

Binturong *Arctictis binturong*

Globally Threatened: Vulnerable (VU), At Potentially Risk in Lao PDR; National Category I (Prohibited)

Binturong was reported throughout Lao PDR, but remain little is known on its status in the country. Direct observation survey of the 1990s also yielded very few records (Duckworth *et al.*, 1999). It was actually reported in most conservation areas of the country but it is rare today. As a nocturnal species it is hard to have its picture in the wild as camera trapping would help capture it. This species was reported in only SB2 and SB3 but in quite low confidence. This species is fairly nationally important for conservation, this species would be present but having neither yet confirmed in the field nor included on the GT confirmed list for this report.

Bengal Slow Loris *Nycticebus bengalensis*,

Globally Threatened: Endangered (EN); Little Known in Lao PDR; National Category I (Prohibited)

This species was reported throughout Lao PDR, but remains little is known on its status in the country. It was reported in all Survey blocks from Ban Dak Dom, Ban Dak Dreun and Ban Prao. Mr. Sengnisone from Ban Dak Dom caught this species at night in Sep 2021. Unfortunately, it was not detected during the night surveys and neither by the herp team. The Survey area would support a very small population of this species so it is unlikely to be of nationally conservation significance. The species was well recognised by local villagers as the Pygmy Slow Loris (*Nycticebus pygmaeus*) is smaller with yellowish, whereas the Bengal Slow Loris is larger with quite whitish. It is therefore not be confused among them. Given in high confidence of village reports on this species occurring in the Survey area, although this species was not confirmed in the field it was certified its presence.

Pygmy Slow Loris *Nycticebus pygmaeus*,

Globally Threatened: Endangered (EN); Little Known in Lao PDR; National Category I (Prohibited)

This species was reported almost throughout Lao PDR, but remain little is known on its status in the country. It is considered difficult to find in the area. Some villagers suggested that the survey area would have only the *N. bengalensis* in the survey area. However, Mr. Sengnisone reported that there are two species present in the territory of Ban Dak Dom. Anyway, it is still in question if the species is present in the area or not.

Owston's Civet *Chrotogale owstoni*

Globally Threatened: Endangered (EN), At Risk in Lao PDR; National Category I (Prohibited)

Owston's Civet occurs in many parts of Lao PDR but its habitat was restricted to Upper Evergreen Forest, along Annamite Mountain Range. It was recently rare due to hunting and probably habitat loss. This species was reported from Ban Dak Dom for the SB2 and Ban Dak Dreun for SB3 and SB4 but insufficient information to support whether the species is present

today. However, it was finally caught on camera trap in SB3 on 16 August 2021 (see Fig. 17; Annex 7). This species is considered rare and present specially in Annamite Range.

Great Hog Badger *Arctonyx collaris*

Globally Threatened: Vulnerable (VU), At Low Risk in Lao PDR; National Category I (Prohibited)

Great Hog Badger, it occurs throughout the Lao PDR, but little is known on its current status. Occurrence seems to be patchy, with no recent records from the Mekong Plain, which covers most of the western part of the southern half of the country (Duckworth *et al.*, 1999). This species was reported in the area but no any evidence of this species was found during the surveys. Anyway, with some confident report from Ban Dak Dom for SB2 and made realized that this species is still present in the area. Finally, it was caught on camera traps for 2 times at UTM: 721472/1713389.

5.3.2.7 First record and possible new species accounts

There were two different species of wild pigs were caught on camera trap, usually known Eurasian Wild Pig (*Sus scrofa*) with its long snout, but one of them was likely *Sus bucculentus* as its shorter snout (see Fig. 19). It is believed there would be identified to this species. As it was rediscovered in 1997 (Grove et al. 1997) after having gone unrecorded since first being described in 1892. The Annamite is the habitat of this species. On the other hand, it is possible to be a hybrid with domestic pig which is hard to make decision from just a picture. Also, Owston's Civet and Spotted Linsang are other rare species which are difficult to obtain their pictures from the wild (see Annex 7) but they were captured on camera trapping.



Figure 19. Morphology of 2 different wild pigs (*sus scrofa* and *sus bucculentus*)

5.3.2.7 Some other selected species accounts

Black Giant Squirrel *Ratufa bicolor*

Globally– Near–Threatened (NT); Potentially At Risk in Lao PDR; National Category II (Managed)

Black Giant Squirrel occurs throughout Lao PDR but its population has decreased considerably as target hunting species for bush meat and often seen being sold in a local market (Duckworth *et al.*, 1999). This species was reported in the SB1, SB2, SB3 and SB4 with confidence for this species presence in the survey area. Previously, Mr. Sonenivong from Ban Dak Dom reported this species was seen in SB3. Through the survey we observed this animal in SB2 on July 2021 and also in the same SB2 on Dec 11 2021. This species was observed again during the dry season survey in the SB2 and SB5, also caught on camera trap in SB5. With some hunting pressure the population of this species would remain in very small number in the Survey area.

In addition, Chinese Goral (*Naemorhedus griseus*) was reported in the SB3 & SB4 but it was not confirmed. It is probably not present.

5.3.2.8 Seasonal variation and distribution of mammal species in the survey area

Distribution of mammal species in the survey area is not really different. They have similar species of composition. Based on the encounters, the Zone A (Annamite) has a higher density of pangolins but the Zone B (Phou Koungking) has a higher density of Stump-tailed Macaque and Chinese Serow. Further northwest such as Phou Yai is only the site where a presence of Northern Pig-tailed Macaque. Among the survey blocks, the higher biodiversity will be in SB2, SB4, SB5 and SB3 and SB.

Seasonally variation of mammal species is also not different. Mammals are not a migratory species, they do inhabit where are safe such as for the Zone A (Phou Koungking) is the safe place for many wildlife species. Whereas, for the Zone B, more wildlife species were recorded during wet season. It was reported that douc langur does occur more often from September to November.

5.3.2.9 Recommendations

Through the survey it is realized that the survey area is all critical habitat as it supports a number of GT species so it needs to be careful to interfere the area. Phou Koungking and SB2 should be legally protected for provincial protected area to ensure the remaining at least 9 GT mammal species in the area be legally protected. It can be linked from SB2 to Phou Koungking and Phou Yai which can be established as bio-offset area of the project.

The survey for large mammals covered the study area well and conducted thoroughly except for the southern Phou Koungking known Phou Katieng where at least 4 GT and target species were present and it seems they have a good population of Northern buff-cheeked Gibbon, Red-shanked Douc Langur, Sambar and Bears.

5.3.2.10 Conclusions

The survey of mammals was conducted and covered enough the habitats and species except some small mammals, including bats. Those small mammals are hard to identify from tracks and feeding sites but that they are not really important for this assessment since the target mammal species are medium and large mammals. Through the surveys made a total of 59 animal species, of which 44 mammal species were confirmed in the field, including some species were reported by local villagers from reliable village reports. Of these species, as 14

GT mammal species were confirmed, included 3 CR, 3 EN and 8 VU). The Survey area still holds a high diversity of mammal species especially the SB2 and SB3 but most of them are of a low population, except Pangolins in the SB2 and Chinese Serow and Stump-tailed Macaque in the SB3 and SB4.

Mammal conservation is urgent because many of them are in low numbers so appropriate strategy and mechanism e.g collaborative management should be applied to work with local communities for protecting them from local extinction. Most importantly, Phou Koungking (SB3 and SB4) should be legally established as conservation area e.g provincial protected area.

Herpetology



5.3.3 Herpetology

5.3.3.1 Introduction

The survey area is part of the Southern Annamite Mountain Range which is well dominated by Upper Evergreen Forest and unique habitats for some specialist reptile species. Mostly

the survey area with over 1,000m a.s.l. and some small portion with a higher elevation of 1,500m a.s.l. which is considered Montane Evergreen Forest (MEF).

According to the Integrated Biodiversity Assessment Tool (IBAT) of International Union for Conservation of Nature (IUCN) and some reviews generated a list of 10 GT species in the Survey area. Of these species, 6 GT species were the target species for the reptile survey, included Bourret’s Box Turtle (*Cuora bourreti*, CR), Three-horned scale Pitviper (*Protobothrops sieversorum*, EN), Yellow eyed Spadefoot Toad *Leptobrachium xanthops* (EN), Black-breasted Leaf Turtle (*Geoemyda spengleri*, EN), Impressed Tortoise (*Manouria impressa*, VU) and Red River Krait (*Bungarus slowinskii*, VU). Meanwhile, some other GT species were not defined as target species but important to record if they are present.

5.3.3.2 Key findings

Through the survey made a total of 74 herpetofauna species, of which 30 reptile species and 41 amphibian species were confirmed from the field surveys. As globally threatened species of herpetofauna would be still present in the area, but only 3 GT were confirmed from the field as Red River Krait (*Bungarus slowinskii*, VU), Chinese soft-shell Turtle (*Pelodiscus sinensis*, VU) and Serrate Frilled Treefrog (*Kurixalus cf gryllus*, VU) (see Table 15a and 15b).

Interestingly, 6 reptile species were first record of Laos, 2 second record of Laos and 3 reptile species are considered possible new species as not described yet (see Fig. 13), and detailed list of herpetofauna species were confirmed from the survey area can be found in Annex 3 and Annex 4.

Table 15a. List of Globally Threatened reptile species records and reports in the Survey area

Survey Block	Key reptile species			GT species count by SB
	CR	EN	VU	
SB1 – Annamite			3	3
SB2 – Annamite			5	5
SB3 – Phou Kounking			3	3
SB4 – Phou Kounking			4	4
SB5 – Phou Yai			4	4

Remarks: some reliable report is counted for reptiles.

Table 15b. List of GT and target reptile species records and reports in the Survey area

Common Name	Scientific Name	IUCN Red List	Field Conf.	Survey Block					Presence
				1	2	3	4	5	
Bourret’s box turtle	<i>Cuora bourreti</i>	CR	Report	?	?	?			Uncertain
Elongated Tortoise	<i>Indotestudo elongata</i>	EN	Report						Possible

Yellow eyed Spadefoot Toad	<i>Leptobrachium xanthops</i>	EN	Report		?	?			
Impressed Tortoise	<i>Manouria impressa</i>	VU	Report	x	x				YES
King Cobra	<i>Ophiophagus hannah</i>	VU	Report		x	x	x	x	YES
Burmese Python	<i>Python bivittatus</i>	VU	Report		x	x	x	x	YES
Black-breasted Leaf Turtle	<i>Geoemyda spengleri</i>	EN	Report		?	?			
Keeled Box Turtle	<i>Cuora mouhotii</i>	EN	Report	?					Possible
Red River Krait	<i>Bungarus slowinskii</i>	VU		x	x				YES
Indochinese Spitting Cobra	<i>Naja siamensis</i>	VU	Report		x	x	x	x	YES
Three-horned scale Pitviper	<i>Protobothrops sieversorum,</i>	EN	Report		?	?	?		Uncertain
Serrate Frilled Treefrog	<i>Kurixalus cf gryllus</i>	VU					x	x	YES
Asiatic Soft-shell Turtle	<i>Amyda cartilaginea</i>	VU	Report						Possible
Chinese Soft-shell Turtle	<i>Pelodiscus sinensis</i>	VU		x					YES
Total				3	5	3	4	4	7

Remarks: The globally threatened herpetofauna species were confirmed including those species from reliable village reports, but only 3 of them were directly confirmed in the field. Some species with low confidence (possible) were not be counted.

5.3.3.3 Findings by survey block

According to the herpetofauna species recorded with some reports showed a higher number of reptile species were in SB3 and SB4 (Phou Koungking) and then the SB2 (Annamite). The key findings by Survey block were presented on a number of species records and reliable village reports in the area with highlighting of some important findings by survey block.

5.3.3.3.1 Findings by Survey block 1 (Annamite)

The survey for herpetofauna in the Survey block 1 was conducted through village interviews (Ban Dak Dom) and field surveys. The village interviews reported of 23 herpetofauna species, of which during the field observations 21 species were confirmed as 9 reptiles and 13 amphibians) were present in the field and mostly photographed. Carapace of the Impressed Tortoise was found in Ban Dak Ta-ok noy. With some reliable village reports there are 3 GT species present in the Survey block, including: Impressed Tortoise (EN), Red River Krait (VU) and Chinese Soft-shell Turtle (VU). These tortoises were reported in Ban Dak Dom and reported that they used to hunt them but they are considered rare today.

5.3.3.3.2 Findings by Survey block 2 (Annamite)

The survey for herpetofauna in the Survey block 2 was conducted through village interviews (Ban Dak Dom) and field surveys. The village interviews reported of 26 herpo fauna species, of which during the field observations 23 species (11 reptiles and 12 amphibians) were present in the area and mostly photographed. Of which, only 1 GT species, Red River Kriat, but only the Red River Kriat was confirmed from the field in SB2 at 15.555660N/107.358260E as was found dead on road. Still, other 4 GT species from reliable village reports including: Impressed Tortoise (EN), King Cobra (VU), Indochinese Spitting Cobra (VU) and Burmese Python (VU). Yet, no field verification as they were just reported by local villagers of Ban Dak Dom. Mostly likely possible GT species are still present in the area are Elongated Tortoise (EN) and Asiatic Soft-shell Turtle.

5.3.3.3.3 Findings by Survey block 3 (Phou Koungking E)

The survey for herpetofauna in the Survey block 3 was conducted through village interviews (Ban Dak Dreun) and field surveys. The village interviews reported of 38 herpo fauna species, of which during the field observations, 32 species (15 reptiles and 17 amphibians) were confirmed in the field and mostly photographed. As 3 GT species from reliable village reports including: King Cobra (VU), Indochinese Spitting Cobra (VU) and Burmese Python (VU).

5.3.3.3.4 Findings by Survey block 4 (Phou Koungking W)

The survey for herpetofauna in the survey block 4 was conducted through village interviews (Ban Prao) and field surveys. The village interviews reported of 33 herpetofauna species, of which during the field observations 30 herpetofauna species (16 reptiles and 14 amphibians) were confirmed in the field and mostly photographed. As 5 GT species from direct observation and reliable village reports including: King Cobra (VU), Indochinese Spitting Cobra (VU), Burmese Python (VU), Impressed Tortoise (EN and Serrate Filled Treefrog (VU).

5.3.3.3.5 Findings by Survey block 5 (Phou Yai)

The survey for herpetofauna in the survey block 5 was conducted through village interviews (Ban Prao) and field surveys. The village interviews reported of 23 herpetofauna species, of which during the field observations 23 species (11 reptiles and 12 amphibians) were confirmed in the field and some photographed. As 4 GT species from direct observation and reliable village reports including: King Cobra (VU), Indochinese Spitting Cobra (VU), Burmese Python (VU) and Impressed Tortoise (EN).

Through the surveys, the globally threatened and target reptile species is only Red River Krait (*Bungarus slowinskii*, VU) and *Kurixalus cf. gryllus* (VU) were confirmed in the survey area during the wet season survey, 2 turtle species were found during the dry season survey. More efforts for the reptile survey would generate more species to the list of herpetofauna species and that should focus on beginning of wet season.

5.3.3.4 Overview of herpetofauna community

There are several sub-herp communities in the survey area as Snake, Lizard, Turtle and Frogs as following:

Snake community

Snakes were reported widely in Laos which they can adapt to some degraded environments and a number of snake species were reported in the Survey area. They are associated with small rivers, streams where well covered by forest habitats. Snake can be found both daytime and night time but more active at night for feeding. Therefore, spotlighting would be only best survey to detect snakes.

The surveys for snakes were conducted mainly through field observations to confirm the presence of this sub-herp group, mostly the Green Pitviper snake in the family of Vipiridae (4 species), while some other in general environment which some ratsnakes do present and in the family of Colubridae (7 species were recorded in the field). The common species are Vogel's pitviper (*Trimeresurus vogeli*), Brown-spotted pitviper (*Protobothrops mucrosquamatus*), Beauty ratsnake (*Elaphe taeniura*), big-eye bamboo snake (*Pseudoxenodon macrops*) etc.

Lizard community

Lizards were reported widely in Laos which they can adapt to many environments and some numbers of lizard species were reported in the Survey area. They are associated with several environments. As a uniqueness of the Annamite habitats in the survey area so some specific lizard could be present. A majority of the lizards can be found on tree trunk, bushes and ground as well as associated with streams. Lizards can be found both daytime and night time but more active for feeding in night time.

The surveys for lizards were conducted mainly through field observations to confirm the presence of this sub-herp group, mostly the family of Agamidae (4 species) and Scincidae (4 species), included the species of Mountain horn dragon (*Acanthosaura nataliae*), Ziegler's tree lizard (*Pseudocalotes ziegleri*), Blue-trailed skink (*Plestiodon quadrilineatus*) etc. The mountain horn dragon was well presented in the survey area as it was found in all survey blocks and meaning to Annamite it is then considered Annamite horn dragon (see Fig. 20).

Turtle community

Turtles were reported widely in Laos, there are turtle and tortoise which they cannot adapt well to some degraded environments and some numbers of turtle species were reported in the Survey area. The turtles are associated with rivers e.g Xe Khaman and small rivers/streams. The tortoise species are associated with forest habitats as land turtles. Mostly both turtles and tortoises were reported with high confidence but no any of them were confirmed in the field, they are rare and would have a low population in the area. The turtles especially land turtles were under most high threat due to high pressure with assistance from hunting dogs in searching land turtles.



Figure 20. Annamite horn dragon (*Acanthosaura sp*)

Frog community

There are tree dwelling frogs and ground dwelling frogs.

Tree dwelling frogs, tree or arboreal frog community inhabiting trees was mainly present in the Survey area. The sub-amphibian group recorded and reported in the survey area were the family of (Ranidae: *Odorrana*, *Sylvirana* and *Amolops*). However, it is not popularly consumed or harvested.

Ground dwelling frogs, the ground-dwelling frog community is the small group living in the Survey area and show low numbers of species and populations. The sub-amphibian group recorded and reported in the survey area.

5.3.3.5 Globally threatened species accounts

Following are the records of species considered of global and/or national conservation interest which specific recording sites were given with mapping, as well as endemic species (first record and possible new species were provided) (see Fig. 21).

