

## **Turvey et al, Interview-based sighting histories Supporting information S1.**

### MINORITY ETHNIC GROUPS IN THE STUDY LANDSCAPES

(1) Hue-Quang Nam: Katu and Ta Oi people, who are traditionally dry rice swidden agriculturalists, periodically moving their fields and villages within defined areas of forest-fallow mosaic. Now settled close to the road, they still make heavy use of their traditional forest areas for hunting and non-timber forest product collection but clearing of tall forest in traditional areas has largely ceased, at least for the present.

(2) Pu Mat: Mainly Thai people, who cultivate wet and dry rice in stable fields and have never traditionally moved their villages. They make extensive use of forest products, making long trips into the forest as far as the Lao border and beyond. There are also a small number of Dan Lai people who, like the Katu and Ta Oi, are recently settled non-pioneer swidden agriculturalists.

(3) Viengthong: All respondents were from the Hmong ethnic group, who typically practice 'pioneer shifting cultivation', i.e. clearing of old forest in new areas and often at relatively high altitude. The Hmong also have a reputation as expert hunters (Nooren & Claridge 2001; Tungittiplakorn & Dearden, 2002).

### VILLAGE SELECTION

In Vietnam, a shortlist of widely distributed candidate villages (Hue-Quang Nam, n=63; Pu Mat, n=19) was selected from the set of c.120 villages present around each landscape. Community mapping was conducted in each shortlisted village, with focal groups of 4-22 community representatives first asked to name streams and hills on a monochrome, largely text-free landscape map containing

known ground-truthed geographic features, and then asked to place beans on the map to indicate their consensus on places visited by community members. In Hue-Quang Nam, data were used from an existing community mapping survey, while in Pu Mat a rapid survey was conducted by a team of park staff in key villages, interviewing focal groups of 4-6 older respondents. Each Vietnamese landscape was then divided into village use zones (Fig. S1), with final selection of villages for the questionnaire survey conducted to achieve maximum landscape coverage with most efficient use of time and resources (Table S1). This strategy differed from some other interview surveys in Vietnam (Kemp *et al.* 1997; Tham Ngoc Diep *et al.* 2004) that worked in a small number of specific villages, often selected by presence of existing saola records or perceived high density of knowledgeable forest users, to collect detailed data for a restricted geographic area. Interview survey teams were entirely separate from community mapping teams except in Viengthong and for two villages in Pu Mat, where the two activities were conducted together.

On the basis of community mapping and subsequent assessment of spatial distributions of reported species sightings, we are confident that no part of our study landscapes were completely outside the use area of interviewed villages (spatial distribution of records on community maps shows that there are unlikely to be any gaps in coverage of the landscapes by local forest users). However, spatial patterns of intensity of forest use cannot easily be compared, and there is likely to be significant geographic variation that cannot be precisely measured.

## SPECIES IDENTIFICATION

Each species was introduced to respondents using a widely-used vernacular name in the national language, with local names subsequently cross-referenced among interview reports. Species descriptions were elicited from respondents based on characters previously established as locally useful for species identification (Supporting Information File S2). Illustrations were not used during interviews for species identification.

Local ethnozoological classification systems rarely correspond exactly with scientific taxonomy; they may not accurately discriminate between morphologically similar taxa or use standard names to refer to the same taxa, and different names may also be used for different life stages (Duckworth & Hedges 1998; Hunn & Brown 2011). In particular, the several muntjac species known from the study area (red muntjac *Muntiacus vaginalis*, large-antlered muntjac *M. vuquangensis*, Roosevelt's muntjac *M. rooseveltorum*, Annamite muntjac *M. truongsonensis*) are difficult or impossible to distinguish reliably from local descriptions, and may not all be valid species (Timmins *et al.* 2008a). Furthermore, in Lao and among Thai-ethnic people in Vietnam, the folk-generic category equivalent to 'muntjac' (*phaan*) also includes chevrotains, although these are recognised as a distinct, named kind of muntjac. Respondents were asked how many types of muntjac were present locally and how they differed but it was not possible, in the majority of cases, to refer all these to scientifically recognised taxa. Where descriptions were adequate to distinguish, the most recent sighting of muntjac was usually referable to red muntjac; which is the species most likely to occur near human habitation and therefore likely to be the most frequently detected. We therefore referred all most recent muntjac

sightings to red muntjac except in the small number of cases where the recorded description gave evidence to the contrary.

