A Final Report on

Finding the Saola (*Pseudoryx nghetinhensis*) in the Annamite Range in Laos

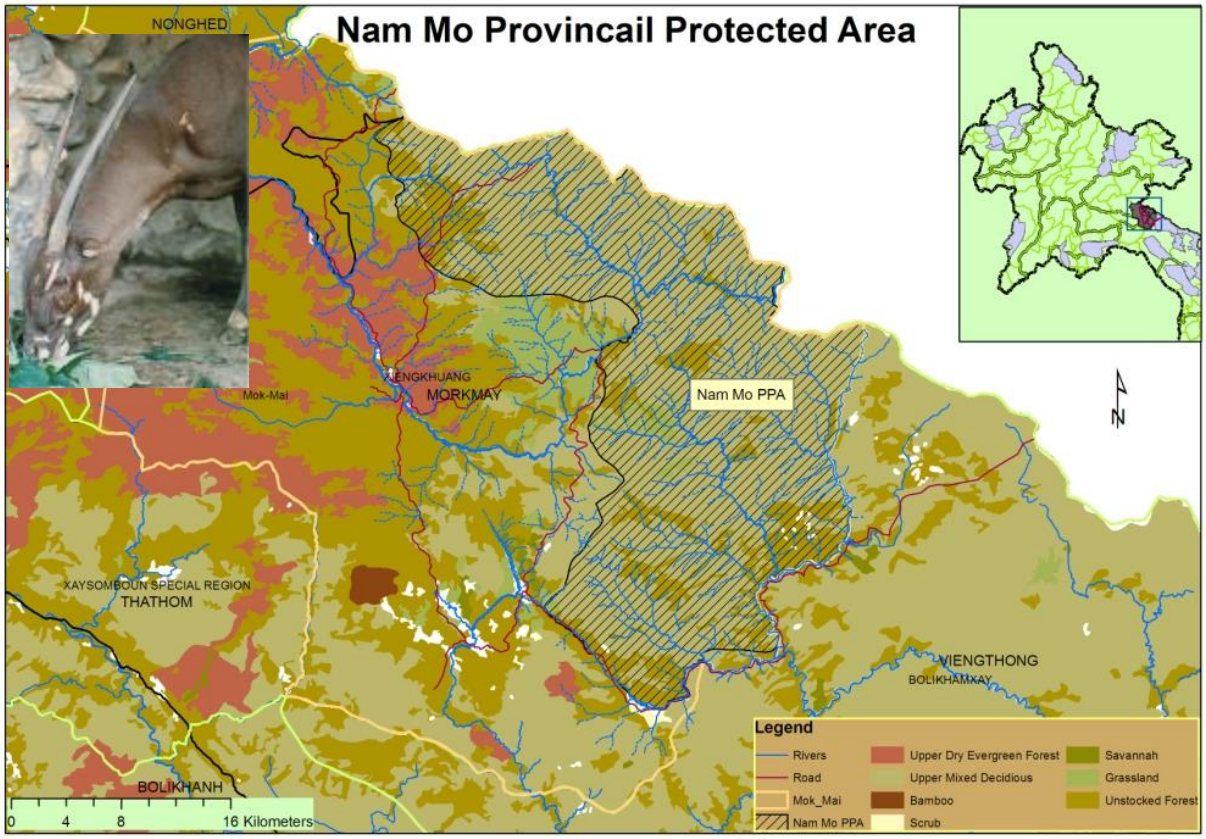

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Photo Credit: William Robichaud (Saola Working Group)

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Copies available from the Lao Wildlife Conservation Association (Lao WCA)

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Executive Summary

Saola (*Pseudoryx nghetinhensis*) is a Critically Endangered mammal, restricted to the northern and central portions of the Annamite mountain range along Lao-Vietnam border. Despite threats to Saola are known rather well across its range, the species, conversely, is still little known on its population abundance and distribution across the range, especially in far north Annamite mountain range (i.e., between Xiengkhouang and Bolikhamxai provinces). Lack of such important information makes it difficult for conservation agencies to design proper conservation strategy to secure the long term well being and continued viability of Saola population in natural habitat.

This report presents results of the first field investigation of Saola in Nam Thong – Nam Mo (hereafter Nam Mo) Provincial Protected Area (PPA), conducted from December 2012 to March 2013, south-eastern Xiengkhouang province, Lao PDR. The area was believed as the northern-most portion of Saola' potential range in the country, but so far it has never been surveyed although some local reports of Saola in the area and apparently suitable habitat. This was due in large part to the fact that the area has restricted to outsiders as a result of security issues.

The survey focused firstly on village questionnaire to gather basic information on presence of Saola and other wildlife species in this PPA, and also village basic socio-economic data. Subsequently, the ground-truth walk was conducted by trained technical teams (including government staff and villagers) in target sites where reports of Saola presence provided by villagers. Results showed that recent reports of Saola were provided by two villages (n=4), namely Ban Thong Peur and Ban Chaleunmai, within the past five years. Report of Saola being shot to death in 2008 was provided at Ban Thong Peu, whereas a direct sighting of Saola in the forest in 2012 (between July and August) was reported by a villager at Ban Chaleunmai.

Following up the village questionnaire, the ground-truth observations recorded probable signs of Saola (i.e., feeding, dropping, tracks) in several locations (see table 2, and photos), but certainty was still questionable as those signs were relatively new to our team members although they have done fairly extensive wildlife surveys in many places. Most of those signs were largely identified by villagers who have known the Saola and been in locality for years.

Recent reports of other key wildlife species included tiger (*Panthera tigris*), Leopard (*Panthera pardus*), Clouded leopard (*Pardofelis nebulosa*), Golden cat (*Catopuma timminckii*), White-cheeked gibbon

(*Nomascus Concolor*), Serow (*Capricornis milneedwardsii*), Sambar deer (*Cervus unicolor*), bears (*ursus sp.*). Our field work found signs (tracks and scats) (and also sightings) of most ungulates, such as Serow, Sambar deer, wild pig (*Sus sp.*), muntjac (*Muntiacus sp.*), and calls of gibbon.