Impressed Tortoise *Manouria impressa*

Globally Threatened: Vulnerable (VU); At Risk in Lao PDR; National List I (Prohibited)

The species is a non-aquatic species as land turtle (tortoise); it has a distribution throughout the Lao PDR (Stuart & Platt, 2004). In addition, it occurs from Myanmar across Southern China and Indo-China, southward to Peninsular Malaysia (Zhao & Adler 1993). This species

was reported in 4 survey blocks (except SB5). Local villagers from Ban Dak Dom reported the presence of this species as they collected it occasionally, 2-3 tortoises per year, as well as Ban Dak Dreun used to harvest this tortoise. It is in a very low population and in high market demands as local villager searching for this tortoise for food and sale with assistance from dogs. During the surveys, although with high confidence of local reports on its presence there was no evidence of this species was found in the field but carapace of the species was found in Ban Dak Ta-ok noy so it was finally confirmed its presence.

Bourret's Box Turtle *Cuora bourreti*

Globally Threatened: Critically Endangered (CR); National List I (Prohibited)

Bourret's box turtle is native to Indo-China, especially Lao PDR, and includes central Vietnam (Nguyen *et al.*, 2009 and Stuart *et al.*, 2011). It is known from central Viet Nam (Nghe An, Ha Tinh, Quang Binh, Thua Thien-Hue, Da Nang, Quang Nam, and Kon Tum provinces), as well as from adjoining Savannakhet Province in Lao PDR (Obst and Reimann 1994, Nguyen *et al.*, 2009, Stuart *et al.*, 2011). During the surveys, the residents from Ban Dak Dom reported the presence of this turtle in SB2 but it was not really confident since it was no one hunted this turtle recently. Pitfall traps were used for trapping freshwater turtles in rivers. This species become very rare today and probably become extinct in the area. During the surveys, no evidence of this species was found. The main threat to the turtle was a hunting for sale in the past, hardly used for food since it is good market price. This species is in high demand from international market in Vietnam.

Keeled Box Turtle *Cuora mouhotii*

Globally Threatened: Endangered (EN); At Risk in Lao PDR; National List I (Prohibited)

The species was originally described from the "Laos Mountains". The species is associated with limestone karst in central and northern Lao PDR (Stuart & Platt 2004, Teynié & David 2010) and occurs in north-eastern India, Myanmar, northern Thailand, southern China and Vietnam (Zhao & Adler 1993). It was only recorded in Laos as a specimen collected from Hin Namno National Park (Stuart & Platt 2004). The species was reported in the survey area including SB2 (Annamite), SB3 and SB4 (Phou Koungking). Through the surveys, no any evidence of this species was found. As searches were conducted in small streams, and probably due to the low population it is difficult to detect.

Elongated Tortoise *Indotestudo elongata*

Globally Threatened: Endangered (EN); At Risk in Lao PDR; National List I (Prohibited)

The species is a non-aquatic species "tortoise" as a land turtle. It is widely distributed across South and Southeast Asia. The species was reported in SB2, SB2 and SB3. Through the surveys, no any evidence of this species was found. It was reported in Ban Dak Dom (SB2) that the villagers (Mr. Kham) collected it 2 years ago. Due to the low population it is difficult to detect and not know if it is still present.

Three-horned scale Pitviper *Protobothrops sieversorum*

Globally Threatened: Endangered (EN)

This species is only known from the Annamite Mountains of Lao PDR and Vietnam (Ziegler *et al.*, 2000 and Hermann *et al.*, 2002). This species is endemic to evergreen karst forests at low and possibly mid-elevations, in both primary and disturbed forest. It has been found in Phong Nha-Ke Bang National Park (Vietnam) and the Hin Namno National Park, which are part of the biggest continuous karst formation in Indochina and this snake was recorded at 200 and 600 m a.s.l. However, it was not reported nor recorded in the survey area.

Yellow eyed Spadefoot Toad *Leptobrachium xanthops*

Globally Threatened: Endangered (EN)

This species has a distribution mainly in Indo-China, and reported in the highland of southern Lao PDR e.g Sekong Province (Stuart 2005), it is exactly in Phou Kounking (SB3). Known with certainty only from wet evergreen forest at 1,450–1,500m a.s.l. Although probably more widespread in the highlands of southwestern Laos and adjacent Central Highlands of Vietnam. This species was reported in SB2 by Ban Dak Dom and SB3 by Ban Dak Dreum but at very low confidence. During the surveys there was no evidence of this frog was found in the area. Through the surveys, no any evidence of this species was found. Due to the low population it is difficult to detect, this species may occur in the Survey area. Threat to this species was due to habitat loss and ecological changes because of probably climate change. However, it was not reported nor recorded in the survey area

Black-breasted Leaf Turtle *Geoemyda spengleri*

Globally Threatened: Endangered (EN)

Geoemyda spengleri is endemic to Southeast Asia. *Geoemyda spengleri* inhabits forested hill regions of southern China (Guangdong, Hainan, and possibly Guangxi and Hunan) and northern Viet Nam, including adjoining areas of Lao PDR; its southern extent remains unclear. *Geoemyda spengleri* is primarily terrestrial but occasionally uses streams (Fang 1930). It inhabits in closed forest canopy at mid to high elevations (from 500 to over 1,000 m a.s.l.). This species was reported in SB2 by Ban Dak Dom and SB3 by Ban Dak Dreum but at very low confidence of its presence in the survey area today, it is very difficult to detect. During the surveys there was no evidence of this turtle was found in the survey area.

King Cobra *Ophiophagus Hannah*

Globally Threatened: Vulnerable (VU); Potentially At Risk in Lao PDR; National List I (Prohibited).

The king cobra has a wide distribution in South and Southeast Asia, it occurs widely from India across the Southern China, southward to Indonesia and the Philippines (Zhao & Adler 1993), including Cambodia, Thailand, Laos, Vietnam and Malaysia, and at elevation of 2,000 m a.s.l. It is known throughout Laos as Lao name “Ngou Chong Ang” (Deuve 1970). The animal was reported in SB2 by Ban Dak Dom and SB3 by Ban Dak Dreum and SB4 by Ban Prao, as they used to encounter it occasionally in the past with confidence of its presence in the Survey area today. The species was of high demands from market, as with a lucrative price e.g US\$50–70/kg. Through the surveys, during the surveys there was no evidence of this snake was found. Yet, based on the provisional information and the reliable village

reports this species was confirmed its presence in the area as they used to find it very occasionally.

Asiatic Soft-shell Turtle *Amyda cartilaginea*

Globally Threatened: Vulnerable; Potentially At Risk in Lao PDR.

The species is quite common and known throughout Lao PDR (Stuart & Platt 2004), including a historical record from Paklay and Bolikhamxay (Smith 1931). Moreover, this species also occurs widely in Southeast Asia, from Myanmar to Indonesia (Asian Turtle Trade Working Group 2000) but it becomes rare today. The species was reported in Ban Dak Dom for SB2, and previous survey by WWF mentioned the presence of this species in Sekong River and its tributaries such as Xe Khaman which runs through the territory of Ban Dak Dom. This species was well reported during the survey but another Soft-shell turtle found so this species is not confirmed but the Chinese Soft-shell Turtle instead. Threat to this animal was the over-exploitation for food and sale.

Chinese Soft-shell Turtle *Pelodiscus sinensis*

Globally Threatened: Vulnerable; Potentially At Risk in Lao PDR.

The species is native to China but they are raised widely in the region. The species was not reported from the survey but it was found in Ban Dak Dom by Mr. Sengnisone that he caught it from the small river nearby this village in September 2021. The suitable habitat including Sekong River and its tributaries such as Xe Khaman which runs through the territory of Ban Dak Dom. Although during the survey, no any evidence of the turtle was found but only one was found in Ban Dak Dom (see Fig. 13b) and realized it is present. Threat to this animal was the over-exploitation for food and sale.

Indochinese Spitting Cobra *Naja siamensis*

Globally Threatened: Vulnerable (VU); Potentially At Risk in Lao PDR; National List II (Managed)

Indochinese Spitting Cobra is known throughout Laos, it occurs widely from India across the Southern China, southward to Indonesia and the Philippines (Zhao & Adler 1993). The animal was reported in SB2 by Ban Dak Dom and SB3 by Ban Dak Dreum and SB4 by Ban Prao, as they used to encounter it occasionally in the past with confidence of its presence in the Survey area today. Its population is considered low and quite difficult to detect. Mr. Kham from Ban Dak Dom reported sightings of this snake in the SB1 and SB2. Through the surveys, no evidence of the snake was found. However, based on the provisional information and reliable village reports this species was confirmed its presence as they used to find it occasionally.

Burmese python *Python bivittatus*

Globally Threatened: Vulnerable (VU); At Risk in Lao PDR; National List I (Prohibited)

Burmese python occurs throughout Southern and Southeast Asia, including Cambodia, Thailand, Laos and Vietnam. Ecologically, the Burmese python is often found near marshes

and swamps, and is sometimes semiaquatic, but can also be found in trees. This species was reported in SB2, SB3, SB4 and SB5 but given in medium confidence. Due to a low population today, it is difficult to detect this snake in the Survey area. The snake species was heavily harvested in the area because of the needs for both local and international market and sold as a skin (US\$30-50/kg). Through the surveys, no evidence of the snake was found. Given in high confidence and reliable village reports this species was confirmed its presence in the Survey area as they use to find it occasionally, Ban Dak Kang hunted this snake 3 years ago in SB5.

Red River Krait *Bungarus slowinskii*

Globally Threatened: Vulnerable (VU)

Bungarus slowinskii is known only from Viet Nam, where it has been recorded from Yen Bai, Lao Cai, Quang Tri and Quang Nam Provinces (Nguyen *et al.*, 2009). It is suspected to occur in adjacent areas of Lao PDR, but has never been recorded there (B. Stuart and Q.T. Nguyen *pers. comm.* 2011). The snake has large extent of occurrence and can be found from 400-700 m a.s.l. This snake is a terrestrial, oviparous snake of mountain regions, which has only been found in or near streams in evergreen forest. This species was reported in all survey blocks with high confidence of its presence today. During the surveys it was found dead on road on 14 July, 2021, in SB2 (UTM: 752925/1721182, alti: 1,080m a.s.l.) (see Fig. 21).

5.3.3.6 First record and possible new species accounts

First records of herpetofauna species in Laos are interesting and with publication of these frog species will change some previously known endemic herpetofauna species of Vietnam to Annamite or Indochina since they are not present in only Vietnam.

FIRST RECORDS

Serrated Frilled Treefrog *Kurixalus cf. gryllus*

Globally Threatened: Vulnerable (VU) and – first record of Laos

This frog was first record in Vietnam and considered endemic to Vietnam in Kon Tum Province at above 1,000m a.s.l. (Nguyen and Eto, 2014), but with this record in Dak Cheung (Southern Annamite) which reveals the species distribution is larger than the previous known range, probably the whole Southern Annamite Mountain Range including the Upper Evergreen Forest of Attapeu Province. During the surveys this frog was found in the SB4 on 21 July, 2021 at UTM: 730980/1712401. This species was only the first record of Laos and endemism to the Annamite, but also one of Globally threatened species.

Truong son bug-eyed Frog *Theloderma truongsonense*

Globally Threatened: not known as not assessed yet – first record in Laos

This frog was first record in Vietnam and considered endemic to Vietnam in Kon Tum Province at above 1,000m a.s.l. (Nguyen and Eto, 2014), but with this record in Dak Cheung (Southern Annamite) which reveals the species distribution is larger than the previous known, probably the whole Southern Annamite Mountain Range including the Upper

Evergreen Forest of Attapeu Province. During the surveys this frog was found in the SB1 on 13 July, 2021 and SB4 on 20 July, 2021 at 15.478276N/107.154488E, alt:1,455m a.s.l.

Spiny torrent Frog *Amolops spinaepectoralis*

Globally Threatened: not known as not assessed yet – first record in Laos

Amolops spinaepectoralis occurs in Northern and central montane Vietnam (Gia Lai, Da Nang, Quang Nam, Kon Tum, Phu Yen, and Quang Name Provinces), it is at present only known from a few locations in central Vietnam and endemic to Vietnam - but it is likely to be found more widely in the Vietnamese central highlands as well as in the adjacent southeastern Laos and northeastern Cambodia (Inger *et al.*, 1999 and Poyarkov *et al.*, 2021). This species inhabits in evergreen forests at elevations of over 700m a.s.l. and montane (wet forest), vertical rock faces adjacent to waterfalls. It can be very abundant locally; however, it is threatened by habitat loss in Vietnam and partly in Laos by expanding agriculture; large areas of forest are being converted to cash crop plantations such as rubber, coffee, and tea. During the surveys this frog was found in the SB3 on 20 July, 2021 at 15.502398N/107.368455E, alt: 1,170m a.s.l.

Poilene Frog *Limnonectes cf. poilani*

Globally Threatened: not known as not assessed yet – first record in Laos

Limnonectes cf. poilani is considered a big frog, inhabits in Upper Evergreen Forests at elevations of ca. or over 1,000m a.s.l., mainly montane (wet forest), vertical rock streams and adjacent to waterfalls (Le *et al.* 2018. During the surveys this frog was found in the SB1 on 15 July, 2021 at 15.539671N/107.353805E, alt: 1,065m a.s.l.

In addition, there are other 2 species of second record of amphibian in Laos, and 3 possible new species (see Fig. 21 and Annex 3) as one of them was recorded outside the survey blocks.

NEW SPECIES CANDIDATE

Quaripaa sp. – possible new species to science as it has not been described before.

This species was found in the pond close to the Guesthouse in Dak Cheung town as urban area, just outside the survey blocks. This area is degraded area, it was originally the range of upper evergreen forest.

Xenophrys cf. maosonensis – possible new species to science as it has not been described before. This species was found in small stream of SB2 and SB4. The streams were well covered with healthy upper evergreen forest.

Rhacophorus sp nov – possible new species to science as it has not been described before. This species was found in small stream of SB2. The stream was well covered with healthy upper evergreen forest.

Polypedates sp. – possible new species to science as it has not been described before. This species was found in small stream of SB2. The stream was well covered with healthy upper evergreen forest.

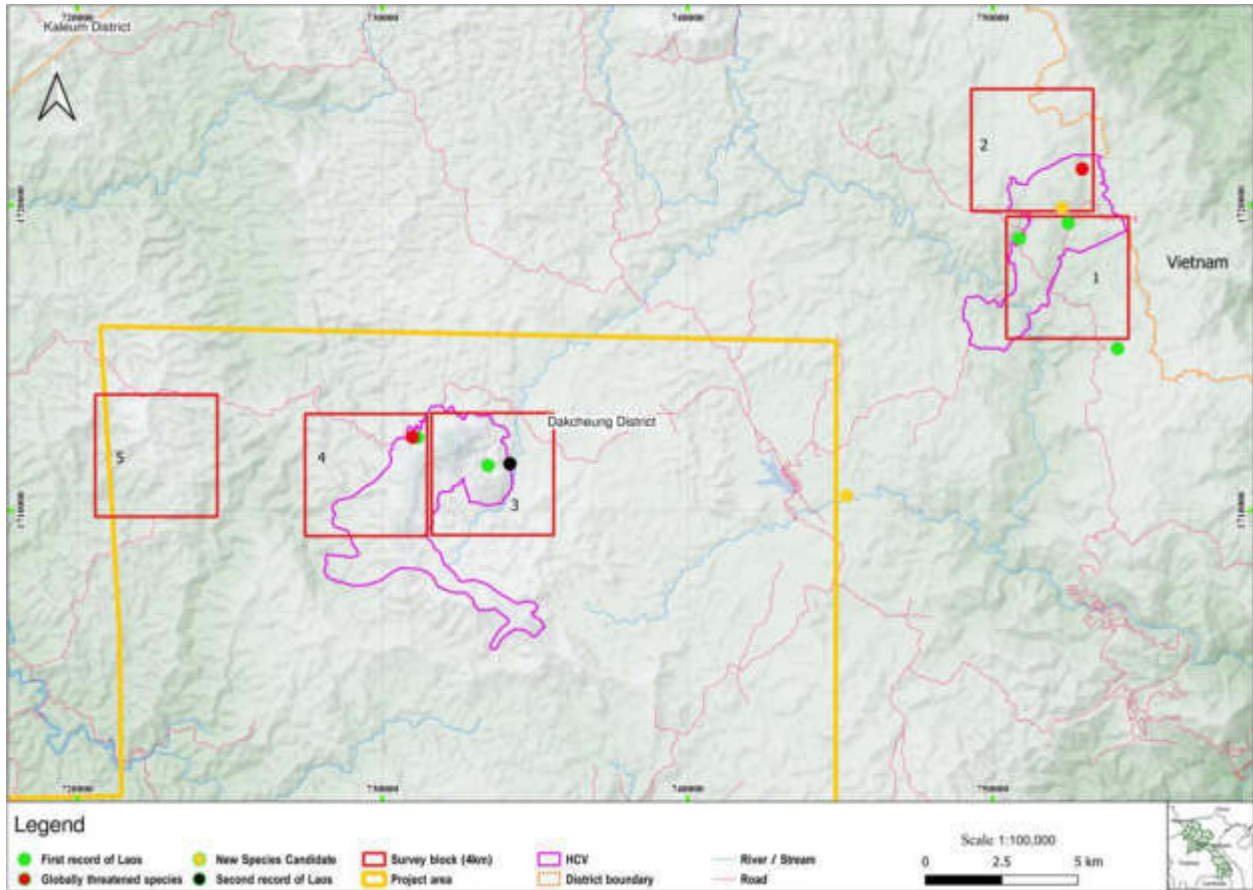


Figure 21. Locations of GT and endemic reptile species in the survey blocks

5.3.3.7 Some other selected species accounts

No any particular herpetofauna species are selected for species accounts.

5.3.3.8 Seasonal variation and distribution of herpetology in the survey area

Herpetofauna species in the survey area have similar distribution but they have different variation by season. Most species are active during wet season especially the beginning of wet season but barely any species can be detected during dry season. Only some few species were found in dry season such as a group of *Limnoectes*, not leaf frog and snakes were found.

5.3.3.9 Recommendations

Herpetofauna (amphibian and reptile species) has been surveyed fairly completely during the surveys. Yet, some numbers of globally threatened species reported could not be confirmed in the field due to some rarity. Therefore, it needs further survey for dry season especially turtles and snakes. Some herpetofauna species with a low population should be surveyed as to identify their habitats for protection.

5.3.3.10 Conclusions

All habitats and micro-habitats are important for herpetofauna community and considered unique for both southern Annamite as well as Phou Koungking (as part of sporadic Annamite, it is Montane Evergreen Forest with submit of 1,700 m a.s.l). Through the surveys of herpetofauna made a total of ca. 73 herpetofauna species were listed, of which 71 species were confirmed from the field survey and other 6 species from reliable village reports.

