

E5 NERC Summer Research Experience Placements 2026

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A. Supervisor (s) - Name, email and affiliation
<p>I. Annika Perry, annt@ceh.ac.uk</p> <p>II. Lindsay Flynn Banin, libanin@ceh.ac.uk</p> <p>III. Stephen Cavers, scav@ceh.ac.uk</p>
B. Student Mentor (current PhD student) Name, email and affiliation
Suman Prakash Pradhan, SumPra@ceh.ac.uk , UKCEH
C. Department/School
Biodiversity & Land Use, UK Centre for Ecology & Hydrology
D. Placement Project Title
Identifying knowledge gaps on South East Asian tropical tree genetic diversity to optimise conservation and restoration strategies
E. Job purpose
The purpose of this placement project is to conduct a comprehensive literature review on South East Asian tropical tree diversity, consolidating knowledge from its current fragmented base and providing a valuable baseline with which to contextualise intraspecific genetic diversity of trees within the tropical forests of South East Asia.
F. Host and project outline
This exciting Research Experience Placement not only provides an opportunity for a student to gain valuable skills in systematic literature reviewing and extracting/analysing key data outputs but also to work closely with a team of experienced researchers. The UK Centre for Ecology and Hydrology (UKCEH) is a world-leading independent research institute, carrying out excellent environmental science with impact. Our ambition is to make the world a better place through science addressing climate change, promoting biodiversity, and creating sustainable ecosystems.
Project background
Of fundamental importance to conserving, restoring and exploiting forest trees is a baseline understanding of their genetic diversity and how different populations interact with one another. South East Asian tropical forests represent some of the most diverse ecosystems in the world and a thorough evaluation of genetic diversity and genomic resources for species growing in this region is needed to identify knowledge gaps, protect key populations and inform strategies for restoration.

The Malaysian state of Sabah in North Borneo is a highly biodiverse region of the South East Asian tropics. Whilst much of the forest has been impacted by logging and conversion to oil palm, large remnants have been designated for conservation. However, such high species diversity levels pose a unique challenge for intraspecific genetic diversity conservation.

There have been efforts to restore and maintain previously logged areas or high-conservation value remnants within palm oil estates. For any species, genetic diversity and successful outcrossing is crucial for maintaining functioning populations, ensuring resilience to change, and providing the potential for adaptation to future conditions. Yet, biodiversity data is typically based only on species, or higher, taxonomic levels. Several reviews have assessed the correlation between genetic diversity and structure and life history characteristics. Therefore, given a species list with associated life history data, and a limited number of empirical studies of genetic diversity, it should be possible to make inferences about a wide range of species even if they lack direct measurements.

Project aims

The student will review the literature and local data holdings to: a) compile a species inventory and associated life history data for the focal region; b) extract empirical data on genetic diversity for any tree species from the region; c) collate resources to identify knowledge gaps, e.g. groups/species/populations under-represented in the literature, under-studied processes like pollen/seed dispersal, spatial scales of gene movement, species density. The consolidated genetic diversity metrics will enable future analyses to evaluate genetic diversity of tree species in Sabah, and how conservation and restoration approaches can effectively deal with intraspecific variation in a high-species-diversity system.

Activities

Activities include: i) training; ii) literature/local data review; iii) preliminary analyses; iv) report writing; and v) presenting work.

Training and literature/local data reviews. The student will be trained by experienced researchers on: systematic literature review methodology; trait-based selection of principal species; mapping genetic diversity metrics. There will also be regular opportunities to discuss progress with all members of the supervisory team.

Preliminary analyses. The student will be supported to perform preliminary analyses including mapping genetic diversity metrics and identifying key knowledge gaps.

Report writing and presenting work. The student will prepare a short report detailing their methods and results and will present their findings to the UKCEH Ecology & Evolution group. There will be regular opportunities to contribute to discussions with the project team and to join Ecology & Evolution group meetings.

Placement timeline

Week 1: Meet team; discuss project and make plan for performing literature review. Collate existing data and shortlist 'principal forest tree species' for Sabah region based on life history traits.

Week 2: Begin ‘bottom-up’ review of literature relating to population genetic/genomic diversity for all available forest tree species for populations within Sabah.

Week 3: Begin ‘top-down’ review of literature relating to population genetics/genomic diversity for forest tree species native to Sabah.

Week 4: Complete literature review.

Week 5: Consolidate literature review findings and extract relevant genetic diversity metrics for tree species/populations.

Week 6: Generate distribution data for principal species in the region using plot-level data and map genetic diversity data against the list of species.

Week 7: Prepare report and presentation; identify knowledge gaps and discuss project findings in depth with project team.

Week 8: Finalise report; present findings at UKCEH Ecology & Evolution group meeting.

G. Main responsibilities

- Conduct literature review and extract relevant information (65 %)
- Collate existing data, shortlist principal forest tree species (15 %)
- Prepare report and presentation on placement (10 %)
- Engage with research team, including regular discussions and progress updates (10 %)

Key contacts and relationships

In addition to supervisors listed in section 1 and PhD mentor listed in section 2, two Research Associates will also be available to mentor the student during the placement

- Kit Nemeth
- Luisa Dickenmann

H. Knowledge, skills and experience required for the role

Attribute	Essential	Desirable
Education, Qualifications & Training	<ul style="list-style-type: none"> • Background in ecology and/or evolutionary biology 	
Knowledge & Experience	<ul style="list-style-type: none"> • Understanding of tools used to estimate intraspecific genetic diversity and analyses they are applied to. • Organised and methodical 	<ul style="list-style-type: none"> • Systematic review experience • Knowledge of life history characteristics for tropical tree species

I. Planning and organising
<ul style="list-style-type: none"> • The student will plan their schedule using the timeline described in section 6 as a guide. • They will be responsible for the literature review, shortlisting principal species, report writing and presentation preparation – although training and support will be provided. • Combining data collection activities and the report/presentation preparation will require careful organisation and commitment to each task.
J. Problem solving
<ul style="list-style-type: none"> • The role requires reviewing and extracting information from published scientific papers and will benefit from an ability to identify relevant information using an efficient and robust approach – problem solving skills are extremely useful for this.
K. Decision making
<ul style="list-style-type: none"> • The student will perform preliminary analysis of data collected and identify key knowledge gaps – this will require them to make decisions regarding the breadth and depth of current knowledge and evaluating where gaps remain and their relative importance to the field.
L. Length and timing of placement
8 weeks. Starting date to be agreed.
M. Budget
None required
N. Location and Equipment
The placement will take place at the Edinburgh office of UKCEH (EH26 0QB) – with a desk and computer provided for the duration of the placement.
O. Health & Safety requirements
No health and safety requirements.
P. Job hazards specific to the role
No hazards.
Q. Alternative/adjusted placement (remote placement only).
Although the student will greatly benefit from working on site during the placement – the work could be conducted remotely if health and safety reasons arise.