In light of these findings, we strongly suggest that;

(i) Further ground survey using advanced techniques like camera trapping or DNA analysis (scat or leeches) need to be implemented in those two currently confirmed sites.

(ii) More ground investigation should focus on the areas in eastern Nam Mo PPA and adjacent areas to the south-east along Lao-Vietnam border, e.g., Nam Chat-Nam Pan. These forested areas should be included as a landscape for Saola conservation in its natural range.

(iii) Some conservation activities at the present should focus on building better understanding for local government officials and villagers about conservation need and significance of Saola.

Introduction

Saola (*Pseudoryx nghetinhensis*) is a Critically Endangered mammal (IUCN Red List 2010), listed now as one of the most endangered animals in the world. The species is restricted only to the northern and central portions of the Annamite mountain range along Lao-Vietnam border (Duckworth et al. 1999, Robichaud and Timmins 2004). Of most concern, despite the fact that Saola is not a targeted species for hunting as it has a low price on its head (due largely to not appearing in traditional Asian medicine), Saola fall victim surely to the wire snares set in the thousands by poachers targeting mostly other wildlife species (Robichaud, 1999).

Until now, threats to Saola are known rather well across its range, but the species, conversely, is still little known on its population abundance and distribution across the range (e.g., Timmins et al. 2008), especially in far north Annamite mountain range (i.e., between Xiengkhouang and Bolikhamxai provinces). The *Saola Conservation Action Plan for Lao PDR* (Robichaud, 1999) identified the south-eastern Xiengkhouang province as one of ten priority areas in the country for basic surveys to determine the status of Saola. Yet, more than ten years after, it remains unsurveyed. This paucity was largely due to those forested areas have been restricted to outsiders to carry out ground surveys as a result of security issues in the past years. Lack of such important information makes it very difficult for government of Lao PDR to design properly a strategic conservation plan to secure long-term well being and continued viability of Saola population in natural habitat.

This project focused investigation of occurrence of Saola in the Nam Thong- Nam Mo PPA, lied in the last portion of Annamite mountain range (Figure 1). It has recently been proposed to the central government to raise its conservation status to a National Protected Area as a result of its rich fauna and flora, and many of those are global and national conservation concerns, including Saola. This project is the first wildlife survey in this area, with a focus largely on Saola.

A survey focused firstly on village questionnaire to gather basic information of village and presence of Saola, upon which the subsequent ground-truth survey was conducted in those targeted areas where Saola presence was reported by local villagers.

Objectives of the project

The primary objectives of the project were to;

i. Gather baseline information of Saola occurrence and its distribution, and its habitat in the Nam Thong-Nam Mo PPA using village questionnaire and ground-truth confirmation

ii. Assess threats to the Saola in its natural habitat using PRA and conceptual model development

iii. Produce distributional map of Saola, upon which the further surveys should be based for future investigation and confirmation.

iv. Gather information of other key wildlife species in the PPA to provide baseline for future conservation and management planning by government agencies.

The Lao Wildlife Conservation Association – The Lao Wildlife Conservation Association (Lao WCA) was founded in earlier 2010 with the primary goal is to take leadership and encourage Lao citizen to save wildlife and wild land all over Lao PDR through science-based participatory conservation. The Lao WCA collaborated with the Department of Forest Resource management (DFRM), Ministry of Natural Resource and Environment (MNRE), Provincial Agriculture and Forestry Office (PAFO), District Agriculture and Forestry Office (DAFO) and local villagers to conduct field activities to achieve the above objectives, with generously financial support from the Critical Ecosystem Partnership Fund (CEPF).

Methods

i. Nam Thong-Nam Mo PPA

Nam Thong-Nam Mo covers approximately 53,000 ha, lies between a longitude: 103° 31' 54" and latitude: 104° 16' 44" and 19° 07' 20" and 19°17' 20", with elevation from 1200-1800 m above sea level, under polical administration of Mokmai district, Xiengkhouang province. The PPA shares borders with the Vietnam to the north and Viengthong district (Bolikhamxai province) to the east. The area is dominated largely by upper dry evergreen forest, and some sparse patches of shrub or grassland. Given its currently rich and unique biological diversity in this area, the Provincial Forest Resources Management Office of Xiengkhouang province has prosposed the PPA to raise itsconservation status at national level, and the process of approval is recently on-going.