As 7 globally threatened herpetofauna species (6 reptile and 1 amphibians) were confirmed their presence with some few species from reliable village reports, all is VU species. The SB4 and SB3 (Phou Koungking) generated a high number of herpetofauna species, then SB2, 5 and SB1 (Annamite). But, the GT herpetofauna species was found in high number in the SB2, then SB4 and SB5.

Further survey of herpetofauna should be conducted in specific habitats in the future to identify a number of species still to be confirmed, especially those GT species. The most important survey blocks for herpetofauna are SB3, SB4 and SB3. These include canopy dwelling herpetofauna species. Moreover, larger size species were not detected due to a low population caused by heavy harvesting specially turtles and snakes.

6. THREATS TO BIODIVERSITY

Threats to biodiversity are mainly for terrestrial species – the mammal, turtles and snakes which are all becoming rare in the Survey area due to hunting, overharvest for trading, some logging activity (SB1) and slash-burned activities for hill rice cultivation and coffee plantation (SB1) so most globally threatened under high threats (see Fig. 22a-22d).

Secondary forest, habitat degradation due to expansion of agriculture was observed widely in SB5, and partly in SB3, SB4, SB1. Also, new road construction was observed in the SB2 which made the habitat fragmented and that will generate new impact on gibbon population in the area from disturbance and hunting. A new transmission of E-Moun Dam was being under construction during the survey as its alignment runs through the northern section of SB5, SB4, SB3 and SB1. Therefore, cumulative impact in the area is and will be from transmission lines of other hydropower power projects such as E-Moun Dam, Xe Khaman Dam, also the military road project, and the proposed logistics park of the International Checkpoint.

Hunting was found more frequency during dry season survey from gunshots and hunters as gunshots were heard 9 times on December 7, 2021 in SB1, and some in other SBs. Hunters

were found during the survey and evidences from camera traps in all SBs particularly the SB1 and SB5. Snare lines were found occasionally in the forests. Hunting some GT species, including Gibbon and Red-shanked Douc Langur were reported but mostly by opportunistic encounters. As well as collecting juvenile Douc for sale by the villagers of Ban Ta-ok noy was reported as they caught it from the SB2.



Figure 22a. Some evidences of threats (hunting and logging)



Figure 22b. Hunting (Porcupine), trapped dead animal and snares



Figure 22c. Hunters captured on camera traps



Figure 21d. Road construction along the Lao-Vietnam Border and TL clearance

The mammal is a large animal and easily detected by a hunter and its capacity of moving is difficult and needs habitat connectivity. Searching animals with assistance from domestic dogs will exaggerate the level of expiration of many species particularly tortoises. Only Phou Kounking (SB3 and SB4) are fairly protected by traditional belief as sacred place and difficult to access due to highly steep slopes. The SB1, SB5 and SB2 received higher threats.

7. CONCLUSIONS

The Survey area holds important wildlife community with a number of fauna and flora species recorded, including some numbers of globally threatened species especially mammal and endemic species for herpetofauna and plants. Although the survey area was not declared as any conservation area, a total of 23 Globally Threatened species were confirmed in the area (14 mammal, 6 reptile, 1 amphibian and 2 plant species).

The target species that were directly confirmed in the field including Northern buff-cheeked Gibbon (*Nomascus annamensis*, EN), Red-shanked Douc Langur (*Pygathrix nemaeus*, CR), Chinese Pangolin (*Manis Pentadactyla*, VU), Sunda Pangolin (*Manis javanicus*, CR), Stump-tailed Macaque (*Macaca arctoides*, VU), Sambar (*Rusa unicolor*, VU), Chinese Serow (*Capricornis milneedwardsii*, VU), Annamite Striped Rabbit (*Negolagus timminsi*, EN), Owston's Civet (*Chrotogale owstoni*, EN), Impressed Tortoise (*Manouria impressa*, VU) and Red River Kriat (*Bungarus slowinskii*, VU). Also, other GT species were confirmed but not on the target species as Serrate Frilled Treefrog (*Kurixalus cf gryllus*, VU), Stump-tailed Macaque (*Macaca arctoides*, VU), Northern Pig-tailed Macaque (*Macaca leonina*, VU), Chinese Serow (*Capricornis milneedwardsii*, VU), Sun Bear (*Helarctos malayanus*, VU) and Asiatic Black Bear (*Ursus thibetanus*, VU), Great Hog Badger (*Arctonyx collaris*, VU) and Smooth-coated Otter (*Lutrogale perspicillata*, VU).

Interestingly, apart from GT species there are 48 endemic species were found in the survey blocks, of which 29 first plant records of Laos, 4 first herpetofauna records of Laos, 2 second herpetofauna records of Laos, 10 possible new plant and 3 possible new herp species were defined for possible new species to science for the time being.

In addition, the area is interesting sites for wildlife survey or research, including birds and amphibians, will be SB3 and SB4 (Phou Koungking) as outstanding biodiversity with uniqueness of habitat – Montane Evergreen Forest at up to 1,700 m a.s.l. This hotspot of biodiversity should be legally established as conservation area in the future.

Meanwhile, some incidental records from the mammal, herpetofauna and plant assessment on bird and fish can be found in Annex 8.

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ANNEXES

Annex 1a-1. Summary of plant plot by Survey Block (SB1 – Annamite) based on DAFOR

Botanical Surveys											
Site name	Survey Block 1	Date and Time	13-15/7/2021	Latitude		Longitude		Monitoring Plot (ID Number)	Plot 1-1/1-2/1-3/1-4/1-5/1-		
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.						Monitoring Plot Size	0.6 ha			
Air Temperature [°C]	27	Cloud Cover	0	Rain	0	Wind	0	rief weather descriptio	Warm and hot in the morning		
Habitat types present	Disturbed forests near Ban Dak Taoak, National Protection Area along the border to Vietnam										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
Lower montane evergreen forest dominated by the family Lauraceae and Fagaceae					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					Notes on impacts within the plot and nearby					Forest located in the village, easy to enter and destroy the forest	
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	12	Canopy mean cover (%)	80	Understorey mean height (m)	4	Understorey mean cover (%)	20	Herbaceous layer mean height (m)	0.6	Herbaceous layer mean cover (%)	10
Approx age of canopy (yrs)	60	Bare ground cover (%)	20	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegeta											
Mean veg height (cm)	120	Max veg height (cm)	300								
Vegetation cover (%)	90	Bare ground cover (%)	10	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (Including Red List/Invasive)											
Species		DAFOR		Species		DAFOR		Species		DAFOR	
Acronychia pedunculata		A		Endospermum diadenum		F		Litsea monopetala		O	
Aglala tomentosa		D		Engelhardtia serrata		O		Litsea umbellata		D	
Alniphyllum		A		Engelhardtia cf. roxburghiana		O		Machilus sp.1		D	
Anacolosia clarkel		F		Engelhardtia sp.1		O		Madhuca pierrei		A	
Anacolosia griffithii Mast.		A		Exbucklandia tonkinensis		O		Magnolia braianensis		A	
Aporosa yunnanensis		D		Gironniera subaequalis		F		Magnolia sp.1		F	
Artocarpus		F		Glochidion eriocarpum		O		Meliosma cambodiana		O	
Calophyllum pisiferum		F		Glochidion cf. rubrum		O		Monoon sp.1		R	
Cinnamomum curvifolium		D		Heynea trijuga		O		Nephelium hypoleucum		D	
Clerodendrum cyrtophyllum		D		Horsfieldia thorellii		F		Pinus kesiya		O	
Cleyera cf. bokorensis		D		Knema cf. lenta		O		Polyalthia		A	
Cratoxylum sumatranum		F		Lindera bokorensis		O		Polyosma		O	
Dacrydium elatum		F		Lindera sp.1		F		Pseuduvaria		O	
Diospyros filipendula		F		Lithocarpus corneus		D		Psydrax		O	
Diplospora sp.1		F		Lithocarpus garrettianus		O		Quercus sp.1		O	
Diplospora sp.2		F		Lithocarpus pierrei		A		Quercus sp.2		A	
Elaeocarpus dubius		F		Lithocarpus sp.1		A		Schima crenata		D	
Elaeocarpus griffithii		O		Lithocarpus sp.2		O		Sterculia parviflora		D	
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.											
Red list species to be marked in list using *											
Invasive species to be marked in list using **											
Photo references											

List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)					
Species	DAFOR	Species	DAFOR	Species	DAFOR
Stewartia laotica	O	Asplenium phyllitidis D. Don	D	Ophiopogon dracaenoides (Baker) Hook.f.	O
Styrax chinensis	O	Pteridium aquilinum (L.) Kuhn	D	Piper	O
Styrax sp.1	O	Selaginella wallichii (Hook. & Grev.) Spring	D	Plectocomia pierreana Becc.	O
Symplocos atrilivacea	D	Smilax	D	Smilax glabra Roxb.	O
Symplocos caudata	F	Alyxia	A	Styrax	O
Syzygium angkae	O	Diplazium donianum (Mett.) Tardieu	A	Tetrastigma	O
Syzygium antisepticum	A	Fimbristylis	A	Zingiber	R
Syzygium lineatum	D	Ardisia crenata Sims	F		
Syzygium syzygioides	F	Cyperus	F		
Syzygium sp.1	R	Eulalia contorta (Brongn.) Kuntze	F		
Syzygium sp.2	O	Alpinia	O		
Xanthophyllum ellipticum	O	Ardisia gigantifolia Stapf	O		
		Ardisia sp.1	R		
		Aspidistra	O		
		Blastus borneensis Cogn.	O		
		Calophyllum	O		
		Ixora javanica (Blume) DC.	O		
		Lindsaea ensifolia Sw.	O		
		Mapania	O		
		Nephelium hypoleucum Kurz	O		
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.					
Red list species to be marked in list using *					
Invasive species to be marked in list using **					
Photo references					

Detailed plant plots of the Survey block 1 as below

Plant plot 1.1

Botanical Surveys											
Site name	Survey Block 1	Date and Time	7/13/2021	Latitude	752943	Longitude	1719617	Monitoring Plot (ID Number)	1-1		
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	27	Cloud Cover	0	Rain	0	Wind	0	if weather descrip	Warm and hot in the morning		
Habitat types present	Disturbed forests near Ban Dak Taoak, National Protection Area along the border to Vietnam										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
<p style="text-align: center;">Lower montane evergreen forest dominated by the family Fagaceae</p>					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					Notes on impacts within the plot and nearb					Forest located in the village, easy to enter and destroy the forest	
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	14	Canopy mean cover (%)	80	Understorey mean height (m)	5	Understorey mean cover (%)	30	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	15
Approx age of canopy (yrs)	45	Bare ground cover (%)	20	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	4		
For other habitats record overall max and mean height of vegeta											
Mean veg height (cm)	100	Max veg height (cm)	200								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
<i>Aglala tomentosa</i> Teijsm. & Binn.	A	<i>Lithocarpus corneus</i> (Lour.) Rehder	A	<i>Ardisia gigantifolia</i> Stapf	O						
<i>Acronychia pedunculata</i> (L.) Miq.	O	<i>Lithocarpus pierreii</i> (Hickel & A.Camus) A.Camus	A	<i>Asplenium phyllitidis</i> D. Don	O						
<i>Antidesma montanum</i> Blume	O	<i>Madhuca pierreii</i> (F.N.Williams) H.J.Lam	O	<i>Diplazium donianum</i> (Mett.) Tardieu	O						
<i>Balakata baccata</i> (Roxb.) Esser	O	<i>Melicope glomerata</i> (Craib) T.G.Hartley	O	<i>Ixora javanica</i> (Blume) DC.	F						
<i>Beilschmiedia</i>	F	<i>Melicope pteleifolia</i> (Champ. ex Benth.) T.G.Hartley	O	<i>Nephelium hypoleucum</i> Kurz	F						
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	D	<i>Monoon</i> sp.1	R	<i>Plectocomia pierreana</i> Becc.	O						
<i>Cinnamomum curvifolium</i> (Lam.) Nees	F	<i>Quercus</i> sp.1	D	<i>Pteridium aquilinum</i> (L.) Kuhn	O						
<i>Endospermium diadenum</i> (Miq.) Airy Shaw	F	<i>Sterculia parviflora</i> Roxb.	F	<i>Selaginella wallichii</i> (Hook. & Grev.) Spr	O						
<i>Gironniera subaequalis</i> Planch.	O	<i>Symplocos caudata</i> Wall. ex G.Don	F	<i>Smilax glabra</i> Roxb.	F						
<i>Gomphandra javanica</i> (Blume) Valetton	O	<i>Symplocos atrilivacea</i> Merr. & Chun ex H.L. Li	O	<i>Tetrastigma</i>	F						
<i>Heynea trijuga</i> Roxb. ex Sims	O			<i>Zingiber</i>	F						
<i>Horsfieldia thorelii</i> Lecomte	F										
<i>Lasianthus chinensis</i> (Champ.) Benth.	F										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 1.2

Botanical Surveys											
Site name	Survey Block 1	Date and Time	7/13/2021		Latitude	-752607	Longitude	1718678	Monitoring Plot (ID Number)	1-2	
Surveyors	Souladeth, P., Soukhaivong, M., Thonphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	27	Cloud Cover	0	Rain	0	Wind	0	if weather describes	Warm and hot in the morning		
Habitat types present	Disturbed forests near Ban Dak Taoak, National Protection Area along the border to Vietnam										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
<p style="text-align: center;">Lower montane evergreen forest dominated by the family Fagaceae</p>					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					Notes on impacts within the plot and nearby					Forest located in the village, easy to enter and destroy the forest	
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	14	Canopy mean cover (%)	85	Understorey mean height (m)	3	Understorey mean cover (%)	25	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	20
Approx age of canopy (yrs)	60	Bare ground cover (%)	15	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	4		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	150	Max veg height (cm)	340								
Vegetation cover (%)	90	Bare ground cover (%)	10	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR
Lithocarpus corneus (Lour.) Rehder	D	Lithocarpus corneus (Lour.) Rehder	D								
Anacolsa clarkel Pierre	F	Litsea umbellata (Lour.) Merr.	A								
Anacolsa griffithii Mast.	A	Magnolia braianensis (Gagnep.) Figlar	O								
Artocarpus	F	Magnolia sp.1	O								
Calophyllum pisiferum Planch. & Triana	A	Meliosma cambodiana Pierre	O								
Cinnamomum javanicum Blume	A	Schima crenata Korth.	A								
Diplospora sp.1	F	Sterculia parviflora Roxb.	D								
Elaeocarpus griffithii (Wight) A.Gray	O	Stewartia laotica (Gagnep.) J.J. & T.L.Ming	O								
Engelhardtia serrata Blume	O	Symplocos atrilivacea Merr. & Chun ex H.L.L.	A								
Engelhardtia sp.2	F	Symplocos caudata Wall. ex G.Don	A								
Exbucklandia tonkinensis (Lecomte) H.T.Chen	F	Syzygium angkai (Craib) Chantar. & J.Parn	O								
Glochidion eriocarpum Champ. ex Benth.	O										
Horsfieldia thorelii Lecomte	O										
Litsea monopetala (Roxb.) Pers.	F										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 1.3

Botanical Surveys											
Site name	Survey Block 1	Date and Time	7/14/2021	Latitude	752318	Longitude	1717523	Monitoring Plot (ID Number)	1-3		
Surveyors	Souladeth, P., Soukhayong, M., Thonphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	27	Cloud Cover	0	Rain	0	Wind	0	if weather descrip	Warm and hot in the morning		
Habitat types present	Disturbed forests near Ban Dak Taoak, National Protection Area along the border to Vietnam										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
<p style="text-align: center;">Lower montane evergreen forest dominated by the family Lauraceae and Myrtaceae</p>					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					Notes on impacts within the plot and nearby					Forest located in the village, easy to enter and destroy the forest	
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	13	Canopy mean cover (%)	70	Understorey mean height (m)	3	Understorey mean cover (%)	25	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	10
Approx age of canopy (yrs)	65	Bare ground cover (%)	30	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	10		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	80	Max veg height (cm)	250								
Vegetation cover (%)	90	Bare ground cover (%)	10	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
Diospyros filipendula Pierre ex Lecomte	O	Elaeocarpus dubius DC.	O								
Gironniera subaequalis Planch.	O	Goniothalamus tamirensis Pierre ex Finet & G	F								
Lithocarpus corneus (Lour.) Rehder	O	Medinilla septentrionalis (W.W.Sm.) H.L.Li	O								
Machilus sp.1	D	Polyalthia parviflora Ridl.	O								
Magnolia braianensis (Gagnep.) FiglarMag	O	Prunus arborea (Blume) Kalkman	F								
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
Diospyros filipendula Pierre ex Lecomte	O	Elaeocarpus dubius DC.	O								
Gironniera subaequalis Planch.	O	Goniothalamus tamirensis Pierre ex Finet & G	F								
Lithocarpus corneus (Lour.) Rehder	O	Medinilla septentrionalis (W.W.Sm.) H.L.Li	O								
Machilus sp.1	D	Polyalthia parviflora Ridl.	O								
Magnolia braianensis (Gagnep.) FiglarMag	O	Prunus arborea (Blume) Kalkman	F								
Nephelium hypoleucum Kurz	O	Xanthophyllum ellipticum Korth. ex Miq.	O								
Pseuduvaria	O										
Quercus sp.1	A										
Schima crenata Korth.	A										
Styrax chinensis Hu & S.Ye Liang	O										
Styrax sp.1	O										
Symplocos atriolivacea Merr. & Chun ex H.	O										
Syzygium sp.1 (big lvs)	R										
Syzygium antisepticum	D										
Syzygium syzgioides (Miq.) Merr. & L.M.F.	A										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 1.4

