Project Update: May 2015

1.1. Work report

From October 2014 to April 2015, we completed the data collection in fieldwork and data analysis. The results are as follows:

(1) We analysed the status of red-listed tree species across differently protected zones in the Ta Xua Nature Reserve in north-western Vietnam, a rarely studied region located within a biodiversity hotspot. The study area covered an altitudinal range of 1000 to 1700 m asl and comprised: an undisturbed core zone; a low intensity traditional forest use buffer zone; and a forest restoration zone.

(2) In total, 18 red-listed tree species were recorded, of which 10 species are listed in different threatened degrees of the IUCN Red List and 16 species are listed in high conservation concern in the Vietnam Red List. Red-listed tree species richness (IUCN and Vietnamese Red Lists combined) amounted to 16 in the core zone, 10 in the buffer zone and five in the restoration zone. Most red-listed species, such as *Fokienia hodginsii*, reached their highest densities in the core zone, but one species (*Quercus platycalyx*) was quite abundant in the restoration zone.

(3) The multivariate analysis (canonical correspondence analysis (CCA)) was used to determine which ecology and human disturbance factors have strong effect on the appearance of threatened tree species. We found that for some red-listed tree species, canonical correspondence analysis suggested relationships between the presence of footpaths, canopy closure and basal area, which points to reduced abundance of red-listed tree species as a consequence of human activities.

(4) In the present study, the high number of red-listed tree species in the core zone illustrates the merits of strict protection measures, while the low number of red-listed tree species in the buffer and restoration zones indicates that these species are sensitive to selective logging and shifting cultivation. From a conservation point of view, low selective logging intensity seems to represent a better protection measure for threatened species than shifting cultivation.

1.2. Future time and work schedule

1.2.1. The results from this study will be presented and discussed with management committee of Ta Xua Nature Reserve, local rangers and local people.

1.2.2. We are going to write a manuscript about the red-listed tree species abundance in differing levels of protection in the Ta Xua Nature Reserve in north-western Vietnam.

Table 1: Number of individual trees with *DBH* ≥ 6cm and conservation status of red-listed tree species. The results from 40 sample plots (20x20m) per each conservation zone.

No.	Scientific name	Species code	Vietnamese name	Number individuals (*dbh* ≥ 6cm)			Conservation status[a]	
				Core zone	Buffer zone	Re. zone	VN red list	IUCN
1	*Aglaia spectabilis* (Miq.) S.S. Jain & S.S.R. Bennet	Agla	Gội nếp	12	1	1	VU	LC
2	*Canarium pimela* K.D:Koenig	Canar.	Trám đen		1		VU	nl
3	*Castanopsis cerebrina* (Hickel & A.Camus) Barnett	Ca.cer	Sồi phảng	4	13	9	EN	nl
4	*Castanopsis lecomtei* Hickel & A.Camus	Ca.lec	Cà ổi Sapa	3	10		VU	nl
5	*Castanopsis purpurella subsp. purpurella*	Ca.pur	Dẻ gai đỏ	3			VU	nl
6	*Castanopsis tessellata* Hickel & A.Camus	Ca.te	Cà ổi lá đa	2			VU	nl
7	*Cinnadenia paniculata* (Hooker f.) Kostermans	Cinnade.	Kháo xanh	12		1	VU	nl
8	*Cinnamomum balansae* Lecomte	Cinnamo.	Vù hương		1		VU	EN
9	*Dacrycarpus imbricatus* (Blume) de Laub.	Dacry.	Thông nàng	2	2		nl	LC
10	*Fokienia hodginsii* (Dunn) A. Henry & H. H. Thomas	Fokie.	Pơ mu	11	4	1	EN	VU
11	*Goniothalamus macrocalyx* Bân	Gon.	Màu cau trắng	1			VU	VU
12	*Lithocarpus vestitus* (Hickel & A.Camus) A.Camus	Li.ves	Sồi lông nhung	3			EN	nl
13	*Madhuca pasquieri* (Dubard) H.J.Lam	Madhu.	Sến mật	35	2		EN	VU
14	*Magnolia baillonii* Pierre	Ma.bai	Giổi găng	1			VU	LC
15	*Magnolia balansae* A.DC.	Ma.bala	Giổi lông	1	2		VU	DD
16	*Magnolia braianensis* (Gagnep.) Figlar	Ma.bra.	Gổi nhung	1			EN	DD
17	*Podocarpus neriifolius* D.Don	Pod.	Thông tre lá dài	1			nl	LC
18	*Quercus platycalyx* Hickel & A.Camus	Qu.plat	Dẻ cau	7	7	29	VU	nl
Total				99	43	41		

[a] Based on the Vietnam Red List and the IUCN Red List

VU vulnerable, EN endangered, LC least concern, DD data deficient, nl not listed.