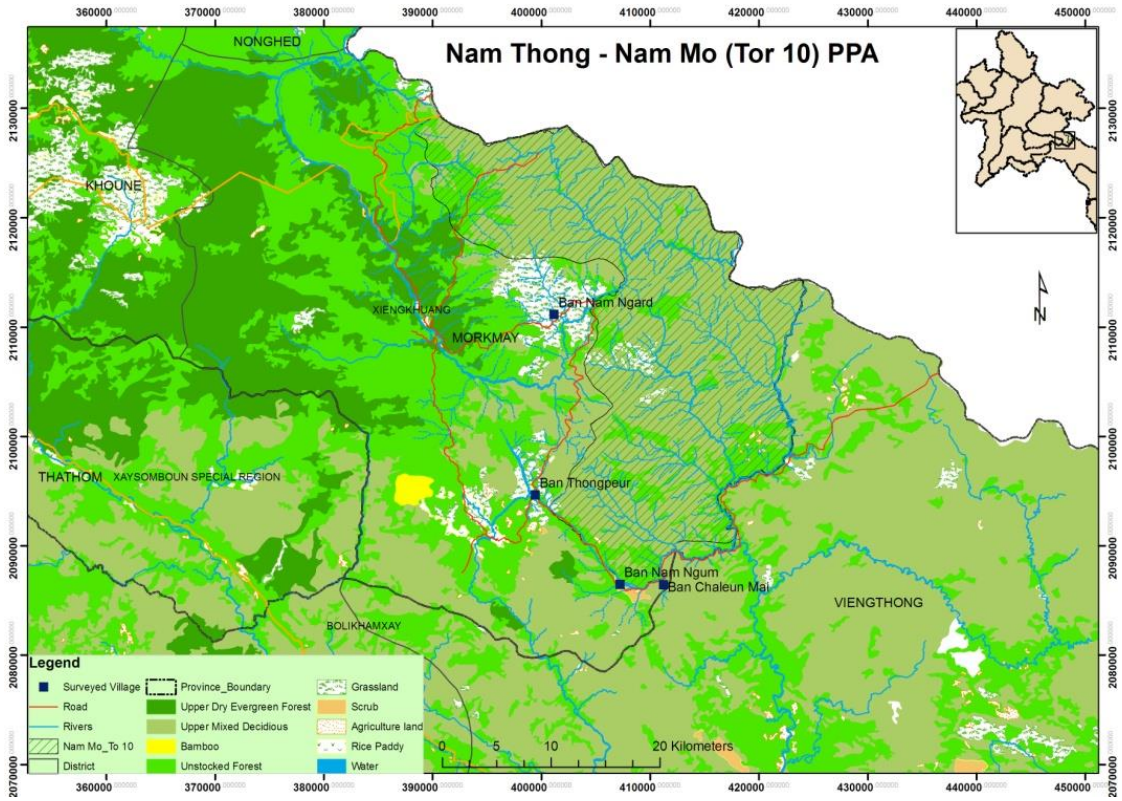


Figure 1. Nam Mo PPA (blue line) shares borders with Vietnam to the north and Bolikhamxai province to the east. Surveyed villages (blue squares).

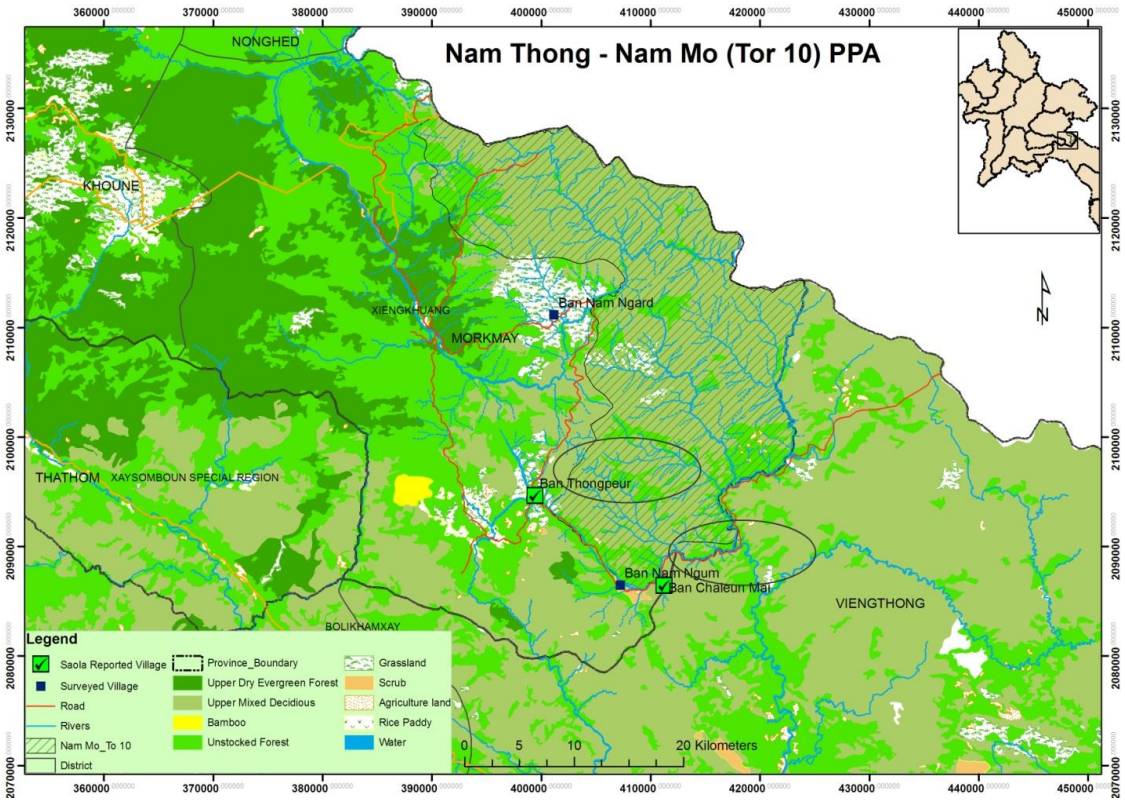


Figure 2. Village reports of Saola presence (green squares) and proposed ground field survey areas (gray circles)

ii. Accessibility

Nam Mo PPA can be accessed by two ways. First, driving from Bolikhamxai (or Paksan) along the road No. 1B (Bolikhamxai – Xiengkhouang) to approximately 80 km at Ban Thasi, just about a half kilometer from the village, turn right to follow a dirt road heading to the east, approximately 60 km to Mok Mai district. Second, driving from Xiengkhouang to Mok Mai district is about 150 km, but just about 35 km from Xieng Khouang at Khoun district (road 1B), turn left and follow the dirt road, which is recently under construction for upgrading to asphalt road. After that driving from Mok Mai district to Nam Mo PPA about 50 km.