Botanical Surveys														
Site name	Survey Block 1	Date and Time	7/14/2021		Latitude	751395	Longitude	1717920	Monitoring Plot (ID Number)	1-4				
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha					
Air Temperature (°C)	27	Cloud Cover	0	Rain	0	Wind	0	if weather descrip	Warm and hot in the morning					
Habitat types present	Disturbed forests near Ban Dak Taoak, National Protection Area along the border to Vietnam													
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)									
Lower montane evergreen forest dominated by the family Lauraceae					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood				
					Combined impact score									
					Notes on impacts within the plot and nearby					Forest located in the village, easy to enter and destroy the forest				
For forest habitat describe canopy, understorey and ground flora														
Canopy mean height (m)	15	Canopy mean cover (%)	85	Understorey mean height (m)	3	Understorey mean cover (%)	40	Herbaceous layer mean height (m)	0.4	Herbaceous layer mean cover (%)	35			
Approx age of canopy (yrs)	45	Bare ground cover (%)	15	Water cover (%)	1	Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5					
For other habitats record overall max and mean height of vegetation														
Mean veg height (cm)	180	Max veg height (cm)	250											
Vegetation cover (%)	95	Bare ground cover (%)	5	Water cover (%)	0									
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)														
Species	DAFOR			Species	DAFOR			Species	DAFOR					
Acronychia sp.1	O			Heptapleurum cambodiana Yahara & Tagane	O									
Aglala tomentosa Teijsm. & Binn.	O			Syzygium lineatum (DC.) Merr. & L.M.Perry	O									
Anacolosia griffithii Mast.	O			Syzygium sp.2	D									
Artocarpus	O			Dacrydium elatum (Roxb.) Wall. ex Hook.	O									
Cleyera sp.1	D			Diospyros filipendula Pierre ex Lecomete	F									
Cratoxylum sumatranum (Jack) Blume	O			Medinilla septentrionalis (W.W.Sm.) H.L.Li	O									
Dacrydium elatum (Roxb.) Wall. ex Hook.	F			Memecylon	O									
Elaeocarpus dubius DC.	O													
Engelhardtia sp.2	O													
Gironniera subaequalis Planch.	O													
Gomphia serrata (Gaertn.) Kanis	O													
Lithocarpus garrettianus (Craib) A.Camus	O													
Lithocarpus sp.1	D													
Magnolia sp.1	F													
Psychrax sp.1	F													
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **														

Plant plot 1.5

Botanical Surveys													
Site name	Survey Block 1	Date and Time	7/15/2021		Latitude	-751734	Longitude	1717636	Monitoring Plot (ID Number)	1-5			
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha				
Air Temperature (°C)	30	Cloud Cover	0	Rain	0	Wind	0	if weather descrip	Warm and hot in the morning				
Habitat types present	Disturbed forests near Ban Dak Taoak, National Protection Area along the border to Vietnam												
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)								
<p style="text-align: center;">Lower montane evergreen forest dominated by the family Lauraceae</p>					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood			
					Combined impact score								
					Notes on impacts within the plot and nearby					Forest located in the village, easy to enter and destroy the forest			
For forest habitat describe canopy, understorey and ground flora													
Canopy mean height (m)	12	Canopy mean cover (%)	90	Understorey mean height (m)	5	Understorey mean cover (%)	60	Herbaceous layer mean height (m)	0.4	Herbaceous layer mean cover (%)	40		
Approx. age of canopy (yrs)	50	Bare ground cover (%)	10	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5				
For other habitats record overall max and mean height of vegetation													
Mean veg height (cm)	100	Max veg height (cm)	250										
Vegetation cover (%)	90	Bare ground cover (%)	10	Water cover (%)	0								
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)													
Species	DAFOR		Species	DAFOR		Species	DAFOR		Species	DAFOR			
<i>Aglaia tomentosa</i> Teijsm. & Binn.	O		<i>Polyosma</i> sp.1	A									
<i>Aporosa</i> sp.1	D		<i>Polyosma</i> sp.2	O									
<i>Calophyllum pisiferum</i> Planch. & Triana	O		<i>Syzygium antisepticum</i> (Blume) Merr. & L.M.	F									
<i>Carallia brachiata</i> (Lour.) Merr.	O		<i>Syzygium</i> sp.2	F									
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	D		Unknown Phyllanthaceae	O									
<i>Cinnamomum javanicum</i> Blume	O		<i>Xanthophyllum ellipticum</i> Korth. ex Miq.	O									
<i>Dacrycarpus imbricatus</i> (Blume) de Laub.	O												
<i>Diplospora</i> sp.2	O												
<i>Endospermum cladenum</i> (Miq.) Airy Shaw	O												
<i>Knema</i> sp.1	O												
<i>Lindera</i> cf. <i>bokorensis</i> Yahara & Tagane	O												
<i>Lithocarpus</i> sp.2	O												
<i>Madhuca pierrei</i> (F.N. Williams) H.J. Lam	O												
<i>Magnolia</i> cf. <i>braianensis</i> (Gagnep.) Figlar	O												
<i>Neolitsea</i> sp.1	R												
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **													

Plant plot 1.6

Botanical Surveys													
Site name	Survey Block 1	Date and Time	7/16/2021		Latitude	752607	Longitude	1719693	Monitoring Plot (ID Number)	1-6			
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha				
Air Temperature (°C)	30	Cloud Cover	0	Rain	0	Wind	0	if weather description	Warm and hot in the morning				
Habitat types present	Disturbed forests near Ban Dak Taok, National Protection Area along the border to Vietnam												
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)								
<p style="text-align: center;">Lower montane evergreen forest dominated by the family Lauraceae</p>					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood			
					Combined impact score								
					Notes on impacts within the plot and nearby					Forest located in the village, easy to enter and destroy the forest			
For forest habitat describe canopy, understorey and ground flora													
Canopy mean height (m)	13	Canopy mean cover (%)	70	Understorey mean height (m)	2	Understorey mean cover (%)	40	Herbaceous layer mean height (m)	0.4	Herbaceous layer mean cover (%)	35		
Approx age of canopy (yrs)	45	Bare ground cover (%)	30	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5				
For other habitats record overall max and mean height of vegetation													
Mean veg height (cm)	90	Max veg height (cm)	180										
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0								
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)													
Species	DAFOR		Species	DAFOR		Species	DAFOR						
Cinnamomum javanicum Blume	F												
Clerodendrum cyrtophyllum Turcz.	O												
Cleyera sp.1	O												
Lindera sp.1	A												
Lithocarpus comeus (Lour.) Rehder	O												
Lithocarpus pierrei (Hickel & A.Camus) A.Camus	A												
Litsea umbellata (Lour.) Merr.	A												
Madhuca pierrei (F.N.Williams) H.J.Lam	O												
Monoon sp.2	O												
Neolitsea zeylanica (Nees & T. Nees) Merr.	A												
Nephelium hypoleucum Kurz	D												
Polyalthia sp.1	O												
Heptapleurum cambodiana Yahara & Tagane	A												
Unknown Euphorbiaceae	O												
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **													

Annex 1a-2. Summary of tree species list in the Survey Block 1

No	Scientific Name	Local Name	Family	IUCN Red List
1	<i>Acronychia pedunculata</i>	ປ້າແຂບທອງ (Pao khaeb thong)	Rutaceae	
2	<i>Aglaia tomentosa</i>	ຍິງກະສັງ (Gnong kasang)	Meliaceae	
3	<i>Alniphyllum</i>	ຍານດົງ (Gnan dong)	Styracaceae	
4	<i>Anacolosia clarkei</i>	ແຄະ (Khae)	Olacaceae	
5	<i>Anacolosia griffithii</i> Mast.	ແຊະ (Sae)	Olacaceae	
6	<i>Aporosa yunnanensis</i>	ເໝືອດໃບແຫຼມ (Maud bai-laem)	Phyllanthaceae	
7	<i>Artocarpus</i>	ມື້ປ່າ (Mee pa)	Moraceae	
8	<i>Calophyllum pisiferum</i>	ກະຫິງ (Ka thueng)	Calophyllaceae	
9	<i>Carallia brachiata</i>	ບັ້ງນັ່ງ (Bong nang)	Rhizophoraceae	
10	<i>Castanopsis acuminatissima</i>	ກໍ່ເດືອຍ (Kor deau)	Fagaceae	
11	<i>Cinnamomum curvifolium</i>	ຈວງ (Juang)	Lauraceae	
12	<i>Clerodendrum cyrtophyllum</i>	ພວງພີ້ (Phoung phee)	Lamiaceae	
13	<i>Cleyera cf. bokorensis</i>	ໄກ້ (Kaii)	Pentaphylacaceae	
14	<i>Cratoxylum sumatranum</i>	ຕີ້ (Tee)	Hypericaceae	
15	<i>Dacrydium elatum</i>	ຮິ່ງຫອມ (Hinh hom)	Podocarpaceae	
16	<i>Diospyros filipendula</i>	ຄໍ່ ນຈີ້ (Kor jong)	Ebenaceae	
17	<i>Diplospora sp.1</i>	ສ້ຽນ (Sean)	Rubiaceae	
18	<i>Diplospora sp.2</i>	ສ້ຽນ (Sean)	Rubiaceae	
19	<i>Elaeocarpus dubius</i>	ແຊງແຊວ (Saeng seo)	Elaeocarpaceae	
20	<i>Elaeocarpus griffithii</i>	ມຸນ (Moun)	Elaeocarpaceae	
21	<i>Endospermum diadenum</i>	ຕະພີ (Tee phong)	Euphorbiaceae	
22	<i>Engelhardtia serrata</i>	ຟາວຂຽວໜາມ (Phao khiew)	Juglandraceae	
23	<i>Engelhardtia cf. roxburghiana</i>	ຟາວຂຽວ (Phao khiew)	Juglandraceae	
24	<i>Engelhardtia sp.1</i>	ຟາວ (Phao)	Juglandraceae	
25	<i>Exbucklandia tonkinensis</i>	ໂພກາບລາງ (Pho kablang)	Hamamelidaceae	
26	<i>Gironniera subaequalis</i>	ຫາງແມງໄອ່ (Hang maeng-ai)	Cannabaceae	
27	<i>Glochidion eriocarpum</i>	ຂີ້ມີ (Khee mod)	Phyllanthaceae	
28	<i>Glochidion cf. rubrum</i>	ແດງນ້ຳ (daeng nam)	Phyllanthaceae	
29	<i>Gomphia serrata</i>	ຊ້າງນ້ຳວ (Sang nao)	Ochnaceae	
30	<i>Heptapleurum cambodianum</i>	ຕ້າງ (Tang)	Araliaceae	
31	<i>Heynea trijuga</i>	ໝາກແຟນ (Mak fane)	Meliaceae	
32	<i>Horsfieldia thorelii</i>	ເລີ້ ອດນີ (Lae(d nok)	Myristicaceae	
33	<i>Knema cf. lenta</i>	ເລີ້ ອດຄວາຍ (Laeud khouay)	Myristicaceae	
34	<i>Lindera bokorensis</i>	ບັງບໍກໍ (Bong bokor)	Lauraceae	
35	<i>Lindera sp.1</i>	ບັງ (Bong)	Lauraceae	
36	<i>Lithocarpus corneus</i>	ກໍ່ຫຼີ້ (Kor Rab)	Fagaceae	
37	<i>Lithocarpus garrettianus</i>	ກໍ່ແປ້ນ (Kor Pane)	Fagaceae	
38	<i>Lithocarpus pierrei</i>	ກໍ່ກັກ (Kor Kak)	Fagaceae	
39	<i>Lithocarpus sp.1</i>	ກໍ່ Kor{	Fagaceae	
40	<i>Lithocarpus sp.2</i>	ກໍ່ Kor{	Fagaceae	
41	<i>Litsea monopetala</i>	ໝໍ້ຫອມ (Mee hom)	Lauraceae	
42	<i>Litsea umbellata</i>	ບັງຮ້າງ (Bong hang)	Lauraceae	
43	<i>Machilus sp.1</i>	ຕອງຫອມ (Tong Hom)	Lauraceae	
44	<i>Madhuca pierrei</i>	ລະມຸດຊາງ (Lamout sang)	Sapotaceae	
45	<i>Magnolia braianensis</i>	ຈໍາປີປ່າ (Champi Pa)	Magnoliaceae	
46	<i>Magnolia sp.1</i>	ຈໍາປີປ່າ (Champi Pa)	Magnoliaceae	

47	Meliosma cambodiana	ໝາກກອກພູ (Mak kok phou)	Sabiaceae	
48	Monoon sp.1	ຢາງໂອນ (Yang oun)	Annonaceae	
49	Neolitsea zeylanica sp.1	ໄຟເດືອນຫ້າ (Fai deuanha)	Lauraceae	
50	Neolitsea sp.1	ໄຟເດືອນຫ້າ (Fai deuanha)	Lauraceae	
51	Nephelium hypoleucum	ຄໍ່ແລນ (Kho lane)	Sapindaceae	
52	Pinus kesiya	ແປກສາມໃບ (Peak sambai)	Pinaceae	
53	Polyalthia	ນ້ຳເຕົ້າກົກ (Namtao kok)	Annonaceae	
54	Polyosma	ເໝືອດໂລດ (Maud lod)	Escalloniaceae	
55	Pseuduvaria	ກ້ວຍເຫງັ ນຕົ້ນK(Quay ngen ton)	Annonaceae	
56	Psydrax	ກະປະ (Ka-pa)	Rubiaceae	
57	Quercus sp.1	ກໍ່ (Kor)	Fagaceae	
58	Quercus sp.2	ກໍ່ (Kor)	Fagaceae	
59	Schima crenata	ຄາຍໄສ້ (Khai Soh)	Theaceae	
60	Sterculia parviflora	ບໍ່ໃບໃຫ້ຍ (Por baiyai)	Malvaceae	
61	Stewartia laotica	ບໍ່ເຫືອງລາວ (Por huang lao)	Theaceae	
62	Styrax chinensis	ຍານຈິນ (Gnan chin)	Styracaceae	
63	Styrax sp.1	ຍານ (Gnan)	Styracaceae	
64	Symplocos atriolivacea	ເໝືອດຄອມ (Maud khom)	Symplocaceae	
65	Symplocos caudata	ເໝືອດຄອມນ້ອຍ (Maud khom noy)	Symplocaceae	
66	Syzygium angkae	ຫວ້າກາ (Wha ka)	Myrtaceae	
67	Syzygium antisepticum	ສະເມັກແດງ (Samek deang)	Myrtaceae	
68	Syzygium lineatum	ຫວ້າຈ້ອຍ (Wha joi)	Myrtaceae	
69	Syzygium syzygioides	ຫວ້າຢອງ (Wha yong)	Myrtaceae	
70	Syzygium sp.1	ຫວ້າ (Wha)	Myrtaceae	
71	Syzygium sp.2	ຫວ້າ (Wha)	Myrtaceae	
72	Xanthophyllum ellipticum	ແສງດົງ (Seng dong)	Polygalaceae	

Annex 1b-1. Summary of plant plot by Survey Block (SB2 – Annamite)

Botanical Surveys											
Site name	Survey Block 2		Date and Time	18-18/7/2021		Latitude		Longitude		Monitoring Plot ID Number	Plot 2-1/2-2/2-3/2-4/2-5/2-6
Surveyors	Soudeleth, P., Soukxavong, M., Thonghakdy, N., Bouttavong, T.									Monitoring Plot size	0.6 ha
Air Temperature (°C)	27	Cloud Cover	0	Rain	0	Wind	0	Brief weather description	Warm and hot in the morning		
Habitat types present	Underconstruction road from the international border to Vietnam										
Site and vegetation description						Condition assessment scores and comments (fire, wildlife and human activity)					
Lower montane evergreen forest dominated by the family Fagaceae and Lauraceae						Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood
						Notes on impacts within the plot and nearby					
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	34	Canopy mean cover (%)	85	Understorey mean height (m)	7	Understorey mean cover (%)	20	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	10
Approx age of canopy (yrs)	80	Bare ground cover (%)	15	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	150	Max veg height (cm)	280								
Vegetation cover (%)	85	Bare ground cover (%)	10	Water cover (%)	5						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species		DAFOR		Species		DAFOR		Species		DAFOR	
<i>Acer laurinum</i>		O		<i>Fagraea cefanica</i>		F		<i>Magnolia braianensis</i>		F	
<i>Alangium</i> sp.1		O		<i>Garcinia hanburyi</i>		F		<i>Meliosma cambodiana</i>		R	
<i>Alseodaphne bidouperis</i>		A		<i>Garcinia pedunculata</i>		D		<i>Momocylon manifolium</i>		O	
<i>Ameslea fragrans</i>		O		<i>Gomnieria subaequalis</i>		F		<i>Monosium junceum</i>		A	
<i>Aperosa yunnanensis</i>		F		<i>Hegstapleurum cambodianum</i>		D		<i>Nageia fleuryi</i> *		O	
<i>Calophyllum dryobalanoides</i>		O		<i>Ilex excavata</i>		O		<i>Neolitsea tomentosa</i>		D	
<i>Castanopsis acuminatissima</i>		A		<i>Ilicium roseum</i>		A		<i>Pinus dalatensis</i> *		R	
<i>Castanopsis piniformis</i>		D		<i>Isora javanica</i>		O		<i>Platlea latifolia</i>		O	
<i>Chionanthes ramiflora</i>		D		<i>Lasiacanthus</i> cf. <i>viridiramis</i>		O		<i>Podocarpus nenifolius</i>		O	
<i>Cinnamomum javanicum</i>		O		<i>Lindera bokorensis</i>		O		<i>Polyosma dolichocarpa</i>		A	
<i>Dacrydium imbricatum</i>		F		<i>Lindera</i> sp.1		O		<i>Psidium</i> sp.2		O	
<i>Dacrydium elatum</i>		D		<i>Lithocarpus cornutus</i>		D		<i>Premaria polianensis</i>		F	
<i>Diospyros filipendula</i>		O		<i>Lithocarpus pierrei</i>		A		<i>Quercus</i> cf. <i>langbianensis</i>		O	
<i>Eleocharis dulcis</i>		F		<i>Lithocarpus</i> sp.3		A		<i>Quercus thorelii</i>		O	
<i>Eleocharis griffithii</i>		D		<i>Lithocarpus</i> sp.4		R		<i>Sarcosperma kurzianae</i>		O	
<i>Eleocharis limitatus</i>		O		<i>Litsea baviensis</i>		D		<i>Schima crenata</i>		O	
<i>Endospermum dialeuticum</i>		O		<i>Litsea umbellata</i>		F		<i>Sterculia kiocephala</i>		R	
<i>Engelhardtia serrata</i>		D		<i>Machilus</i> sp.1		A		<i>Sterculia parviflora</i>		F	
<i>Eurya</i>		D		<i>Machilus angustifolia</i>		D		<i>Stewartia lactica</i>		F	
<i>Eubucklandia</i>		O		<i>Madhuca cochinchinensis</i>		R		<i>Symplocos anonala</i>		D	
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.											
Red list species to be marked in list using *											
Invasive species to be marked in list using **											
Photo references											

