection • Sample size • Review same procedure for data as cambium	Thorough understanding of sawn wood sampling procedure, data collection, and data recording. Understanding of all provided documents and how to use them
Leaf sampling	• Suitable material • Sample size • Review same procedure for data as cambium	Thorough understanding of leaf sampling procedure, data collection, and data recording. Understanding of all provided documents and how to use them
Sample storage	• Field and long term sample storage requirements • Colour indicating silica use and requirement • Labelling requirements for shipping	Participants know how to store samples properly to maintain DNA integrity and ensure samples pass customs in Australia

Field trial	• Overview of what to accomplish in the field trial	Ensure useful field trial

Topic	Description	Outcomes
Field trial February 3rd		
Trial sample collection	• Collection of one cambium sample set and one sawn wood sample • Sample labelling and storage	Trial application of process learned in session 1 Trial of equipment
Trial data recording	• Record of all relevant data for both samples • Full photographic record of sampling process	Trial use of all recording tools and documentation
Session 2 February 4rd		
Field Trial overview	• ECCDI participants prepared a presentation of the field trial experience • All documentation and photographs of the sampling process were presented • Questions from field trial were covered	Specific issues concerning handling of silica and sample size were addressed Participants felt fully prepared to undertake successful sampling independently DoubleHelix was satisfied with the performance in the field trial and was confident in the ECCDI's ability to carry out successful sampling

ECCDI training participants at field trial