iii. Village questionnaire survey

- **Training on questionnaire survey techniques**

A survey protocol for this project was generally adapted from approaches developed by WCS-Laos for Saola survey at Phou Sithone provincial protected area in Bolikhamxai province. Consultation with WCS staff was first made to better understanding on village questionnaire techniques. The team members, from Lao WCA and DFRM, were then introduced and discussed in depth on questionnaire protocol and techniques. All data forms were first prepared and gone through together (Annex 1). Fortunately, all those survey team members had long experience in both questionnaire and field survey before, thus made it faster and smooth. The team then conducted village questionnaire between December 24th, 2012 to January 7th, 2013

- **Village Participatory Rural Assessment (PR A)**

In each visited village, after informal and formal discussion with village authority (i.e., headmen, elders, village militia and police), heads of households in the village were requested by headman to attend a formal meeting. We (both village headman and government staff) first introduced objectives of the project to the audience and then followed by activities to be done together during the meeting. We first started mapping of the village management area, using A0 size paper, by putting names of key geographic features (e.g., rivers, mountains) on a hand-illustrated map. The purpose of doing this was to ensure that the survey teams learnt about locality and get common understanding of village area so it may make more convenient when asked about location of wildlife reported by villagers. After completion of a village map, we then continued asking villagers to list any wildlife species, particularly large animals, occurred in their village vicinity (including village management area and also outside its boundary). Then, we went through more details about locations of animals being seen, animal signs or sighting, and time of seeing those animals. Then, the discussion was continued on building a conceptual model

together to illustrate direct and indirect threats and key measures to tack those potentially devastating threats to wildlife and other forest resources.

- **Village interviews**

- **Socio-economic data**

A basic standardized data form (see annex 2) was first designed for survey teams to gather basic information of socio-economic village, such as gender, religion, employment, agricultural area, ethnic group, a number of households and human population in village. The data forms were filled by sitting together with village headmen (based on village book catalog).

- **Informal interviews for wildlife**

Informal discussion was frequently conducted by personal visits to houses of those introduced by village authority (e.g., headmen) as good hunters or people who travel frequently to the forest for harvesting forest products (e.g., NTFPs) and also hunting of wildlife. Photos of those several key wildlife species were used to facilitate discussion with local villagers and give correct name to the species. Discussion was referred to name of location, access to the site, evidence of animals, and time of seeing animals, and animal population status.

iv. Ground-truth survey

- **Field preparation and staff training**

After completion of village questionnaire, we laid out reports of Saola presence on geographic maps, upon which the subsequent field survey based. The target areas were divided into 1x1 km^2 grid cells, aiming to provide convenience for allocating areas to be covered by field teams each day. Standardized data form was designed and produced (see Annex3) to make sure that the field survey teams recorded data in the same manner. Other necessary field equipment such as geographic maps, GPS, compasses, batteries, identification guidebook to ungulate signs and field supplies were provided in advance to heading out to

Photo: Team leaders discussed survey routes on the map at the camp in the forest

the village. After forming the survey teams in the village, the team members were first introduced field survey techniques, animal sign identification, uses of navigation tools (GPS, maps, compass), and records of data into data forms. The village questionnaire survey was conducted between March 28th – April 12th, 2013.

- **Field ground survey**

Three survey teams were set up, each consisted of three people including one staff and two village assistants. Each field survey team was assigned all necessary field equipments as mentioned above. The survey teams walked to the target forest sites, and camped there together. In the day time, from 8:00 am to 5:00, each team was allocated about one or two grid cells to be surveyed, and took about three days at each site. We first focused field efforts on forested areas in the vicinity of Ban Chaleunmai village, and then moved to the areas in the vicinity of Ban Thong Peu. At each grid cell, the teams walked slowly and searched for signs of animals, such feces, tracks, and feeding vegetation, largely along streams or in the vicinity of headstreams. When teams encountered animal signs, they marked GPS coordinates, recorded information into pre-prepared data form, and then took photos.

Photo: Field ground survey team

- **Data analysis**

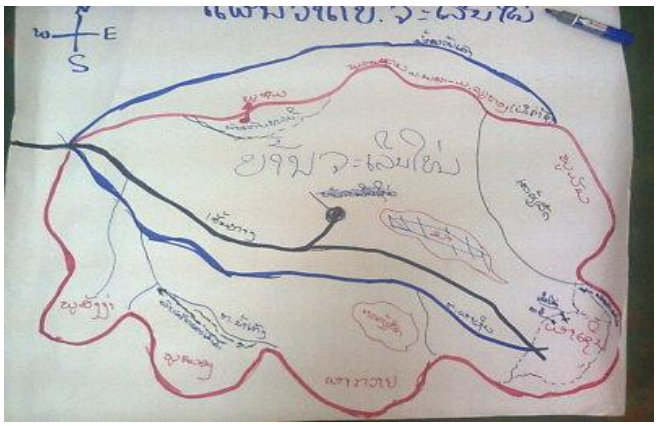
All recorded data forms were then entered into Microsoft excel spreadsheet, and then processed the data as needed. Those potential evidences of Saola were mapped using ArcGIS9.3 to show distribution of Saola and other wildlife occurrence.

Photos: Village interviews, PRA and Conceptual model development meeting

Village questionnaire using PRA (e.g., list of wildlife species occurred in locality

Village questionnaire (interviews)

Village mapping



Sketched map of Ban Chaluenmai

Results

i. Village Socio-economic data

Table 1: Basic socio-economic information of key villages

No	Village	House holds	Pop.	Female	Ethnic	Religion	Primary Job* (%)		Secondary job	Paddy fields (ha)
							Paddy farm	Ray farm		
1	Nam Ngard	129	1,026	506	Hmong	Animism	90	10	Livestock	123
2	Thong Peur	97	617	316	Hmong	Animism	90	10	Livestock	95
3	Nam Ngam	30	223	106	Hmong	Animism	90	10	Livestock	50
4	Chaleunmai	42	324	173	Hmong	Animism	90	10	Livestock	55

* Job (or employment) in local area is related to agricultural practices

ii. Wildlife

- **Village questionnaire**

  - **Saola** (*Pseudoryx nghetinhensis*)

Saola seemed to be recognized by most local villagers, but recent reports of Saola, both sighting and signs (e.g., footprint and scats) were provided in two villages, namely Ban Chaleunmai, at Phaseun Mnt. area (Xiengkhouang and Bolikhamxai boundary Mnt.), approximately 3-4 km toward north east from a village. The area is located in between Bolikhamxai and Xiengkhouang provinces (Figure 2). Other reports of Saola presence were provided by villagers at Ban Thongpeu, a Salao was shot to death about five years ago at Phakouay Mnt., approximately 10 km from the village to the north.