List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)			
Species	DAFOR	Species	DAFOR
<i>Symplocos atrofavosa</i>	F	<i>Lasiacanthus</i>	D
<i>Symplocos dolichotricha</i>	F	<i>Hedyotis</i>	D
<i>Syzygium antisepticum</i>	D	<i>Alysicarpus</i>	D
<i>Termstroemia gymnanthera</i>	O	<i>Arenga westerhoutii</i> Griff.	D
<i>Urophyllum</i> sp. 1	O	<i>Asplenium phyllitidis</i> D. Don	D
<i>Urophyllum</i> sp. 2	O	<i>Cyrtodum microphyllum</i> (Cav.) R.Br.	D
<i>Urophyllum</i> sp. 3	O	<i>Lygodium salicifolium</i> C.Presl	D
<i>Vaccinium</i> cf. <i>bidouensis</i>	R	<i>Polystichum attenuatum</i> Tagawa & Z. iwata.	D
<i>Xanthophyllum ellipticum</i>	F	<i>Pothos chinensis</i> (Kunf.) Merr.	D
		<i>Pteridium aquilinum</i> (L.) Kuhn	D
		<i>Selaginella wallichii</i> (Hook. & Grev.) Spring	D
		<i>Vanderboschia auriculata</i> (Blume) Copel.	D
		<i>Aglaonema costatum</i> N.E.Br.	A
		<i>Amomum</i>	A
		<i>Amomum aliginosum</i> K.D. König	A
		<i>Angiopteris</i> cf. <i>wangii</i> Ching	A
		<i>Ardisia</i>	A
		<i>Argostemma borneense</i> Pierre ex Pilg.	A
		<i>Begonia malabarica</i> Lam.	A
		<i>Blasia</i>	A
		<i>Bolbitis</i>	R
		<i>Bulbophyllum</i>	R
		<i>Cnestis paleata</i> (Lour.) Merr.	O
		<i>Cyperus</i>	A
		<i>Diplazium donianum</i> (Mett.) Tardieu	A
		<i>Isora</i>	O
		<i>Justicia</i>	O
		<i>Lindsaea enustata</i> Sw.	A
		<i>Odontosoria chinensis</i> (L.) J.Sm.	A
		<i>Oryzopora</i>	A
		<i>Pothos gigantipes</i> Buchet ex P.C. Boyce	O
		<i>Rhaphidophora</i>	A
		<i>Strobilanthes</i>	O
		<i>Tabernaemontana</i>	A
		<i>Tectostigma</i>	O
		<i>Woodwardia japonica</i> (L.f.) Sm.	A
		<i>Zingiber</i>	R
		<i>Zotiphus</i>	O

DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.
 Red list species to be marked in list using *
 Invasive species to be marked in list using **

Photo references

Detailed plant plots of the Survey block 2 as below

Plant plot 2.1

Botanical Surveys											
Site name	Survey Block 2	Date and Time	7/16/2021		Latitude	750740	Longitude	1722688	Monitoring Plot (ID Number)	2-1	
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.								Monitoring Plot Size	0.1 ha	
Air Temperature (°C)	26	Cloud Cover	4	Rain	4	Wind	0	Brief weather description	Clear sky and warm in them orning, light-heavy rain and strong wind in the afternoon		
Habitat types present	Underconstruction road from the International border to Vietnam										
Site and vegetation description					Condition assesment scores and comments (fire, wildlife and human activity)						
<p>Lower montane evergreen forest dominated by the family Fagaceae and Lauraceae</p>					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					as on impacts within the plot and near					The new road will be caused high impacts to the habitat and rare trees (e.g. Dalat Pine (<i>Pinus dalatensis</i>) were recently cut-down during the road construction)	
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	14	Canopy mean cover (%)	85	Understorey mean height (m)	7	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	10
Approx age of canopy (yrs)	80	Bare ground cover (%)	15	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetati											
Mean veg height (cm)	150	Max veg height (cm)	280								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR						
<i>Alseodaphne bidouensis</i> Yahara	O	<i>Quercus thorelli</i> Hickel & A.Camus	A								
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	D	<i>Sterculia parviflora</i> Roxb.	A								
<i>Cinnamomum javanicum</i> Blume	O	<i>Syzygium antisepticum</i> (Blume) Merr. & L.M.P	O								
<i>Diospyros filipendula</i> Pierre ex Lecomte	F	<i>Urophyllum</i> sp.1	O								
<i>Elaeocarpus dubius</i> DC.	O	<i>Xanthophyllum ellipticum</i> Korth. ex Miq.	A								
<i>Engelhardtia serrata</i> Blume	O										
<i>Garcinia hanburyi</i> Hook.f.	O										
<i>Ilex excavata</i> Pierre	A										
<i>Lithocarpus pierreii</i> (Hickel & A.Camus) A.Ca	A										
<i>Litsea baviensis</i> Lecomte	D										
<i>Mangifera</i>	O										
<i>Monoon jucundum</i> (Pierre) B.Xue & R.M.K.S	A										
<i>Neolitsea tomentosa</i> H.W. Li	F										
<i>Nephellium hypoleucum</i> Kurz	O										
<i>Pinus dalatensis</i> *	R										
<p>DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.</p> <p>Red list species to be marked in list using *</p> <p>Invasive species to be marked in list using **</p>											

Plant plot 2.2

Botanical Surveys											
Site name	Survey Block 2	Date and Time	7/16/2021		Latitude	750569	Longitude	1723483	Monitoring Plot (ID Number)	2-2	
Surveyors	Souladeth, P., Soukhavong, M., Thonghakdy, N., Bouttavong, T.								Monitoring Plot Size	0.1 ha	
Air Temperature (°C)	26	Cloud Cover	3	Rain	2	Wind	4	Brief weather description	Clear sky and warm in them orning, light-heavy rain and strong wind in the afternoon		
Habitat types present	Underconstruction road from the international border to Vietnam										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
<p>Lower montane evergreen forest dominated by the family Fagaceae and Lauraceae</p>					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					Notes on impacts within the plot and need					The new road will be caused high impacts to the habitat and rare trees (e.g. Dalat Pine (<i>Pinus dalatensis</i>) were recently cut-down during the road construction)	
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	15	Canopy mean cover (%)	80	Understorey mean height (m)	7	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	10
Approx age of canopy (yrs)	80	Bare ground cover (%)	20	Water cover (%)	0	Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	150	Max veg height (cm)	280								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR		Species	DAFOR		Species	DAFOR				
<i>Aporosa yunnanensis</i> (Pax & K.Hoffm.) F.P.	O		<i>Schima crenata</i> Korth.	F							
<i>Archidendron clypearia</i> (Jack) I.C.Nielsen	F		<i>Symplocos anomala</i> Brand	D							
<i>Dacrycarpus imbricatus</i> (Blume) de Laub.	D		<i>Syzygium antisepticum</i> (Blume) Merr. & L.M.P	O							
<i>Dacrydium elatum</i> (Roxb.) Wall. ex Hook.	A		<i>Vaccinium cf. bidouensis</i>	R							
<i>Elaeocarpus dubius</i> DC.	O		<i>Xanthophyllum ellipticum</i> Korth. ex Miq.	A							
<i>Eurya</i>	O										
<i>Heptapleurum cf. cambodiana</i> Yahara & T.	A										
<i>Ilex excavata</i> Pierre	O										
<i>Ixora javanica</i> (Blume) DC.	O										
<i>Lindera sp.1</i>	O										
<i>Machilus sp.1</i>	A										
<i>Magnolia braianensis</i> (Gagnep.) Figlar	A										
<i>Monoon jucundum</i> (Pierre) B.Xue & R.M.K.S	O										
<i>Platea latifolia</i> Blume	O										
<i>Polyalthia</i>	F										
<p>DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.</p> <p>Red list species to be marked in list using *</p> <p>Invasive species to be marked in list using **</p>											

Plant plot 2.3

Botanical Surveys											
Site name	Survey Block 2	Date and Time	7/17/2021		Latitude	751025	Longitude	1722672	Monitoring Plot (ID Number)	2-3	
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.										
Air Temperature (°C)	28	Cloud Cover	4	Rain	2	Wind	4	Brief weather description	Clear sky and warm in the morning, light-heavy rain and strong wind in the afternoon		
Habitat types present	Underconstruction road from the International border to Vietnam										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
Lower montane evergreen forest dominated by the family Fagaceae					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					Notes on impacts within the plot and near		The new road will be caused high impacts to the habitat and rare trees (e.g. Dalat Pine (<i>Pinus dalatensis</i>) were recently cut-down during the road construction)				
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	13	Canopy mean cover (%)	90	Understorey mean height (m)	6	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	4
Approx age of canopy (yrs)	80	Bare ground cover (%)	10	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	4		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	150	Max veg height (cm)	280								
Vegetation cover (%)	90	Bare ground cover (%)	10	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/invasive)											
Species	DAFOR		Species	DAFOR		Species	DAFOR				
<i>Alseodaphne bidoupensis</i> Yahara	A		<i>Arenga westerhoutii</i> Griff.	O							
<i>Dacrydium elatum</i> (Roxb.) Wall. ex Hook.	O		<i>Blastus</i>	O							
<i>Gironniera subaequalis</i> Planch.	A		<i>Ixora</i>	F							
<i>Heptapleurum cambodiana</i> Yahara & Taga	A		<i>Justicia</i>	O							
<i>Ilex excavata</i> Pierre	A		<i>Lasianthus</i>	F							
<i>Illicium roseum</i> Yahara	A		<i>Pteridium aquilinum</i> (L.) Kuhn	O							
<i>Lithocarpus corneus</i> (Lour.) Rehder	D		<i>Tetrastigma</i>	O							
<i>Nageia fleuryi</i> (Hickel) de Laub.*	O										
<i>Schima crenata</i> Korth.	F										
<i>Sterculia parviflora</i> Roxb.	O										
<i>Symplocos anomala</i> Brand	A										
<i>Symplocos dolichotricha</i> Merr.	A										
<i>Syzygium antisepticum</i> (Blume) Merr. & L.	F										
<i>Xanthophyllum ellipticum</i> Korth. ex Miq.	O										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 2.4

Botanical Surveys											
Site name	Survey Block 2	Date and Time	7/18/2021	Latitude	752726	Longitude	1722359	Monitoring Plot (ID Number)	2-4		
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	30	Cloud Cover	3	Rain	3	Wind	4	Brief weather description	Clear sky and warm in the morning, light-heavy rain and strong wind in the afternoon		
Habitat types present	Underconstruction road from the international border to Vietnam										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
Lower montane evergreen forest dominated by the family Fagaceae					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					Notes on impacts within the plot and near						
The new road will be caused high impacts to the habitat and rare trees (e.g. Dalat Pine (<i>Pinus dalatensis</i>) were recently cut-down during the road construction)											
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	11	Canopy mean cover (%)	90	Understorey mean height (m)	5	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	4
Approx age of canopy (yrs)	80	Bare ground cover (%)	10	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	200	Max veg height (cm)	350								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
<i>Aporosa yunnanensis</i> (Pax & K.Hoffm.) F.P.	O	<i>Meliosma cambodiana</i> Pierre	R	<i>Alyxia</i>	F						
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	F	<i>Platea latifolia</i> Blume	F	<i>Arenga westerhoutii</i> Griff.	F						
<i>Castanopsis piriformis</i> Hickel & A.Camus	D	<i>Polyosma dolichocarpa</i> Merr.	A	<i>Asplenium phyllitidis</i> D. Don	O						
<i>Chionanthus ramiflorus</i> Roxb.	O	<i>Sarcosperma cf. kontumense</i> Gagnep. ex Aubr.	O	<i>Bolbitis</i>	O						
<i>Dacrydium elatum</i> (Roxb.) Wall. ex Hook.	F	<i>Sterculia lissophylla</i> Pierre	R	<i>Bulbophyllum</i>	F						
<i>Elaeocarpus dubius</i> DC.	O	<i>Symplocos anomala</i> Brand	O	<i>Cyperus</i>	O						
<i>Elaeocarpus griffithii</i> (Wight) A.Gray	O	<i>Symplocos atrilivacea</i> Merr. & Chun ex H.L. Li	F	<i>Hedyotis</i>	F						
<i>Endospermum diadenum</i> (Miq.) Alry Shaw	O	<i>Xanthophyllum ellipticum</i> Korth, ex Miq.	A	<i>Lasianthus</i>	F						
<i>Fagraea cecilanica</i> Thunb.	O			<i>Lygodium microphyllum</i> (Cav.) R.Br.	O						
<i>Garcinia pedunculata</i> Roxb. ex Buch.-Ham.	D			<i>Oxyspora</i>	O						
<i>Heptapleurum cf. cambodiana</i> Yahara & Terauchi	A			<i>Zingiber</i>	F						
<i>Illicium roseum</i> Yahara	A			<i>Ziziphus</i>	O						
<i>Lithocarpus pierreii</i> (Hickel & A.Camus) A.Camus	F										
<i>Litsea baviensis</i> Lecomte	D										
<i>Mastixia pentandra</i> subsp. <i>cambodiana</i> (Picot) S.P.	O										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.											
Red list species to be marked in list using *											
Invasive species to be marked in list using **											

Plant plot 2.5

Botanical Surveys											
Site name	Survey Block 2	Date and Time	7/18/2021		Latitude	752836	Longitude	1721953	Monitoring Plot (ID Number)	2-5	
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.								Monitoring Plot Size	0.1 ha	
Air Temperature (°C)	30	Cloud Cover	3	Rain	3	Wind	4	Brief weather description	Clear sky and warm in the morning, light-heavy rain and strong wind in the afternoon		
Habitat types present	Underconstruction road from the International border to Vietnam										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
Lower montane evergreen forest dominated by the family Fagaceae					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					Notes on impacts within the plot and near			The new road will be caused high impacts to the habitat and rare trees (e.g. Dalat Pine (Pinus dalatensis) were recently cut-down during the road construction)			
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	14	Canopy mean cover (%)	90	Understorey mean height (m)	5	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	4
Approx age of canopy (yrs)	80	Bare ground cover (%)	10	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	150	Max veg height (cm)	300								
Vegetation cover (%)	90	Bare ground cover (%)	10	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR		Species	DAFOR		Species	DAFOR		Species	DAFOR	
Acer laurinum Hassk.	F		Machilus angustifolia Mas & Yahara	O		Amomum	F			F	
Anneslea fragrans Wall.	O		Madhuca cochinchinensis (Pierre ex Dubard)	R		Ardisia	O			O	
Aporosa yunnanensis (Pax & K.Hoffm.) F.P	O		Mastixia pentandra subsp. cambodiana (Pierre)	A		Asplenium phyllitidis D. Don	O			O	
Calophyllum dryobalanoides Pierre	O		Memecylon minimifolium H. Perrier	F		Bredia	O			O	
Castanopsis acuminatissima (Blume) A.DC	F		Nephellium hypoleucum Kurz	A		Diplazium donianum (Mett.) Tardieu	O			O	
Castanopsis piliformis Hickel & A.Camus	A		Podocarpus nerilifolius D.Don	O		Hedyotis	F			F	
Dacrycarpus imbricatus (Blume) de Laub.	D		Psydrax sp.2	O		Lasianthus	F			F	
Dacrydium elatum (Roxb.) Wall. ex Hook.	D		Pyrenaria poilaneana Gagnep.	O		Lygodium microphyllum (Cav.) R.Br.	F			F	
Elaeocarpus limitanus Hand.-Mazz.	F		Quercus cf. langbianensis Hickel & A.Camus	O		Polystichum attenuatum Tagawa & Z.Iwats.	O			O	
Heptapleurum cf. cambodiana Yahara & Tardieu	D		Symplocos anomala Brand	D		Pteridium aquilinum (L.) Kuhn	O			O	
Illicium roseum Yahara	D		Ternstroemia gymnanthera (Wight & Arn.) Sp	O		Vandenboschia auriculata (Blume) Copel.	O			O	
Lasianthus cf. viridiramis	F		Urophyllum sp.2	F		Woodwardia japonica (L.f.) Sm.	O			O	
Lithocarpus sp.3	A										
Lithocarpus sp.4	R										
Litsea baviensis Lecomte	F										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 2.6

Botanical Surveys											
Site name	Survey Block 2	Date and Time	7/18/2021	Latitude	752943	Longitude	1720599	Monitoring Plot (ID Number)	2-6		
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	30	Cloud Cover	3	Rain	3	Wind	3	Brief weather description	Clear sky and warm in the morning, light-heavy rain and strong wind in the afternoon		
Habitat types present	Underconstruction road from the International border to Vietnam										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
Lower montane evergreen forest dominated by the family Fagaceae					Fire	NA	Wildlife	NA	Human activity	Shifting and cutting wood	
					Combined impact score						
					Notes on impacts within the plot and near					The new road will be caused high impacts to the habitat and rare trees (e.g. Dalat Pine (<i>Pinus dalatensis</i>) were recently cut-down during the road construction)	
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	11	Canopy mean cover (%)	80	Understorey mean height (m)	4	Understorey mean cover (%)	15	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	4
Approx age of canopy (yrs)	80	Bare ground cover (%)	20	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	150	Max veg height (cm)	250								
Vegetation cover (%)	85	Bare ground cover (%)	10	Water cover (%)	5						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR		Species	DAFOR		Species	DAFOR				
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	O		<i>Urophyllum</i> sp.3	F		<i>Alyxia</i>	O				
<i>Exbucklandia</i>	O					<i>Angiopteris</i> cf. <i>wangii</i> Ching	O				
<i>Fagraea ceilanica</i> Thunb.	O					<i>Argostemma bariense</i> Pierre ex Pit.	F				
<i>Ficus hirta</i> Vahl	O					<i>Lasianthus</i>	F				
<i>Lindera bokorensis</i> Yahara & Tagane	F					<i>Lindsaea ensifolia</i> Sw.	O				
<i>Lithocarpus pierrei</i> (Hickel & A.Camus) A.C.	A					<i>Odontosoria chinensis</i> (L.) J.Sm.	O				
<i>Litsea baviensis</i> Lecomte	D					<i>Polystichum attenuatum</i> Tagawa & Z.Iwats.	O				
<i>Magnolia braianensis</i>	F					<i>Strobilanthes</i>	F				
<i>Nephellium hypoleucum</i> Kurz	A					<i>Vandenboschia auriculata</i> (Blume) Copel.	O				
<i>Polyosma dolichocarpa</i> Merr.	O										
<i>Polyosma</i> sp.1	A										
<i>Pyrenaria poilaneana</i> Gagnep.	F										
<i>Stewartia laotica</i> (Gagnep.) J.LJ & T.L.Ming	A										
<i>Symplocos anomala</i> Brand	O										
<i>Symplocos atrilivacea</i> Merr. & Chun ex H.	O										
<p>DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.</p> <p>Red list species to be marked in list using *</p> <p>Invasive species to be marked in list using **</p>											