The same approach was used with pigs due to the (doubtful) suggestion that more than one species occurs in the area (Robins *et al.* 2006) and the fact that different names are frequently used for different sex/age categories of *Sus scrofa*. The most recent sighting of any pig was assumed to refer to *Sus scrofa* unless the description gave evidence to the contrary. It was not possible to distinguish different species of chevrotain (*Tragulus kanchil*, *T. versicolor*, *T. williamsoni*), rhinoceros (Javan rhinoceros *Rhinoceros sondaicus*, Sumatran rhinoceros *Dicerorhinus sumatrensis*), or wild cattle (banteng *Bos javanicus*, gaur *B. gaurus*), due to their morphological similarity and rarity. . Because gaur sightings are much more likely than banteng sightings at any our sites (Duckworth and Hedges, 1998), we assumed all wild cattle records to refer to this species.

Species sighting records were filtered based on descriptions and notes. Where there were indications that a record might refer to a different species, or to an event other than a direct sighting or capture (e.g. sightings of sign), records were excluded from subsequent analysis (n=52, including four saola records). Records were reassigned in a few cases where a species was assigned to an incorrect national-language name but was clearly recognisable as a different taxon from description and/or local name.

#### SIGHTING DATE FORMATS

Sighting dates were reported as time elapsed/number of years ago (45.3%, including 'this year'/'last year'), direct calendar years (43.0%), a multi-year

range (6.8%), before/by a given date (3.2%), or with reference to national/local/personal events (1.6%). Alternative formats were converted to direct calendar years for analysis. Specific date ranges were given equal probability of being randomly assigned to any calendar year from within this range. If only an end-date was given (i.e. sighting occurred by/before reported date), a calendar year was randomly selected between this date and the year in which the respondent was aged ten; when respondent age was not recorded (n=12), the maximum age recorded for any respondent from the relevant landscape was conservatively taken as their possible age.

The subset of dates reported as time elapsed/number of years ago may be prone to digit preference or 'age heaping' (preferential rounding to end-digits, typically multiples of ten); however, this phenomenon has been shown to have little influence on parameter estimates or power of parametric tests and can only be corrected by an arbitrary choice of smoothing parameter (Eilers & Borgdorff 2004; Camarda *et al.* 2008), and is also expected to have the same relative effect on sighting histories for all species and landscapes, so we do not control or correct for it in this study.

## References

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Table S1. Villages surveyed around the Hue-Quang Nam Landscape.

Province	District	Commune	Village	# int.vws	map zone <sup>1</sup>	bean map <sup>2</sup>
Quang Nam	Dong Giang	Sông Kôn	K 9	4	8	0
Quang Nam	Dong Giang	Sông Kôn	B Hòn 1	12	8	1
Quang Nam	Dong Giang	Sông Kôn	B Hòn 2	4	8	1
Quang Nam	Dong Giang	Sông Kôn	Đào	2	8	0
Quang Nam	Dong Giang	Sông Kôn	Bút Nhót	3	8	0
Quang Nam	Dong Giang	Sông Kôn	Bút Nga	2	8	1
Quang Nam	Dong Giang	Sông Kôn	Bút Tựa	3	8	1
Quang Nam	Dong Giang	Thị trấn Prao	ADinh 1	1	9	0
Quang Nam	Dong Giang	Thị trấn Prao	ADinh 2	2	9	0
Quang Nam	Dong Giang	Thị trấn Prao	ADinh 3	1	9	0
Quang Nam	Dong Giang	Thị trấn Prao	ADuông 1	6	9	1
Quang Nam	Dong Giang	Thị trấn Prao	Gùng	3	9	0
Quang Nam	Dong Giang	Thị trấn Prao	Ghúc	3	9	0
Quang Nam	Dong Giang	Thị trấn Prao	Ngã Ba	1	9	0
Quang Nam	Dong Giang	Thị trấn Prao	Nghe	1	9	0
Quang Nam	Dong Giang	Thị trấn Prao	Trao	4	9	0
Quang Nam	Dong Giang	Thị trấn Prao	Ka Nơm	3	9	0
Quang Nam	Dong Giang	Thị trấn Prao	Kađék	1	9	0
Quang Nam	Dong Giang	Thị trấn Prao	Tà Vạt	4	9	1
Thua Thien Hue	A Luoi	A Đốt	Ra Bít	6	1	1
Thua Thien Hue	A Luoi	A Đốt	A Đốt	7	1	1
Thua Thien Hue	A Luoi	A Đốt	A Ro	3	1	1
Thua Thien Hue	A Luoi	A Đốt	A Tin	7	1	1
Thua Thien Hue	A Luoi	A Đốt	Ka Vin	3	1	1
Thua Thien Hue	A Luoi	A Đốt	Chi Hoa	4	1	1
Thua Thien Hue	A Luoi	Hương Nguyên	A Rí	2	11	1
Thua Thien Hue	A Luoi	Hương Nguyên	Dòng	8	11	1
Thua Thien Hue	A Luoi	Hương Nguyên	Nghĩa	1	11	0
Thua Thien Hue	A Luoi	Hương Nguyên	Mù Nủ	8	11	1
Thua Thien Hue	A Luoi	Hương Nguyên	Tà Rá	4	11	0
Thua Thien Hue	A Luoi	Hương Nguyên	Cha Đu	7	11	1
Thua Thien Hue	Nam Dong	Hương Hữu	Rung Gênh	5	6	1
Thua Thien Hue	Nam Dong	Hương Hữu	ra Rang	7	6	1
Thua Thien Hue	Nam Dong	Hương Hữu	ba Tang	6	6	1
Thua Thien Hue	Nam Dong	Hương Hữu	Ra Đang	3	6	1
Thua Thien Hue	Nam Dong	Hương Hữu	Ư Rang	10	6 + 7	1
Thua Thien Hue	Nam Dong	Thượng Long	Ka Đông	4	5	1