  - **Other key wildlife species**

Reports of presence of other wildlife species were summarized in table 3. Most notably, of those key species reports include tiger – a critically endangered species extirpated from most forested areas of Lao PDR (as well as in other places across its Asian range countries). The species now exists only from Nam Et-Phou Louey National Protected Area in northern Laos, but population number is quite low. The species was reported presence in two villages, Ban Nam Ngard and Chaleunmai villages. Recently reports of animal' sighting, signs (track) and livestock depredation were at Ban Nam Ngard, between July and August 2012 in Nam Thong-Nam Mo area, approximately 10 km from the village. Other recent reports of tiger signs (tracks) were at Ban Chaleunmai, in Phaseun area, about 3-4 km from the village to the north-east. Report of occurrence of the endangered white-cheeked gibbon was provided in all four target villages. Some were reportedly existed nearby villages.

- **Ground field observation**

  - ***Saola (Pseudoryx nghetinhensis)***

  Signs, such as feeding and scats, believed to be left by Saola were found in several places (table 2, figure 5). We distinguished the feces of Saola from other ungulates, e.g., serow, deers, by fecal size and shape (see photo), and also very much by experiences of local villagers (or hunters) who have known and seen Saola.

Table 2. Summaries of records of animal signs believed to be left by Saola

No.	Village	GPS coordinates		Signs	Habitat	Remark
		E	N			
1	Chaleunmai	414523	2085753	Feeding	Evergreen forest	In headstream and fairly dense vegetation, species locally named as "Born Pheuak"
2		415419	2086084	Feeding	Evergreen forest	By stream with water
3		415528	2086632	Feeding	Evergreen forest	
4		417636	2085976	Feeding	Evergreen forest	"Born som"
5	Thong Peu	405671	2098410	Feeding	Evergreen forest	By stream in headwater "Born Som" ຕົ້ນສົ້ມ
6		405677	2098412	Feeding	Evergreen forest	By stream
7		405693	2098392	Feeding	Evergreen forest	
8		405821	209878	Scats	Evergreen forest	In the vicinity of headwater, with some rocks

- ***Observation of other wildlife***

Records of other wildlife species were summarized in table 3. Most field records were for ungulate species.

- ***Threats to Saola and other wildlife***

A conceptual model was together developed with villagers and government staff (see Figure 3). Major threats to wildlife were similar to those found in other places (or NPAs) of Lao PDR, i.e., hunting and habitat destruction. Although the Saola was not really targeted species for local hunters, but if they encountered whatever animals in the forest, they made no choice. Of most concerns, village encroachment into deep pristine forest by clearance of forest in the vicinity of headwater for cash crops plantation were found in the remote areas by field survey team. This may lead to a reduction of suitable habitat for Saola, and also make them exposed to poaching by local villagers. Although the survey teams didn't find any snares in the forest, they believed that hunting by guns is commonly practiced by local villagers.

Table 3: Reports and observed evidence of other key wildlife species, and sign observation in the field in Nam Thong – Nam Mo PPA. A number shows village' report (1 – Ban Nam Ngard, 2 – Ban Thong Peu, 3 – Ban Nam Ngum, and 4 – Ban Chanleunmai) and "F" is field observation.

Common Name	Note[1]	Status[2]		Report Village	Remark
		Global	Laos		
Mammals					
Saola *(Pseudoryx nghetinhensis*)	S, F	EN	ARL	2, 4, F	A Saola seen recently in Ban Chaleunmai (4), at Phaseun Mnt (Bolikhamxai-Xiengkhouang boundary), about 3-4 km from a village in Jul-Aug, 2012. Five years ago (2007), report of Saola presence in B. Thong Peu (2) at Pha Kouay, 10 km from village to the north. Sings confirmed by the field survey
Serow (Capricornis milneedwardsii)		NT	ARL	1,2,3,4, F	Frequent report of occurrence by villagers. Signs (droppings and tracks) confirmed by the field survey
Sambar deer *(Cervus unicolor)*	S, F	VU	ARL	1,2,3,4, F	Frequent reports of encountered by villagers. Signs frequently found in the field.
Muntjac*(Muntiacus Sp.)*	S, F,V			1,2,3,4, F	Frequent reports of encounters. Signs found quite frequently in the field
Wild pig (*Sus scrofa)*	S, F			1,2,3,4, F	Frequent reports of encounters. Signs found quite frequently in the field
Bears (*Ursus sp.)*	F	VU	ARL	1,2,3,4, F	Frequent reports of encounters. Claw marks on a tree found
Golden cat (*Catopuma temminckii)*	F	NT	LKL	1,3,4	Frequent reports of encounters, and no field observation
Clouded leopard (*Pardofelis nebolusa)*	F, S	VU	ARL	1,3,4	Frequent reports of encounters, and no record from this field trip
Leopard (*Panthera pardus*)	F	NT	ARL	1,3	Frequent reports of encounters, and no records from the field trip
Tiger (*Panthera tigris*)	F, S	EN	ARL	1,4	Recent reports of livestock depredation, signs (tracks) and sighting of tigers were in B. Nam Ngard b/w Jul-Agu 2012. Tracks reports at about the same time in Ban Chaleunmai. No signs confirmed by this field.
White Cheeked gibbon (*Nomascus leucogenys)*	S,V	CR	ARL	1,3,4, F	Frequent reports of hearing and sighting (daily/monthly). Heard its calls.
Maccaques (*Macaca sp.*)					Frequent reports by villagers. Sights, and signs (scat) found in the field.
Civet (*d*)				1,2,3,4, F	Frequent reports by villagers. Scats found in the mixed deciduous forest
Birds					
Great Hornbill (*Buceros bicornis)*	S,V	NT	ARL	1,3,4, F	Frequent reports of encounters, and sighted during the field survey