Annex 1b-2. Summary of tree species list in the Survey Block 2

No	Scientific Name	Local Name	Family	IUCN Red List
1	<i>Acer laurinum</i>	ກ່ວມ (Kuam)	Sapindaceae	
2	<i>Alangium sp.1</i>	ສະລິກດົງ (Salik dong)	Cornaceae	
3	<i>Alseodaphne bidoupensis</i>	ຂີ້ໝັ້ນຕີ້ (Khem in ton)	Lauraceae	
4	<i>Anneslea fragrans</i>	ແກ້ມອື່ນ (Kaem oun)	Pentaphylacaceae	
5	<i>Aporosa yunnanensis</i>	ເໝືອດໃບແຫຼມ (Maud bai-laem)	Phyllanthaceae	
6	<i>Calophyllum dryobalanoides</i>	ພະອິງ (Pha-ong)	Calophyllaceae	
7	<i>Castanopsis acuminatissima</i>	ກໍ່ເດືອຍ (Kor deau)	Fagaceae	
8	<i>Castanopsis piriformis</i>	ກໍ່ຂີ້ໝູ (Kor khemou)	Fagaceae	
9	<i>Chionanthes ramiflorus</i>	ເຂົ້າສານຫຼວງ (Khaosan luang)	Oleaceae	
10	<i>Cinnamomum javanicum</i>	ແຄຫອມ (Khae hom)	Lauraceae	
11	<i>Dacrycarpus imbricatus</i>	ຮຶງຂຽວ (Hinh khiew)	Podocarpaceae	
12	<i>Dacrydium elatum</i>	ຮຶງຫອມ (Hing hom)	Podocarpaceae	
13	<i>Diospyros filipendula</i>	ຄັນຈ້ອງ (Khan jong)	Ebenaceae	
14	<i>Elaeocarpus dubius</i>	ແຊງແຊວ (Saeng seo)	Elaeocarpaceae	
15	<i>Elaeocarpus griffithii</i>	ມູນ (Moun)	Elaeocarpaceae	
16	<i>Elaeocarpus limitaneus</i>	ມູນດົງ (Moun dong)	Elaeocarpaceae	
17	<i>Endospermum diadenum</i>	ຕະພິງ (Ta phong)	Euphorbiaceae	
18	<i>Engelhardtia serrata</i>	ຟ່າວຂຽວໜາມ (Phao khiew)	Juglandraceae	
19	<i>Eurya</i>	ຫາງດີ (Hang dee)	Pentaphylacaceae	
20	<i>Exbucklandia</i>	ໂພກາບລາງ (Pho kablang)	Hamamelidaceae	
21	<i>Fagraea ceilanica</i>	ຕັງນີ (Tang nok)	Gentianaceae	
22	<i>Garcinia hanburyi</i>	ສົ້ມປໍ່ ສຸ້ງ (Som pong)	Clusiaceae	
23	<i>Garcinia pedunculata</i>	ສົ້ມໂມງ (Som mong)	Clusiaceae	
24	<i>Gironniera subaequalis</i>	ຫາງແມງໄອ່ (Hang maeng-ai)	Cannabaceae	
25	<i>Heptapleurum cambodianum</i>	ຕ້າງ (Tang)	Araliaceae	
26	<i>Ilex excavata</i>	ໄຂ່ມັດ (Khai mod)	Aquifoliaceae	
27	<i>Illicium roseum</i>	ຈັນບານ (Chan ban)	Schisandraceae	
28	<i>Ixora javanica</i>	ເຂັ້ມດົງ (Khem dong)	Rubiaceae	
29	<i>Lasianthus cf. viridiramis</i>	ຄັນແຮ້ ວດີ (Khan heo dam)	Rubiaceae	
30	<i>Lindera bokorensis</i>	ບົງບໍ່ ກັບ (Bong bokor)	Lauraceae	
31	<i>Lindera sp.1</i>	ບົງ (Bong)	Lauraceae	
32	<i>Lithocarpus corneus</i>	ກໍ່ຫຼັບ (Kor Rab)	Fagaceae	
33	<i>Lithocarpus pierrei</i>	ກໍ່ ກໍ່ (Kor K(k))	Fagaceae	
34	<i>Lithocarpus sp.3</i>	ກໍ່ Kor	Fagaceae	
35	<i>Litsea baviensis</i>	ບົງຫອມ (Bong hom)	Lauraceae	
36	<i>Litsea umbellata</i>	ບົງຮ້າງ (Bong hang)	Lauraceae	
40	<i>Machilus sp.</i>	ຕອງຫອມ (Tong Hom)	Lauraceae	
37	<i>Machilus angustifolia</i>	ຕອງຫອມໃບແຄບ (Tong Hom bai khaeb)	Lauraceae	
38	<i>Madhuca cochinchinensis</i>	ລະມຸດຊາງ (Lamout sang)	Sapotaceae	
39	<i>Magnolia braianensis</i>	ຈໍາປີປ່າ (Champi Pa)	Magnoliaceae	
40	<i>Mastixia pentandra subsp. cambodiana</i>	ໝາກເຖິ້ນ (Mak thern)	Cornaceae	
41	<i>Meliosma cambodiana</i>	ໝາກກອກພູ (Mak kok phou)	Sabiaceae	
42	<i>Memecylon minimifolium</i>	ເໝືອດຫີນ ນອກນ້ອຍ (Maud hin dok noy)	Melastomataceae	
43	<i>Monoon jucundum</i>	ຢາງໂອນ (Yang oun)	Annonceae	
44	<i>Nageia fleury</i>	ພະຍາໄມ້ (Phaya mai)	Podocarpaceae	NT

45	<i>Neolitsea tomentosa</i>	ໄຟເດືອນຫ້າຂົນ (Fai deuanha khon)	Lauraceae	
46	<i>Pinus dalatensis</i> var. <i>bidoupensis</i>	ແປກຫ້າໃບ (Peak habai)	Pinaceae	NT
47	<i>Platea latifolia</i>	ມັນໝູ M(an mou)	Icacinaceae	
48	<i>Podocarpus neriifolius</i>	ກະດອງ (Kadong)	Podocarpaceae	
49	<i>Polyosma dolichocarpa</i>	ເໝືອດດົງ (Maud dong)	Escalloniaceae	
50	<i>Psydrax</i> sp.2	ກະປະ (Ka-pa)	Rubiaceae	
51	<i>Pyrenaria poilaneana</i>	ໝັງດົງ (Miang dong)	Theaceae	
52	<i>Quercus langbianensis</i>	ກໍ່ລັງບຽງ (Kor langbian)	Fagaceae	
53	<i>Quercus thorelii</i>	ກໍ່ດາວ (Kor dao)	Fagaceae	
54	<i>Sarcosperma kontumense</i>	ເໝືອດກອນຕຸມ (Maud hom kontum)	Sapotaceae	
55	<i>Schima crenata</i>	ຄາຍໂສ້ (Khai Soh)	Theaceae	
56	<i>Sterculia lissophylla</i>	ປໍເມືອກ (Por muaek)	Malvaceae	
57	<i>Sterculia parviflora</i>	ປໍໃບໃຫ້ຍ (Por baiyai)	Malvaceae	
58	<i>Stewartia laotica</i>	ປໍເຫືອງລາວ (Por huang lao)	Theaceae	
59	<i>Symplocos anomala</i>	ເໝືອດນ້ຳ ຊຸ (Maud noi)	Symplocaceae	
60	<i>Symplocos atriolivacea</i>	ເໝືອດຄອມ (Maud khom)	Symplocaceae	
61	<i>Symplocos dolichotricha</i>	ເໝືອດຄອມນ້ຳ ຊຸ (Maud khom noy)	Symplocaceae	
62	<i>Syzygium antisepticum</i>	ສະເມັກແດງ (Samek deang)	Myrtaceae	
63	<i>Ternstroemia gymnanthera</i>	ເມືອກ (Mueak)	Pentaphylacaceae	
64	<i>Urophyllum</i> sp.1	ແຂ້ງ (Khaeng)	Rubiaceae	
65	<i>Urophyllum</i> sp.2	ແຂ້ງ (Khaeng)	Rubiaceae	
66	<i>Urophyllum</i> sp.3	ແຂ້ງ (Khaeng)	Rubiaceae	
67	<i>Vaccinium</i> cf. <i>bidoupensis</i>	ພວງໄຂ່ມຸກ (Phouang khaimouk)	Ericaceae	
68	<i>Xanthophyllum ellipticum</i>	ແສງດົງ (Seng dong)	Polygalaceae	

Annex 1c-1. Summary of plant plot by Survey Block (SB3 – Phou Kounking E)

Botanical Surveys											
Site name	Survey Block 3		Date and time	23-24/7/2021		Latitude		Longitude		Monitoring Plot ID Number	Plot 3-1/3-2/3-3/3-4/3-5/3-6
Surveyors	Souledeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.										
Air Temperature (°C)	25	Cloud Cover	6	Rain	5	Wind	7	Brief weather description		Cloudy with light-heavy rain and cool	
Habitat types present	Forest protection near Ban Dak Rem										
Site and vegetation description						Condition assessment scores and occurrences (fire, wildlife and human activity)					
Montane evergreen forest, dense of high trees at foothills and sparsely of small trees towards the summit						Fire	NA	Wildlife	NA	Human activity	Cutting trees
						Combined impact score					
						Notes on impacts within the plot and nearby					
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	14	Canopy mean cover (%)	90	Understorey mean height (m)	5	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	1	Herbaceous layer mean cover (%)	5
Approx age of canopy (yrs)	70	Bare ground cover (%)	10	Water cover (%)		Moss Layer mean height (m)	0.2	Moss Layer mean cover (%)	10		
For other habitats record overall max and mean height of vegetation											
Mean veg height (m)	150	Max veg height (m)	350								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR				
<i>Acer laurinum</i>	R	<i>Pinus kesiya</i>	O	<i>Diplazium donianum</i> (Mett.) Tardieu	O						
<i>Anneslea fragrans</i>	F	<i>Rhododendron simsii</i>	A	<i>Nephrolepis cordifolia</i> (L.) C. Presl	O						
<i>Apodytes dimidiata</i>	O	<i>Rhodomyrtus tomentosa</i>	R	<i>Polystichum attenuatum</i> Tagawa & Z. Iwets	O						
<i>Castanopsis acuminatissima</i>	D	<i>Schinus crenata</i>	D	<i>Woodwardia japonica</i> (L.) Sm	O						
<i>Castanopsis clarkii</i>	A	<i>Semecarpus reticulata</i>	O	<i>Odontosoria chinensis</i> (L.) J Sm	O						
<i>Chionanthus sp. 1</i>	O	<i>Stewartia laotica</i>	O	<i>Peritium aquilinum</i> (L.) Kuhn	D						
<i>Decrycarpus imbricatus</i>	A	<i>Symplocos caudata</i>	A	<i>Torenia sp.</i>	A						
<i>Daphniphyllum beddomii</i>	A	<i>Symplocos lucida</i>	D	<i>Impatiens hirsutisepala</i> Tardieu	R						
<i>Engelhardtia serrata</i>	R	<i>Syzygium antisepicum</i>	A	<i>Lygodium salicifolium</i> C. Presl	A						
<i>Euclea tonkinensis</i>	F	<i>Syzygium attenuatum</i>	A	<i>Selaginella wallichii</i> (Hook. & Grev.) Spring	A						
<i>Gironniera subaequalis</i>	O	<i>Syzygium lineatum</i>	O	<i>Zingiber meliis</i> Škornič, H.Đ. Trần & Sida F.	A						
<i>Heptapleurum cambodianum</i>	F	<i>Toxicodendron succedaneum</i>	O	<i>Ardisia villosa</i> Rosb.	A						
<i>Ilex sp. 1</i>	R			<i>Asplenium phyllitidis</i> D. Don	A						
<i>Illicium roseum</i>	A			<i>Berlinia sp.</i>	R						
<i>Liquidambar excelsa</i>	A			<i>Begonia difformis</i> (Irmsch.) W. C. Leong, C. I. Peng & K.F. Chu	R						
<i>Lithocarpus elephantum</i>	D			<i>Dendrobium sp.</i>	R						
<i>Lithocarpus pierreii</i>	F			<i>Goodyera sp.</i>	R						
<i>Neolitsea zeylanica</i>	D			<i>Ampelopsis cantoniensis</i> (Hook. & Arn.) Planch.	R						
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.											
Red list species to be marked in list using *											
Invasive species to be marked in list using **											
Photo references											
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR						
<i>Ardisia crenata</i> Sims	F	<i>Phlogacanthus pubinervis</i> T. Anderson	O								
<i>Cissus</i>	F	<i>Piper</i>	O								
<i>Dischidia sp.</i>	F	<i>Pothos giganteus</i> Buchet ex F.C. Boyce	O								
<i>Lasianthus chevalieri</i> Pit.	F	<i>Rungia pectinata</i> (L.) Nees	O								
<i>Pleocnemia sp.</i>	F	<i>Staurogyne racemosa</i> Kuntze	O								
<i>Pothos chinensis</i> (Raf.) Merr.	F	<i>Zingiber sp.</i>	O								
<i>Rhaphidophora</i>	F										

Plant plot 3.1

Botanical surveys											
Site name	Survey Block 3	Date and time	7/23/2021	Latitude	734837	Longitude	1712290	Monitoring Plot (ID Number)	S-3		
Surveyors	Souladeth P, Soukhavong M, Thonphakdy N, Bouthavong T										
Air Temperature (°C)	20	Cloud Cover	6	Rain	4	Wind	7	Brief weather description	Cloudy with light-heavy rain and cool		
Habitat types present	Forest protection near Ban Dak Barn										
Site and vegetation description				Condition assessment scores and comments (Fire, wildlife and human activity)							
Montane evergreen forest, dense of high trees at foothills and sparsely of small trees towards the summit				Fire	NA	Wildlife	NA	Human activity	Cutting trees		
				Combined Impact score							
				Notes on impacts within the plot and near				Clear-cutting of vegetation for the Transmission Lines throughout the survey sites			
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	14	Canopy mean cover (%)	80	Understorey mean height (m)	5	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	1		
Approx age of canopy (yr)	85	Base ground cover (%)	20	Water cover (%)		Moss Layer mean height (m)	0.2	Moss Layer mean cover (%)	10		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	140	Max veg height (cm)	350								
Vegetation cover (%)	85	Base ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
<i>Amesia fragrans</i> Wall.	O	<i>Neolitsea seylanica</i> (Rees & T. Nees) Merr.	O	<i>Ancistrocladus tectorius</i> (Lour.) Merr.	O						
<i>Apodytes dimidiata</i> E Mey. ex Arn.	O	<i>Pinus kesiya</i> Royle ex Gordon	A	<i>Andisia crenata</i> Sims	O						
<i>Chassalia curviflora</i> (Wall.) Thwaites	F	<i>Rhododendron simsii</i> Planch.	O	<i>Barleria</i> sp.	B						
<i>Caetanopsis acuminatissima</i> (Blume) A.D.C.	F	<i>Rhodoleia championii</i> Hook f.	F	<i>Dendrobium</i> sp.	F						
<i>Chionanthes</i> sp. 1	O	<i>Schoepfia fragrans</i> Wall.	O	<i>Diplazium donianum</i> (Mett.) Tardieu	O						
<i>Decrydium elatum</i> (Roxb.) Wall. ex Hook.	A	<i>Schima crenata</i> Karth.	D	<i>Ilex nigricans</i> R.Br. ex Wight & Arn.	F						
<i>Daphniphyllum beddomei</i> Craib.	O	<i>Semecarpus reticulata</i> Leconte	F	<i>Neanotis wightiana</i> (Wall. ex Wight & Arn.) W.H. Lewis	F						
<i>Eubucklandia tonkinensis</i> (Lecomte) Steenis ex Makas	O	<i>Stewartia leucica</i> (Gagnep.) Liu & T.S. Ming	F	<i>Odontosoria chinensis</i> (L.) Sm.	O						
<i>Gironniera subaequalis</i> Planch.	O	<i>Symplocos caudata</i> Wall. ex G. Don	A	<i>Polystichum attenuatum</i> Tagawa & Z. Iwats.	O						
<i>Gnetum gnemon</i> L.	O	<i>Syzygium antisepticum</i> (Blume) Merr. & L.M. Perry (M)	O	<i>Smilax glabra</i> Roxb.	O						
<i>Ilex</i> sp. 1	R	<i>Syzygium lineatum</i> (DC.) Merr. & L.M. Perry	O								
<i>Millettium roseum</i> Yehara	D	<i>Toxicodendron succedaneum</i> (L.) Kurtze	D								
<i>Liquidambar excelsa</i> (Noronha) Oken	O										
<i>Lithocarpus hamandii</i> (Hickel & A. Camus) A. Camus	D										
<i>Utsea martabanica</i> (Kurz) Hook f.	O										

DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.
 Red list species to be marked in list using *
 Invasive species to be marked in list using **