<sup>1</sup> See figure S1

<sup>2</sup> 1: A community map was conducted prior to the survey in this village with beans placed on the map by the interview group to indicate the village's use area. Bean maps were made in 27 more villages in addition to those listed here. Where bean maps were not made, the community map was still used in interviews and the distribution of sightings from interviews gives an idea of the use area which is checked against information given by other villages.

Thua Thien Hue	Nam Dong	Thượng Long	A Xăng	4	5	1
Thua Thien Hue	Nam Dong	Thượng Long	Cha Kê	4	5	1
Thua Thien Hue	Nam Dong	Thượng Long	A Gông	3	5	1
Thua Thien Hue	Nam Dong	Thượng Long	ta Vac	2	5	1
Thua Thien Hue	Nam Dong	Thượng Long	A dài	3	5	1
Thua Thien Hue	Nam Dong	Thượng Long	A Prung	11	5	1
Thua Thien Hue	Nam Dong	Thượng Nhật	Ta Rìng	2	4	1
Thua Thien Hue	Nam Dong	Thượng Nhật	Lấp	11	4	1
Thua Thien Hue	Nam Dong	Thượng Nhật	A Tin	2	4	1
Thua Thien Hue	Nam Dong	Thượng Nhật	Ta Lu	1	4	1
Thua Thien Hue	Nam Dong	Thượng Nhật	A Xách	6	3	1
Thua Thien Hue	Nam Dong	Thượng Nhật	La Vân	8	3	1

This list was drawn from an initial long list of 122 candidate villages, representing all villages believed likely to use the area of the three contiguous nature reserves. Part of the easternmost end of the Xe Xap National Biodiversity Conservation Area was also covered by the survey (see Figure S1 below). Although our survey (and our long list of villages) did not cover the ca. 4 Laotian villages using this area, we did conduct interviews in Vietnamese villages which use this area.



Figure S1. Surveyed villages and their approximate use zones in the Hue Quang Nam Saola Landscape.