Note: [1] S-Sighting, F- Foot print, and V - Vocal. [2] CR – Critical Endangered, En – endangered, VU – Vulnerable, NT – Near Threatened, ARL – At Risk in Laos

Discussion and Recommendations

Given reports of Saola presence by local villagers associated with evidence of animal signs in the forest indicate clearly that the far north Annamite mountain range, i.e., Nam Mo PPA, still remains important habitat that supports the Saola population, but the number of animals or population size is uncertain. Most local villagers in those target villages nearby the PPA seemed to know the Saola rather well, but recent reports of Saola were provided by villagers at two villages (Ban Thong Peu and Ban Chaleunmai). The provided reports led us to focus our field activities on these two forested sites in the vicinity of these two villages.

Due to limited knowledge and experience in observation of Saola signs in the forest by survey teams, those potential signs of Saola were largely based on experiences of local villagers who have seen Saola and lived in the local area for years. Of most important, our records of those signs were in the evergreen forest areas associated with streams, at the altitudinal range between 450 – 1185 m asl, which is similar to reports of Saola in other places below 1,200 m (Timmins et al. 2008). Records of Saola signs above 1,000 m asl. were in the vicinity of Ban Thong Puer, whereas records of Saola in the vicinity of Ban Chaluenmai were below 1,000 m. asl..

Based on field observations, the Saola may share its habitat with some other ungulates, most notably the Serow. Feces of these two ungulates are quite similar, but shape and size of pellets look different (see photo below). Evidence of feeding plants along streamside may make it more difficult in distinguishing the Saola from other ungulates despite plant species found here are similar to those reportedly fed by Saola in other locations (e.g., Robichaud 1998, Robichaud and Timmins 2004). However, our observations of feeding here are in line with other studies in that Saola is a browser and feeding mostly on leaves (Dung et al. 1994). Therefore, further field surveys using advanced methods, such as camera trapping or scat DNA, are strongly recommended in order to confirm presence of Saola (as well as to estimate a minimum number of Saola) in the most northern portion of the Annamite range.

It is evident that threats to Saola here are similar to those found in other places across Lao PDR, i.e., hunting of Saola by gun and dog, and habitat loss and fragmentation (Timmins et al. 2008). For instance, one Saola was reportedly shot to death by villagers about five years ago at Ban Thong Peur. There were no snares encountered by survey teams during the ground survey. This may indicate that local Hmong villagers in this area have mainly practiced hunting of wild animals by guns with the aid of dogs as provided by villagers in the conceptual model (see figure 4). Of particular concern, although Saola is not targeted for hunting, it seems that local Hmong villagers have made no choice if they encountered an animal in the forest, but largely for eating. Thus, reducing direct killing of Saola is probably far most important at present in order to secure survival of Saola population in the Nam Mo forested area. Therefore, immediate conservation interventions should now aim at building better understanding for local villagers about significance and need for Saola conservation through awareness campaign using different approaches.

Of another concern, clearance of forest in the vicinity of headwater or headstreams by local villagers for cash crop plantation is likely to be widely practiced by local villagers at present despite it is fully

restricted by national regulations or laws for watershed protection purpose. As Saola feed on a few preferred food plants (e.g., Araceae), loss of headstream habitat may result in disappearance of those plant species that form a key part of Saola diet (Robichaud and Timmins 2004). Therefore, land use planning and enforcement of national laws or regulations should be taken as a key intervention to reduce further encroachment into suitable pristine habitat for Saola, and thus secure sufficient food and space for Saola as well as keep them safe from poaching and habitat destruction by those local farmers.

In conclusion, given villagers knowledge of Saola associated with ground observation of evidences suggest that the Saola still remains in the far most-north forested area of Annamite mountain range, but actual number of animals left in the forest at the present is unknown. It strongly recommends that more ground surveys using advanced methods such as camera trapping, or scat DNA or leech-DNA analyses are highly needed to continue on from this study to understand population status of Saola in last portion of Annamite range. Ground survey coverage should firstly focus on two currently surveyed sites (e.g., Ban Thongpeu and Chaleunmai), and then forest areas adjacent to Nam Mo PPA on the east in Viengthong district, Bolikhamxai province.