Plant plot 3.2

Botanical Surveys														
Site name	Survey Block 3	Date and Time	7/23/2021	Latitude	735209	Longitude	1712032	Monitoring Plot (ID Number)	3-2					
Surveyors	Souladem, P., Soukhaong, M., Thonphakdy, N., Bouthavong, T.													
Air Temperature (°C)	25	Cloud Cover	6	Rain	4	Wind	7	Brief weather description	Cloudy with light-heavy rain and cool					
Habitat types present	Forest protection near Ban Dak Renn													
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)									
Montane evergreen forest, dense of high trees at foothills and sparsely of small trees towards the summit					Fire	NA	Wildlife	NA	Human activity	Cutting trees				
					Combined impact score					Notes on impacts within the plot and nearby				
										Clear-cutting of vegetation for the Transmission Lines throughout the survey sites				
For forest habitat describe canopy, understorey and ground flora														
Canopy mean height (m)	13	Canopy mean cover (%)	85	Understorey mean height (m)	6	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	1	Herbaceous layer mean cover (%)	5			
Approx age of canopy (yrs)	55	Bare ground cover (%)	15	Water cover (%)		Moss Layer mean height (m)	0.2	Moss Layer mean cover (%)	10					
For other habitats record overall max and mean height of vegetation														
Mean veg height (m)	140	Max veg height (m)	280											
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0									
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invaded)														
Species	DAFOR	Species	DAFOR	Species	DAFOR									
<i>Arnesia fragrans</i> Wall.	A	<i>Rhododendron sutchii</i> Planch.	D	<i>Embelia oblongifolia</i> Hemsl.	D									
<i>Apodytes dimidiata</i> E.Mey. ex Arn.	D	<i>Schinus crenata</i> Benth.	D	<i>Ancistrocladus tectorius</i> (Lour.) Merr.	D									
<i>Ardisia gracilenta</i> C.M.Hu & J.E.Vidal	D	<i>Schoepfia fragrans</i> Wall.	D	<i>Ardisia crenata</i> Sims	D									
<i>Breynia</i> sp.	D	<i>Stewartia laotica</i> (Gagnep.) J.Li & T.L.Ming	D	<i>Sarleria</i> sp.	R									
<i>Castanopsis acuminatissima</i> (Blume) A.C.C.	D	<i>Symplocos caudata</i> Walp. ex G. Don	D	<i>Begonia difformis</i> (Vahl) W.C.Leong, C.I.Peng & K.F.Chu	D									
<i>Castanopsis clarkii</i> King ex Hook.f.	A	<i>Syzygium antisepticum</i> (Blume) Merr. & L.M.Perry (M)	A	<i>Dioscorea</i> sp.	D									
<i>Daphniphyllum beddomei</i> Craib	D	<i>Syzygium attenuatum</i> (Miq.) Merr. & L.M.Perry	D	<i>Diplazium donianum</i> (Mett.) Tardieu	D									
<i>Dendrotrichum varians</i> (Blume) Miq.	D			<i>Dischidia</i> sp.	D									
<i>Exbucklandia tonkinensis</i> (Lecomte) Steenis ex Makel	D			<i>Goodyera</i> sp.	F									
<i>Gironniera subaequalis</i> Planch.	D			<i>Nephrolepis cordifolia</i> (L.) C.Presl	D									
<i>Illicium rosaeum</i> Yehara	A			<i>Pleocnemia</i> sp.	D									
<i>Lithocarpus elephantum</i> (Hance) A.Camus	D			<i>Tetrastigma rametacrum</i> Planch.	D									
<i>Lithocarpus pierrei</i> (Nickel & A.Camus) A.Camus	A			<i>Woodwardia japonica</i> (L.f.) Sm.	D									
<i>Litsea martabanica</i> (Kurz) Hook.f.	D													
<i>Nesithea zeylanica</i> (Nees & T. Nees) Merr.	F													

DAFOR SCALE D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.
 Red list species to be marked in list using *
 Invasive species to be marked in list using **

Plant plot 3.3

Botanical Surveys											
Site name	Survey Block 3	Date and Time	7/23/2021	Latitude	735792	Longitude	1712515	Monitoring Plot (ID Number)	3-3		
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	25	Cloud Cover	6	Rain	4	Wind	7	Brief weather description	Cloudy with light-heavy rain and cool		
Habitat types present	Forest protection near Ban Dak Rem										
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)							
Montane evergreen forest, dense of high trees at foothills and sparsely of small trees towards the summit				Fire	NA	Wildlife	NA	Human activity	Cutting trees		
				Combined impact score		Notes on impacts within the plot and nearby		Clear-cutting of vegetation for the Transmission Lines throughout the survey sites			
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	9	Canopy mean cover (%)	90	Understorey mean height (m)	5	Understorey mean cover (%)	11	Herbaceous layer mean height (m)	1	Herbaceous layer mean cover (%)	5
Approach of canopy (yes)	85	Bare ground cover (%)	10	Water cover (%)		Moss layer mean height (m)	0.2	Moss layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	140	Max veg height (cm)	300								
Vegetation cover (%)	85	Bare ground cover (%)	13	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
<i>Anneslea fragrans</i> Wall.	A	<i>Symplocos caudata</i> Wall. ex G. Don	O	<i>Andria villosa</i> Roxb.	O						
<i>Apodytes dimidiata</i> E.Mey. ex Am.	F	<i>Symplocos lucida</i> (Thunb.) Siebold & Zucc.	A	<i>Diplazium donianum</i> (Mett.) Tardieu	O						
<i>Aristolia gracilentia</i> C.M.Hu & J.E.Vidal	O	<i>Syzygium antisepticum</i> (Blume) Merr. & L.M.P.	O	<i>Impatiens hirsutisepala</i> Tardieu	O						
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	A	<i>Syzygium attenuatum</i> (Miq.) Merr. & L.M.Perr	A	<i>Liparis bootanensis</i> Griff.	F						
<i>Dacrydium elatum</i> (Roxb.) Wall. ex Hook.	F			<i>Nephrolepis cordifolia</i> (L.) C.Presl	O						
<i>Daphniphyllum beddomei</i> Craib	F			<i>Odontosoria chinensis</i> (L.) J.Sm.	O						
<i>Exbucklandia tonkinensis</i> (Lecomte) Steenis ex Mak	O			<i>Phlogacanthus pubinervis</i> T.Anderson	O						
<i>Gironniera subaequalis</i> Planch.	O			<i>Polystichum attenuatum</i> Tagawa & Z. Iwats.	O						
<i>Heptapleurum cf. cambodiana</i> Yahara & Tagane	O			<i>Smilax lanceifolia</i> Roxb.	O						
<i>Lithocarpus hamandii</i> (Hickel & A.Camus) A.Camus	A			<i>Zingiber mellis</i> Škorničk., H.D.Trần & Sida f. *	F						
<i>Litsea martabanica</i> (Kurz) Hook.f.	A										
<i>Rhododendron simsii</i> Planch.	D										
<i>Rhodoleia championii</i> Hook.f.	O										
<i>Rhodomyrtus tomentosa</i> Wight	R										
<i>Schima crenata</i> Korth.	A										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 3.4

Botanical Surveys												
Site name	Survey Block 3	Date and Time	7/24/2021	Latitude	731614	Longitude	1712796	Monitoring Plot (ID Number)	3-4			
Surveyors	Souladeth, P., Soukhaing, M., Thonphakdy, N., Bouffavong, T.						Monitoring Plot size	0.1 ha				
Air Temperature (°C)	25	Cloud Cover	6	Rain	5	Wind	7	Brief weather description	Cloudy with light-heavy rain and cool			
Habitat types present	Forest protection near Ban Dak Rem											
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)							
Montane evergreen forest, dense of high trees at foothills and sparsely of small trees towards the summit					Fire	NA	Wildlife	NA	Human activity	Cutting trees		
					Combined impact score		Notes on impacts within the plot and nearby			Clear-cutting of vegetation for the Transmission Lines throughout the survey sites		
For forest habitat describe canopy, understorey and ground flora												
Canopy mean height (m)	14	Canopy mean cover (%)	75	Understorey mean height (m)	5	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	1	Herbaceous layer mean cover (%)	5	
Approx age of canopy (yrs)	70	Bare ground cover (%)	25	Water cover (%)		Moss Layer mean height (m)	0.2	Moss Layer mean cover (%)	10			
For other habitats record overall max and mean height of vegetation												
Mean veg height (cm)	150	Max veg height (cm)	350									
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0							
List of dominant species within the plot that define the habitat types and any notable species (including Red List/invasive)												
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR			
<i>Artisia gracilenta</i> C.M.Ho & J.E.Vidal	O	<i>Schoepfia fragrans</i> Wall.	O	<i>Anastrocladus tectorius</i> (Lour.) Merr.	O							
<i>Breynia</i> sp.	R	<i>Symplocos lucida</i> (Thunb.) Siebold & Zucc.	A	<i>Embellia oblongifolia</i> Hemsl.	O							
<i>Castanopsis acuminatissima</i> (Blume) A. DC.	A	<i>Syzygium attenuatum</i> (Miq.) Merr. & L.M.P.	A	<i>Helixanthera parasitica</i> Lour.	O							
<i>Dacrydium imbricatum</i> (Blume) de Laub.	O	<i>Syzygium antisepticum</i> (Blume) Merr. & L.P.	F	<i>Ampelopsis cantoniensis</i> (Hook. & Arn.) Planch.	O							
<i>Dacrydium elatum</i> (Roxb.) Wall. ex Hook.	A			<i>Dendrobium</i> sp.	R							
<i>Daphniphyllum beddomei</i> Craib	A			<i>Diplazium donianum</i> (Mett.) Tardieu	O							
<i>Dendrotrophe varians</i> (Blume) Miq.	O			<i>Gomphostemma</i> sp.	O							
<i>Heptapleurum cf. cambodianum</i> Yahara & Tagane	D			<i>Lasianthus chevalieri</i> Pil.	F							
<i>Illicium roseum</i> Yahara	A			<i>Nephrolepis cordifolia</i> (L.) C. Presl	O							
<i>Liquidambar excelsa</i> (Noronha) Okan	O			<i>Odontosora chinensis</i> (L.) J.Sm.	O							
<i>Uthocarpus harmandii</i> (Hickel & A. Camus) A. Camus	D			<i>Polystichum attenuatum</i> Tagawa & Z. Iwats.	O							
<i>Litsea martabanica</i> (Kurz) Hook. f.	F			<i>Sabia parviflora</i> Wall. ex Roxb.	O							
<i>Madhuca pierei</i> (F.N. Williams) H.J. Lam	R			<i>Smilax corbulanta</i> Kunth	O							
<i>Neolitsea zeylanica</i> (Nees & T. Nees) Merr.	D			<i>Staurogyne racemosa</i> Kuntze	O							
<i>Schima crenata</i> Korth.	D			<i>Woodwardia japonica</i> (L.f.) Sm.	O							
DAFOR SCALE: O - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **												

Plant plot 3.5

Botanical Surveys														
Site name	Survey Block 3	Date and Time	7/24/2021	Latitude	731809	Longitude	1712562	Monitoring Plot (ID Number)	3-5	Monitoring Plot Size	0.1 ha			
Surveyors	Souladeth, P., Soukhavong, M., Thorphakdy, N., Bourttavong, T.													
Air Temperature (°C)	25	Cloud Cover	6	Rain	4	Wind	7	Brief weather description	Cloudy with light-heavy rain and cool					
Habitat types present	Forest protection near Ban Dak Rem													
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)									
Montane evergreen forest, dense of high trees at foothills and sparsely of small trees towards the summit					Fire	NA	Wildlife	NA	Human activity	Cutting trees				
					Combined impact score					Notes on impacts within the plot and nearby				
										Clear-cutting of vegetation for the Transmission Lines throughout the survey sites				
For forest habitat describe canopy, understorey and ground flora														
Canopy mean height (m)	15	Canopy mean cover (%)	90	Understorey mean height (m)	6	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	1	Herbaceous layer mean cover (%)	5			
Approx age of canopy (yrs)	70	Bare ground cover (%)	10	Water cover (%)		Miss Layer mean height (m)	0.2	Miss Layer mean cover (%)	10					
For other habitats record overall max and mean height of vegetation														
Mean veg height (cm)	140	Max veg height (cm)	350											
Vegetation cover (%)	80	Bare ground cover (%)	20	Water cover (%)	0									
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)														
Species	DAFOR	Species	DAFOR	Species	DAFOR									
<i>Acer laurinum</i> Hance	R	<i>Nectandra seyalensis</i> (Nees & T. Nees) Merr.	A	<i>Alpinia</i>	F									
<i>Anacostea griffithii</i> Merr.	O	<i>Schina crenata</i> Korth.	A	<i>Anomum</i>	F									
<i>Castanopsis acuminatissima</i> (Blume) A. DC.	A	<i>Symplocos caudata</i> Wall. ex G. Don	O	<i>Ardisia</i>	O									
<i>Castanopsis clarkii</i> King ex Hook.f.	A	<i>Symplocos lucida</i> (Thunb.) Siebold & Zucc.	O	<i>Diosis</i>	O									
<i>Dacrydium elatum</i> (Roxb.) Walp. ex Hook.	R	<i>Syngium attenuatum</i> (Miq.) Merr. & L.M. Perry	F	<i>Diplazium bonianum</i> (Merr.) Tardieu	O									
<i>Daphniphyllum beddomei</i> Craib	R			<i>Lasiacanthus</i>	F									
<i>Dendrotrophe varians</i> (Blume) Miq.	O			<i>Lygodium salicifolium</i> C. Presl	O									
<i>Eugenia serrata</i> Blume	R			<i>Nephrolepis cordifolia</i> (L.) C. Presl	O									
<i>Excoecaria tonkinensis</i> (Lecomte) Steenis ex Makino	O			<i>Piper</i>	O									
<i>Heptapleurum cf. cambodianum</i> Yahara & Tagano	O	Woody Climbers:		<i>Pothos chinensis</i> (Raf.) Merr.	O									
<i>Ilex</i> sp. 1	A	<i>Ancistrocladus tectorius</i> (Lour.) Merr.	F	<i>Pothos gigantipes</i> Buchet ex P.C. Boyce	O									
<i>Illicium roseum</i> Yahara	O	<i>Goetum</i> sp.	O	<i>Rhaphidophora</i>	O									
<i>Lithocarpus elephantum</i> (Hance) A. Camus	A			<i>Selaginella walkchi</i> (Hook. & Grev.) Spring	O									
<i>Lithocarpus harmandii</i> (Hickel & A. Camus) A. Camus	A			<i>Torenia</i> sp.	O									
<i>Litsea maritima</i> (Kurz) Hook.f.	A			<i>Woodwardia japonica</i> (L.f.) Sm.	O									

DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.
 Red list species to be marked in list using *
 Invasive species to be marked in list using **

Plant plot 3.6

Botanical surveys											
Site name	Survey Block 3	Date and Time	7/24/2021	Latitude	732041	Longitude	1712500	Monitoring Plot (ID Number)	3-6		
Surveyors	Souladeth P., Soukhavong M., Thongsakdy N., Bouttaivong T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	20	Cloud Cover	6	Rain	5	Wind	7	Brief weather description	Cloudy with light-heavy rain and cool		
Habitat types present	Forest protection near Ban Dak Fern										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
Montane evergreen forest, dense of high trees at foothills and sparsely of small trees towards the summit					Fire	NA	Wildlife	NA	Human activity	Cutting trees	
					Combined Impact score						
					Notes on impacts within the plot and nearby					Clear-cutting of vegetation for the Transmission Lines throughout the survey sites	
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	13	Canopy mean cover (%)	85	Understorey mean height (m)	4	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	1	Herbaceous layer mean cover (%)	5
Approx age of canopy (yrs)	70	Bare ground cover (%)	15	Water cover (%)		Moss Layer mean height (m)	0.2	Moss Layer mean cover (%)	10		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	140	Max veg height (cm)	350								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red list/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
<i>Castanopsis acuminatissima</i> (Blume) A.C.C.	F	<i>Semecarpus reticulata</i> Lecome	F	<i>Ampelopsis cantoniensis</i> (Hook. & Arn.) Planch.	O						
<i>Castanopsis clarkii</i> King ex Hook f.	O	<i>Symplocos caudata</i> Wall. ex G. Don	A	<i>Antisia villosa</i> Roxb.	D						
<i>Cinnamomum curvifolium</i> (Lam.) Nees	A	<i>Symplocos luteola</i> (Thunb.) Siebold & Zucc.	O	<i>Asplenium phyllitidis</i> D. Don	A						
<i>Cinnamomum javanicum</i> Blume	D	<i>Syzygium antisepticum</i> (Blume) Merr. & L.M.Perry (N)	F	<i>Dioscorea donianum</i> (Mett.) Tardieu	O						
<i>Daphniphyllum beddomei</i> Craib	F	<i>Syzygium attenuatum</i> (Miq.) Merr. & L.M.Perry	O	<i>Odontosoria chinensis</i> (L.) J.Sm.	O						
<i>Eubucklandia tonkinensis</i> (Lecomte) Steenis ex Makr.	F	<i>Syzygium tinctum</i> (DC.) Merr. & L.M.Perry	A	<i>Oxypora cf. umbellata</i> (Hook. f. ex Triana) J.F. Maxwell	F						
<i>Glochidion eriocarpum</i> Champ. ex Benth.	O	<i>Toxicodendron succedaneum</i> (L.) Kuntze	O	<i>Pleocnemia</i> sp.	O						
<i>Horsfieldia thorelii</i> Lecomte	O			<i>Polystichum attenuatum</i> Tagawa & Z. Iwata	O						
<i>Liquidambar excelsa</i> (Néronha) Oakes	R			<i>Pteridium aquilinum</i> (L.) Kuhn	D						
<i>Lithocarpus elephantum</i> (Hance) A.Camus	O			<i>Rungia perfoliata</i> (L.) Nees	O						
<i>Lithocarpus hammondii</i> (Hickel & A.Camus) A.Camus	O			<i>Sabia parviflora</i> Wall. ex Roxb.	A						
<i>Lithocarpus pierreii</i> (Hickel & A.Camus) A.Camus	O			<i>Smilax corbularia</i> Kunth	O						
<i>Libea martalibica</i> (Kurz) Hook. f.	A			<i>Smilax glabra</i> Roxb.	O						
<i>Nepenthes zeylanica</i> (Nees & T. Nees) Merr.	O			<i>Smilax lanceifolia</i> Roxb.	O						
<i>Schinus crenata</i> Korth	A			<i>Tetrastigma ramentaceum</i> Planch.	F						
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare											
Red list species to be marked in list using *											
Invasive species to be marked in list using **											