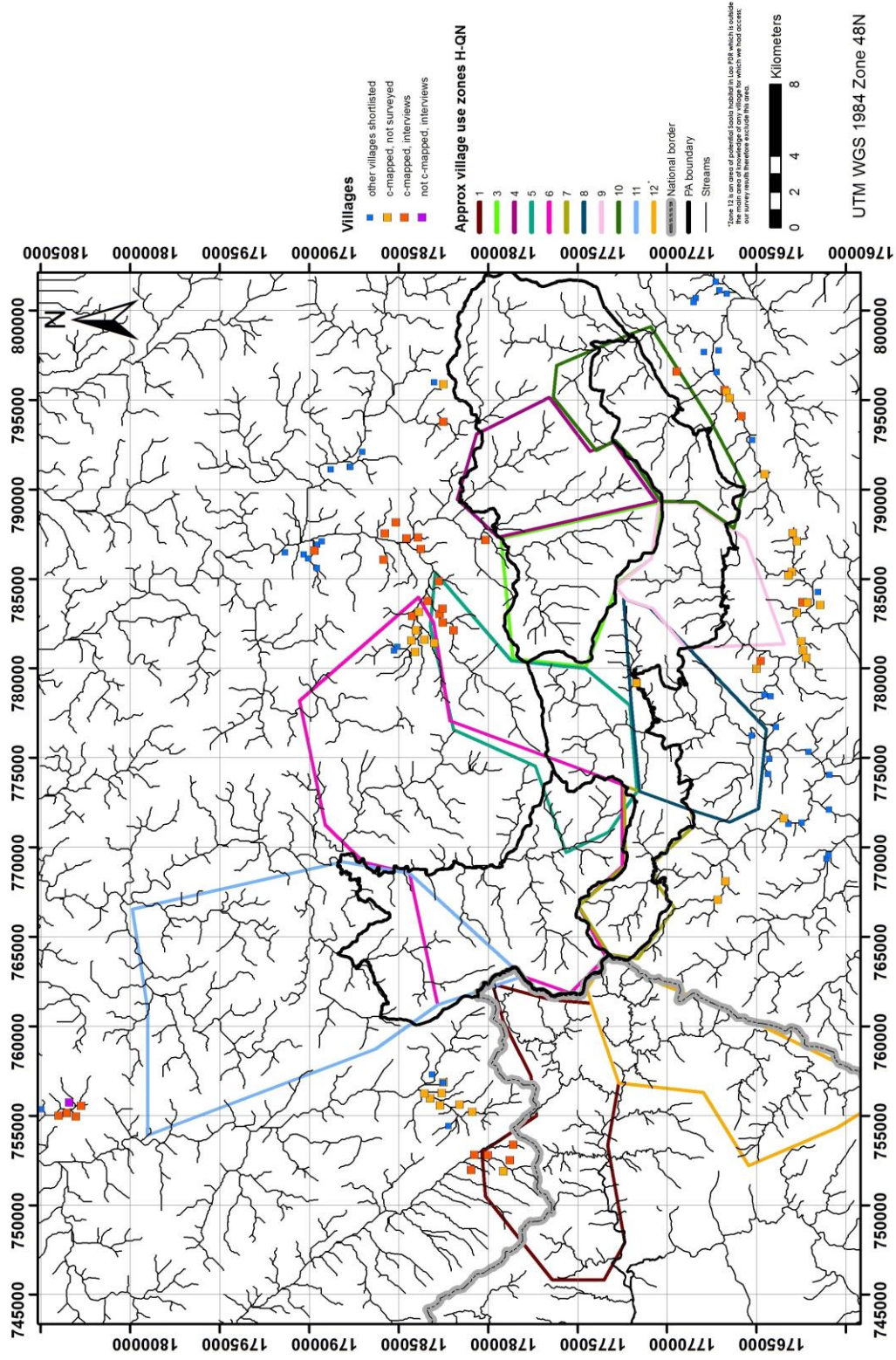


Table S2. Villages surveyed around the Viengthong and Pu Mat Landscapes.

Landscape	Province	District	Commune	Village	# int.vws	map zone <sup>3</sup>	bean map <sup>4</sup>
"Viengthong"	Bolikhamxay	Viengthong	n/a	Na Nhang	22	8	0
"Viengthong"	Bolikhamxay	Viengthong	n/a	Na Tan	23	8	0
Pu Mat	Nghe An	Con Cuông	Châu Khê	Khe Bu	10	2	1
Pu Mat	Nghe An	Con Cuông	Châu Khê	Khe Nà	50	2	1
Pu Mat	Nghe An	Con Cuông	Lục Dạ	Lục Sơn	7	4+7	0
Pu Mat	Nghe An	Con Cuông	Lục Dạ	Thịn	10	4+7	0
Pu Mat	Nghe An	Con Cuông	Môn Sơn	Bắc Sơn	14	4	1
Pu Mat	Nghe An	Con Cuông	Môn Sơn	Nam Sơn	19	4	1
Pu Mat	Nghe An	Con Cuông	Môn Sơn	Thái Hòa	24	3	1
Pu Mat	Nghe An	Con Cuông	Môn Sơn	Yên	20	3	1
Pu Mat	Nghe An	Con Cuông	Yên Khê	Trung Chinh	1	4+7	0
Pu Mat	Nghe An	Tương Dương	Tam Quang	Tân Hương	1	1	0
Pu Mat	Nghe An	Tương Dương	Tam Quang	Tùng Liên	10	1	1
Pu Mat	Nghe An	Tương Dương	Tam Quang	Tùng Hương	22	1	1

The list of villages around Pu Mat was drawn from an initial long list of 123 candidate villages, representing all villages believed likely to use the area of the National Park.

<sup>3</sup> See Figure S2

<sup>4</sup> As for table S1 above. Bean maps were made for an further 11 villages around Pu Mat in addition to those ultimately included in the survey. In Viengthong community maps were made but, for logistical reasons a separate trip was impractical and the beaning method was not used; the use area of these villages is derived from the distribution of their reported sightings.

Figure S2. Surveyed villages and their approximate use zones in the Pu Mat National Park (Vietnam) and Viengthong District (Bolikhamsay Province, Lao PDR).