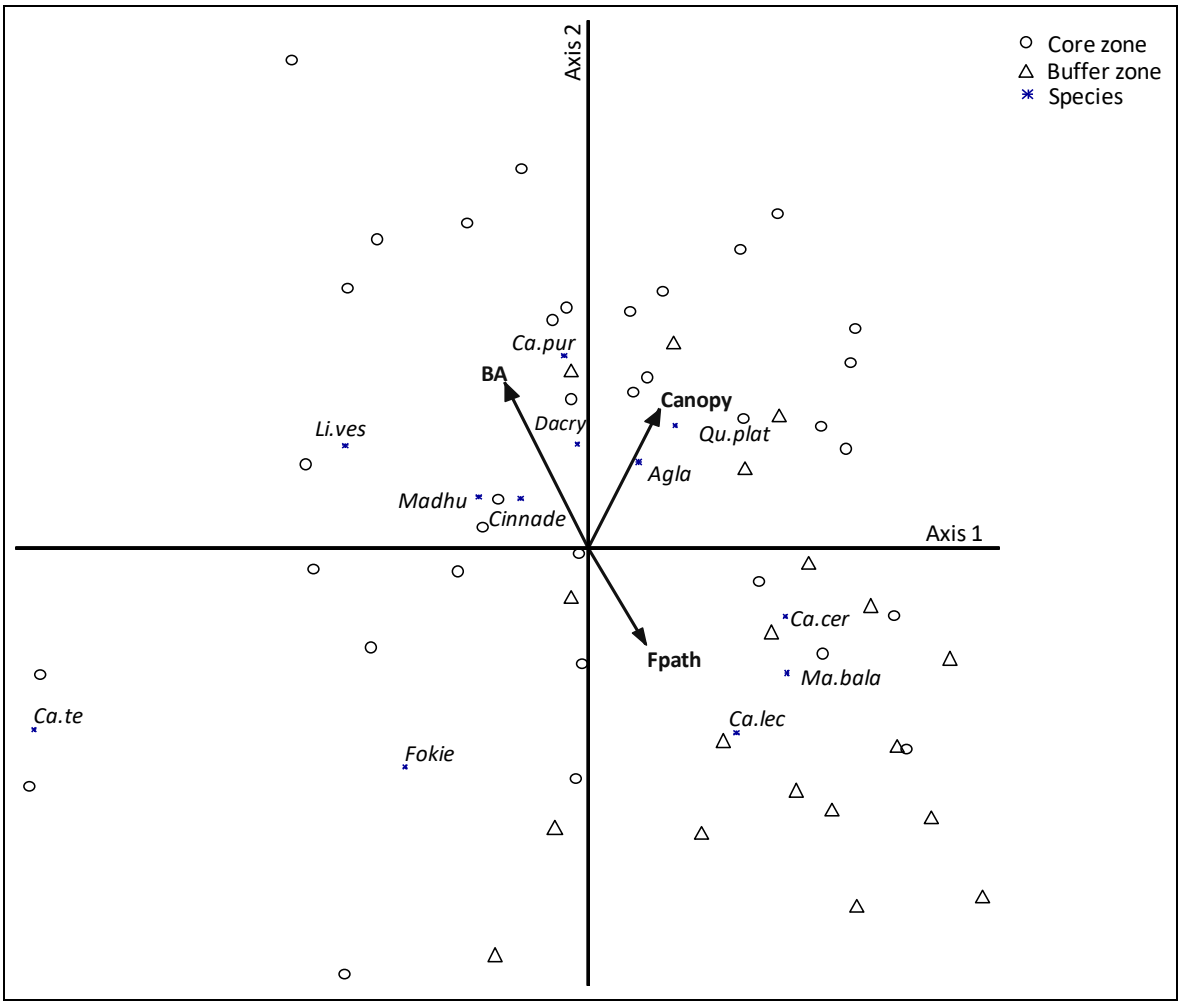


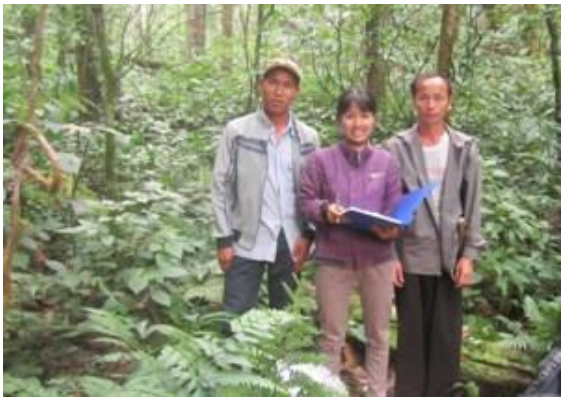
Figure 1: Canonical correspondence analysis (CCA) shows the correlations between environmental and human disturbance variables and density red-listed tree species which were encountered more than once in the core and buffer zones. The first and the second axes explained 7.3%, and 5.8% of the variance of present data, respectively. Correlation threshold r^2= 0.26. (BA = basal area, Fpath = footpath, abbreviation for species code as in Table 1).

1.3 Some pictures

Picture 1: Forest landscape in the core zone of Ta Xua nature reserve at elevation approximately 1400 m to 1600 m a.s.l

Picture 2: Reconnaissance survey with some rangers and indigenous people

Picture 3: Training indigenous people in forest inventory activities



Picture 4: The principal researcher and indigenous people in fieldwork