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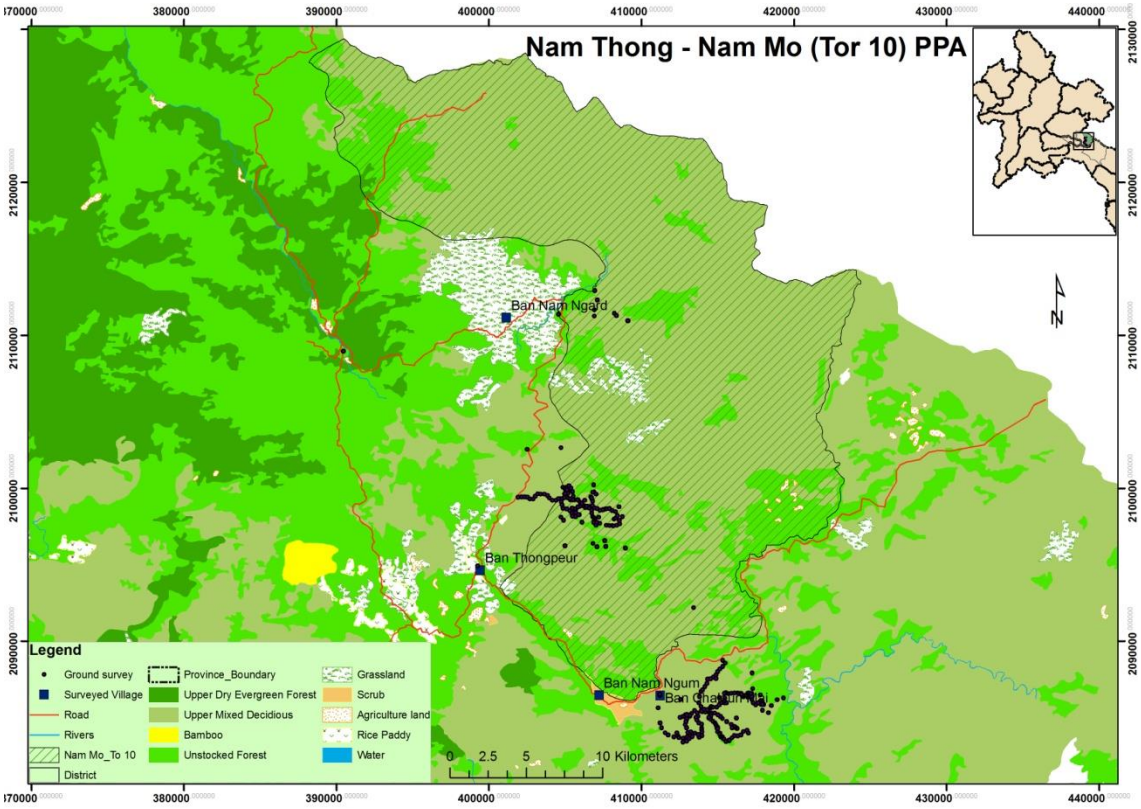

Figure 3. A map shows ground survey routes in the vicinity of Ban Chaleunmai, Thongpeur, and Nam Ngard (black dots – waypoints)

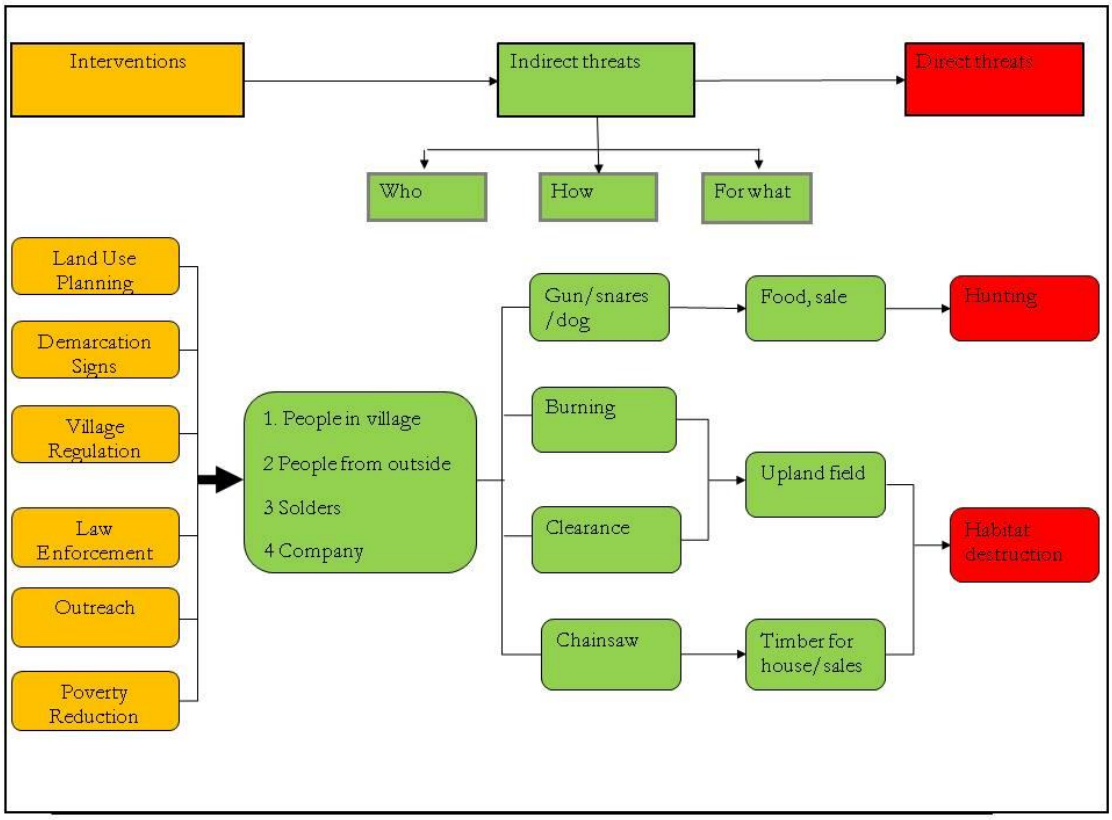

Figure 4. Conceptual model developed together with villagers and government staff

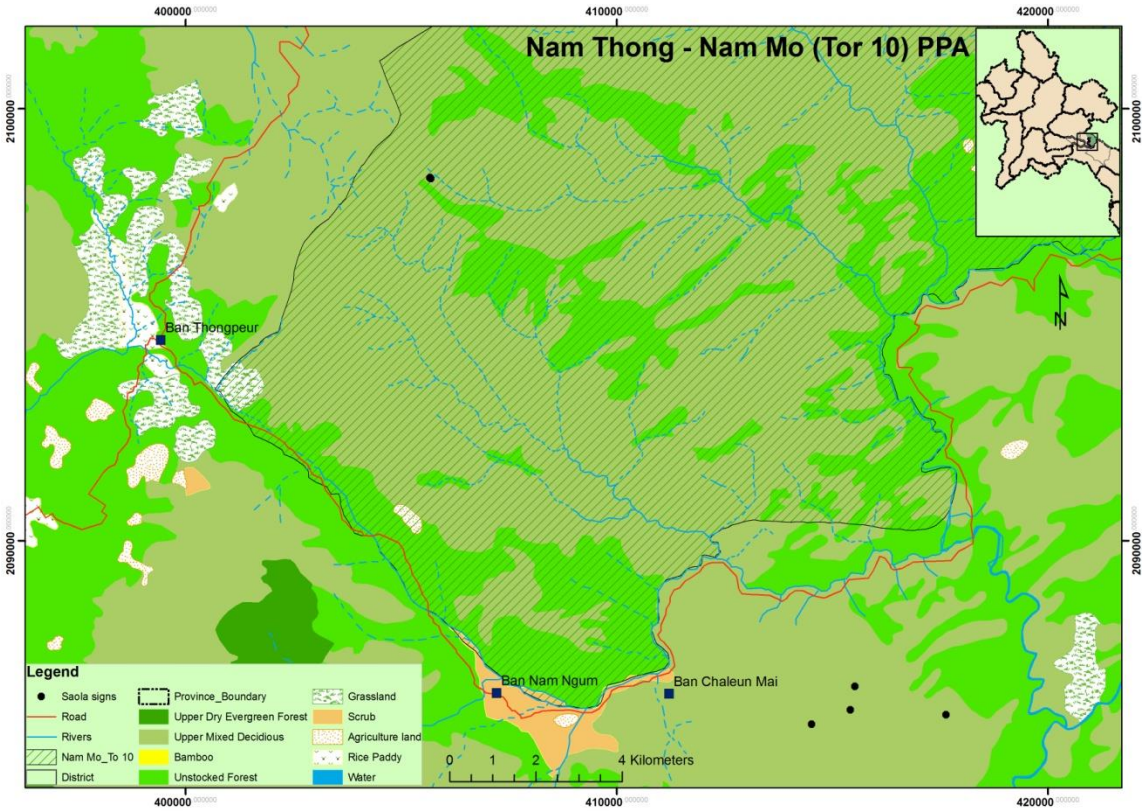

Figure 5. Records of Saola' signs including tracks and scat (black dots) in the vicinity of Ban Chaleunmai and Thongpeur

Photos (field survey team)

Discussion and training on field survey techniques

Discussion with villagers at night to identify villagers joined the field survey team

Field photos (habitat)

Overview photo of habitat in Nam Mo PPA

Streams in headwater

Plant species in headwater streams believed to be fed by Saola below and above

Signs of feeding believed to be left from Saola (above and below)

Signs of feeding, another species believed to be left from Saola (above and left)

Dropping believed to be left from Saola

Clearance of forest in the vicinity of headwater for cash crop may result in habitat loss, and also expose Saola to high risk of poaching by villagers (hut in field above)

Photos: Village landscape and activities

B. Chaleunmai village

B. Nam Ngum village

Agriculture

General geographic landscape

Road to Mork district

NTFP collection

Annex 1. Questionnaire data form

No	Village (Ban)	Coordinate		Interviewee	Wildlife Species encountered			Time of Seeing	Remarks
		X	Y	(Village Forester)	Tracks/ scats	Sighting	Vocal		
1	*Nam Ngard*	*401138*	*2111152*	*Tongchelee*	*Tiger*	*Tiger*		*7Œ8,2012*	*Nam Mo PA, app. 15-20 km to the north from the village, livestock depredation*
2						*Gibbon*	*Gibbon*	*Every month*	*Nam Mo PA, app. 15-20 km to the north from the village*
3	*Thongpeu*	*399422*	*2094650*	*Vachongvee, Naolivee*	*Saola*			*5 years ago*	*Phakouay app. 10 km to the north east*
4					*Bear*				*Phakouay app. 10 km to the north east*
5	*Chaleunmai*	*411216*	*2086454*	*Nengthongvan Beevang*	*Saola*	*Saola*		*Â©õº7-8,2012*	*Xiengkhouang-Bolikhamxai boundary Mnt -called Phaseun about 3-4 km to the south east*
					Tiger	*Tiger*		*7-8,2012*	*Xiengkhouang-Bolikhamxai boundary Mnt -called Phaseun about 3-4 km to the south east*

Annex 2. Basic village socio-economic data form

No	Village	HHs	# of family	H. Pop.	# Male	Ethnic	Religion	Primary job (%)		Second job	Paddy fields (ha)	NTFPs	Dev. Project
								Paddy field	Hai field				
1	*Thongpeu*	*97*	*97*	*917*	*301*	*Hmong*	*Animism*	*90*	*10*	*Livestock*	*50*	*Rattan, bamboo*	*Poverty Reduction Fund*
2	*Chalenmai*	*42*	*42*	*324*	*151*	*Hmong*	*Animism*	*90*	*10*	*Livestock*	*55*	*Rattans, bamboo*	*Irrigation project, ADDA*
3													
4													
5													

Annex 3. Field data collection form

No	E	N	Village	Surveyor	Forest Type	Sighting			Track		Feces		Feed	Breed	Photo no	Remark
						M	F	N.	W	L	O	N				
23	405821	2098783	Thp	Kongseng	Evergreen	0	0	0	0	0	0	1	0	0	00074-81	Believed it is Saola scat, found in the headwater vicinity, valley with karst and resting spot nearby
34	405671	2098410	Thp	Kongseng	Evergreen	0	0	0	0	0	0	0	ຕົ້ນສົ້ມ	0	00133-140	
36	405693	2098392	Thp	Kongseng	Evergreen	0	0	0	0	0	0	0	ຕົ້ນຜຸ້ຊີ	0	00146-150	Near water