Annex 1c-2. Summary of tree species list in the Survey Block 3

No	Scientific Name	Local Name	Family	IUCN Red List
1	<i>Acer laurinum</i>	ກ່ວມ (Kuam)	Sapindaceae	
2	<i>Anneslea fragrans</i>	ແກ້ມອື່ນ (Kaem on)	Pentaphylacaceae	
3	<i>Apodytes dimidiata</i>	ພັບດົງ (Phab dong)	Icacinaceae	
4	<i>Castanopsis acuminatissima</i>	ກໍ່ເດືອຍ (Kor deau)	Fagaceae	
5	<i>Castanopsis clarkei</i>	ກໍ່ໜາມ (Kor nam)	Fagaceae	
6	<i>Chionanthes sp.1</i>	ເຂົ້າສານຫຼວງ (Khaosan luang)	Oleaceae	
7	<i>Dacrycarpus imbricatus</i>	ຮຶ່ງຂຽວ (Hinh khiew)	Podocarpaceae	
8	<i>Daphniphyllum beddomei</i>	ດິກດົງ (Dik dong)	Daphniphyllaceae	
9	<i>Engelhardtia serrata</i>	ພ່າວຂຽວໜາມ (Phao khiew)	Juglandaceae	
10	<i>Exbucklandia tonkinensis</i>	ໂພກາບລາງ (Pho kablang)	Hamamelidaceae	
11	<i>Gironniera subaequalis</i>	ຫາງແມງໄອ່ (Hang maeng-ai)	Cannabaceae	
12	<i>Heptapleurum cambodianum</i>	ຕ້າງ (Tang)	Araliaceae	
13	<i>Ilex sp.1</i>	ໄຂ່ມິດ (Khai mod)	Aquifoliaceae	
14	<i>Illicium roseum</i>	ຈັນບານ (Chan ban)	Schisandraceae	
15	<i>Liquidambar excelsa</i>	ສິບດາວ (Sob dao)	Altingiaceae	
16	<i>Lithocarpus elephantum</i>	ກໍ່ຊ້າງ (Kor xang)	Fagaceae	
17	<i>Lithocarpus pierrei</i>	ກໍ່ກັກ (Kor Kak)	Fagaceae	
18	<i>Litsea martabanica</i>	ໝີ່ບົງຫອມ (Mee bonghom)	Lauraceae	
19	<i>Madhuca pierrei</i>	ລະມຸດຊາງປ່າ (Lamout sang pa)	Sapotaceae	
20	<i>Neolitsea zeylanica</i>	ໄຟເດືອນຫ້າ (Fai deuanha)	Lauraceae	
21	<i>Pinus kesiya</i>	ແປກສາມໃບ (Peak sambai)	Pinaceae	
22	<i>Rhododendron simsii</i>	ກູຫຼາບປ່າ (Koulab pa)	Ericaceae	
23	<i>Rhodomyrtus tomentosa</i>	ໂພງແກ້ມ (Phong kaem)	Myrtaceae	
24	<i>Schima crenata</i>	ຄາຍໄສ້ (Khai Soh)	Theaceae	
25	<i>Semecarpus reticulata</i>	ນ້ຳກຶ້ງດຳ (Namkieng dam)	Anacardiaceae	
26	<i>Stewartia laotica</i>	ປໍ່ເຫືອງລາວ (Por huang lao)	Theaceae	
27	<i>Symplocos caudata</i>	ໝີ່ອດມົນ (Maud mon)	Symplocaceae	
28	<i>Symplocos lucida</i>	ໝີ່ອດພູ (Maud phou)	Symplocaceae	
29	<i>Syzygium antisepticum</i>	ສະເມັກແດງ (Samek deang)	Myrtaceae	
30	<i>Syzygium attenuatum</i>	ຫວ້າສະເມັກ (Wha samek)	Myrtaceae	
31	<i>Syzygium lineatum</i>	ຫວ້າຈ່ອຍ (Wha joi)	Myrtaceae	
32	<i>Toxicodendron succedaneum</i>	ເບັນຮັກ (Ben hak)	Anacardiaceae	

Annex 1d-1. Summary of plant plot by Survey Block (SB4 – Phou Koungking W)

Botanical Surveys													
Site name	Survey Block 4		Date and Time	25-27/7/2021		Latitude		Longitude		Monitoring Plot (ID Number)	Plot 4-1/4-2/4-3/4-4/4-5/4-6		
Surveyors	Souladeth, F., Soukhavong, M., Thorphakdy, N., Bourtavong, T.												
Air Temperature (°C)	25	Cloud Cover	5	Rain	4	Wind	6	Relief weather description	Cloudy with moderate-heavy rain and strong breeze				
Habitat types present	Forest protection between Ban Piao and Ban Oak Bem												
Site and vegetation description						Condition assessment scores and comments (fire, wildlife and human activity)							
Montane evergreen forest, dense of broad-leaved trees and some pine forest						Fire	NA	Wildlife	NA	Human activity	Tree logging		
						Combined impact score		Notes on impacts within the plot and nearby			Clear-cutting of vegetation for the Transmission Lines and filigee logging throughout the survey sites		
For forest habitat describe canopy, understorey and ground flora													
Canopy mean height (m)	14	Canopy mean cover (%)	90	Understorey mean height (m)	6	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	5		
Approx age of canopy (yrs)	80	Bare ground cover (%)	10	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5				
For other habitats record overall max and mean height of vegetation													
Mean veg height (cm)	150	Max veg height (cm)	250										
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	2								
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)													
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR						
<i>Antidesma japonicum</i>	D	<i>Pinus kesiya</i>	A	Herbaceous:									
<i>Castanopsis acuminatissima</i>	D	<i>Pittosporum pauciflorum</i> *	R	<i>Glechiza</i> sp.			D						
<i>Dacrydium elatum</i>	A	<i>Polygala tonkinensis</i>	R	<i>Asplenium</i>			D						
<i>Daphniphyllum majus</i>	R	<i>Pyrenaria polianensis</i>	F	<i>Lindsaea ensifolia</i> Sw.			D						
<i>Elaeocarpus griffithii</i>	D	<i>Quercus langbianensis</i> *	F	<i>Brachyotome wallichii</i> Hook.f.			D						
<i>Engelhardtia serrata</i>	R	<i>Schinus crenata</i>	F	<i>Hedyotis</i> sp.			D						
<i>Erbucklandia tonkinensis</i>	D	<i>Sterculia fistophylla</i>	F	<i>Melicope</i> sp.			A						
<i>Garcinia pedunculata</i>	D	<i>Symplocos wilsonii</i> M. J. S.	D	<i>Ardisia crenata</i> Sims			A						
<i>Gonolobus subaequalis</i>	F			<i>Gomphosemma</i> sp.			A						
<i>Gynnanthis remota</i>	A			<i>Alpinia</i> sp.			F						
<i>Ilex chapaensis</i>	D			<i>Smilax glabra</i> Roxb.			F						
<i>Ilex excavata</i> Pierre	F			<i>Torenia</i> sp.			F						
<i>Illicium</i> sp. 1	R			<i>Adenia</i> sp.			F						
<i>Lindera bokorensis</i>	F			<i>Arundina graminifolia</i> (D. Don) Hochr.			F						
<i>Lithocarpus harmandii</i>	D			<i>Ardisia villosa</i> Roxb.			O						
<i>Litsea martabanica</i>	A			<i>Arenga</i>			O						
<i>Litsea umbellata</i>	D			<i>Breynia glauca</i> Craib			O						
<i>Macaranga kurzii</i>	O			<i>Craepidobolus unjogum</i> (Gagnep.) Z. Wui & Pedley			O						
<i>Millettia leucantha</i>	F			<i>Embelia ribes</i> Burm.f.			O						
<i>Morinda</i> sp.	O			<i>Oxyptera</i> cf. <i>umbellata</i> (Hook.f. ex Triana) J.F. Maxwell			O						
<i>Neolitsea zeylanica</i>	O			<i>Rothor</i>			O						
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.													
Red list species to be marked in list using *													
Invasive species to be marked in list using **													
Photo references													

Plant plot 4.1

Botanical surveys											
Site name	Survey Block 4	Date and time	7/25/2021	Latitude	72886	Longitude	1712825	Monitoring Plot ID Number	4-1		
Surveyors	Souladeth, P., Soukxayong, M., Thonphakdy, N., Bouttavong, T.								Monitoring Plot Size	0.1 ha	
Air Temperature (°C)	22	Cloud Cover	8	Rain	3	Wind	8	Brief weather description	Cloudy with moderate-heavy rain and strong breeze		
Habitat types present	Forest protection between Ban Piao and Ban Dak Rem										
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)							
Montane evergreen forest, dense of broad-leaved trees and some pine forest				Fire	NA	Wildlife	NA	Human activity	Tree logging		
				Combined impact score			Clear-cutting of vegetation for the Transmission Lines and illegal logging throughout the survey sites				
				Notes on impacts within the plot and nearby							
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	15	Canopy mean cover (%)	85	Understorey mean height (m)	7	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	5
Approx age of canopy (yr)	80	Bare ground cover (%)	15	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (m)	150	Max veg height (m)	320								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
<i>Adimandra integririma</i> T. Anderson ex Dyer	O	<i>Lindera cf. bakorensis</i> Yahara & Tagane	F	<i>Schoepfia fragrans</i> Wall.	O						
<i>Antidesma japonicum</i> Siebold et Zucc.	O	<i>Lithocarpus harmandii</i> (Hiraki & A Camus) A Camus	F	<i>Sterculia liocophylla</i> Pierre	O						
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	O	<i>Litsea martabanica</i> (Kurz) Hook. f.	A	<i>Symplocos wilkstroemifolia</i> Hayata	A						
<i>Dacrydium elatum</i> (Roxb.) Wall. ex Hook.	O	<i>Litsea umbellata</i> (Lour.) Merr.	O								
<i>Daphniphyllum majus</i> Muell. Arg.	O	<i>Macaranga kurzii</i> Pax & K. Hoffm.	F								
<i>Elaeocarpus griffithii</i> (Wight) A. Gray	O	<i>Millettia pachyloba</i> Drake	O								
<i>Engelhardtia serrata</i> Blume	O	<i>Morinda</i> sp.	O								
<i>Exbucklandia tonkinensis</i> (Gecomte) Steenis ex Makino	O	<i>Pinus lesya</i> Boyle ex Gordon	F								
<i>Garcinia pedunculata</i> Roxb. ex Buch-Ham.	A	<i>Pittosporum pauciflorum</i> Hook. & Arn. *	O								
<i>Gironniera subaequalis</i> Planch.	F	<i>Polypodium tonkinensis</i> Chodat	O								
<i>Gomphandra</i> sp.	O	<i>Psychotria cambodiana</i> Pierre ex Pil.	F								
<i>Gymnanthes remota</i> (Steenis) Esser	F	<i>Pyrenaria poilanensis</i> Gagnep.	O								
<i>Ilex (hapaensis)</i> Merr.	O	<i>Quercus langbianensis</i> Hickey & A Camus *	O								
<i>Ilex excavata</i> Pierre	O	<i>Rhododendron</i> sp.	O								
<i>Illicium</i> sp. 1	R	<i>Schinus crenata</i> Korth.	O								
DAFOR SCALE: O - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 4.2

Botanical Surveys											
Site name	Survey Block 4	Date and Time	7/25/2021	Latitude	728974	Longitude	1712562	Monitoring Plot (ID Number)	4-2		
Surveyors	Souladeth, P., Soukheavong, M., Thonghakdy, N., Bouthavong, T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	25	Cloud Cover	6	Rain	4	Wind	6	Brief weather description	Cloudy with moderate-heavy rain and strong breeze		
Habitat types present	Forest protection between San Plas and San Dak Rem										
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)							
Montane evergreen forest, dense of broad-leaved trees and some pine forest				Fire	NA	Wildlife	NA	Human activity	Tree logging		
				Combined impact score		Notes on impacts within the plot and nearby		Clear-cutting of vegetation for the Transmission Lines and illegal logging throughout the survey sites			
For forest habitat, describe canopy, understorey and ground flora											
Canopy mean height (m)	13	Canopy mean cover (%)	85	Understorey mean height (m)	7	Understorey mean cover (%)	8	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	5
Approx age of canopy (yrs)	80	Rare ground cover (%)	15	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	4		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	250	Max veg height (cm)	250								
Vegetation cover (%)	90	Rare ground cover (%)	10	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR						
<i>Adinandra integririma</i> T. Anderson ex Dyer	O	<i>Litsea umbellata</i> (Lour.) Merr.	D	<i>Adinandra integririma</i> T. Anderson ex Dyer	O						
<i>Artodesma japonicum</i> Siebold et Zucc.	O	<i>Memecylon ilacinum</i> Zoll. & Mor.	O	<i>Artodesma japonicum</i> Siebold et Zucc.	O						
<i>Ardlia gracilentia</i> C. M. Hu & J. E. Vidal	F	<i>Milletia pachyloba</i> Drake	F	<i>Ardlia gracilentia</i> C. M. Hu & J. E. Vidal	F						
<i>Castanopsis acuminatissima</i> (Blume) A. DC.	O	<i>Pittosporum pauciflorum</i> Hook. & Arn. *	R	<i>Memecylon ilacinum</i> Zoll. & Mor.	O						
<i>Dacrydium elatum</i> (Rob.) Walp. ex Hook.	O	<i>Polygala tonkinensis</i> Chodat	R	<i>Psychotria cambodiana</i> Parrie ex Pit.	F						
<i>Daphniphyllum majus</i> Müll. Arg.	O	<i>Psychotria cambodiana</i> Pierre ex Pit.	F	<i>Schoepfia fragrans</i> Walp.	O						
<i>Elaeocarpus griffithii</i> (Wight) A. Gray	O	<i>Pyrenaria gollaniana</i> Gagnep.	O								
<i>Engelhardtia serrata</i> Blume	O	<i>Quercus langbianensis</i> Hickel & A. Camus *	F								
<i>Exbucklandia tonkinensis</i> (Lecomte) Steenis ex Mallesh	O	<i>Schinus crenata</i> Korth.	O								
<i>Garcinia pedunculata</i> Roxb. ex Ruch. -Ham.	A	<i>Schoepfia fragrans</i> Walp.	D								
<i>Gronnieria subaequalis</i> Planch	F	<i>Starcudia lissophylla</i> Pierre	O								
<i>Gymnanthes remota</i> (Steenis) Esser	F	<i>Symplocos wikstroemifolia</i> Hayata	A								
<i>Ilex chaparris</i> Merr.	A										
<i>Ilex excavata</i> Pierre	O										
<i>Lithocarpus harmandii</i> (Hickel & A. Camus) A. Camus	F										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 4.3

Botanical Surveys											
Site name	Survey Block 4	Date and time	7/26/2021	Latitude	729218	Longitude	1712797	Monitoring Plot (ID Number)	4-9		
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.										
Air Temperature (°C)	25	Cloud Cover	5	Rain	4	Wind	6	Brief weather description	Cloudy with moderate heavy rain and strong breeze		
Habitat types present	Forest protection between Ban Pao and Ban Dak Kien										
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)							
Montane evergreen forest, dense of broad-leaved trees and some pine forest				Fire	NA	Wildlife	NA	Human activity	Tree logging		
				Combined impact score							
				Notes on impacts within the plot and nearby	Clear-cutting of vegetation for the Transmission Lines and illegal logging throughout the survey sites						
For forest habitat describe canopy, understorey and ground flora:											
Canopy mean height (m)	14	Canopy mean cover (%)	90	Understorey mean height (m)	6	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	5
Approx age of canopy (yr)	80	Bare ground cover (%)	10	Water cover (%)		Mass Layer mean height (m)	0.1	Mass Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation:											
Mean veg height (cm)	150	Max veg height (cm)	250		0						
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)							
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
<i>Adiantum integrifolium</i> T. Anderson ex Dyer	D	<i>Nerocylus illicinum</i> Zell. & Mor.	F	<i>Alpinia</i> sp.							
<i>Artibeus japonicus</i> Siebold et Zucc.	O	<i>Milletia pachyloba</i> Drake	F	<i>Ardisia crenata</i> Sims	O						
<i>Cestranopsis acuminatissima</i> (Blume) A. DC.	D	<i>Pittosporum pauciflorum</i> Hook. & Arn. *	O	<i>Asplenium</i>	F						
<i>Daphniphyllum majus</i> Mull. Arg.	F	<i>Polygala tonkinensis</i> Chodat	O	<i>Brachyotum wallichii</i> Hook. f.	F						
<i>Elaeocarpus griffithii</i> (Wight) A. Gray	F	<i>Psychotria cambodiana</i> Pierre ex Pit.	F	<i>Gleichenia</i> sp.	O						
<i>Engelhardtia serrata</i> Blume	R	<i>Pyrenaria polianana</i> Gagnep.	F	<i>Lindsaea ensifolia</i> Sw.	F						
<i>Garcinia pedunculata</i> Roxb. ex Buch.-Ham.	A	<i>Quercus langbianensis</i> Hickel & A. Camus *	F	<i>Melicope</i> sp.	O						
<i>Gonimera subaequalis</i> Planch.	O	<i>Schoepfia fragrans</i> Wall.	O								
<i>Gynnanthes remota</i> (Steenis) Esser	A	<i>Sterculia lasiophylla</i> Pierre	O								
<i>Glex chapaensis</i> Merr.	A	<i>Symplocos wilstroemifolia</i> Hayata	O								
<i>Glex excavata</i> Pierre	O										
<i>Lindera cf. bokorensis</i> Yohara & Toggiani	F										
<i>Uthocarpus harmandii</i> (Hickel & A. Camus) A. Camus	F										
<i>Utsea umbellata</i> (Lour.) Merr.	D										
<i>Macaranga kuroi</i> Pax & K. Hoffm.	F										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 4.4

Botanical Surveys											
Site name	Survey Block 4	Date and Time	7/26/2021	Latitude	730017	Longitude	1712249	Monitoring Plot (ID Number)	4-4		
Surveyors	Souladeth, P., Souhvang, M., Thorphakdy, N., Bouttavong, T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	22	Cloud cover	6	Rain	3	Wind	6	Brief weather description	Cloudy with moderate-heavy rain and strong breeze		
Habitat types present	Forest protection between Ban Pao and Ban Dak Rem										
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)							
Montane evergreen forest, dense of broad-leaved trees and some pine forest				Fire	NA	Wildlife	NA	Human activity	Tree logging		
				Combined impact score							
				Notes on impacts within the plot and nearby				Clear-cutting of vegetation for the Transmission Lines and illegal logging throughout the survey sites			
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	15	Canopy mean cover (%)	90	Understorey mean height (m)	5	Understorey mean cover (%)	7	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	3
Approx age of canopy (yrs)	80	Bare ground cover (%)	10	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	3		
For other habitats record overall max and mean height of vegetation											
Mean veg height (m)	150	Max veg height (m)	300								
Vegetation cover (%)	90	Bare ground cover (%)	10	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
<i>Adiantum bogoriense</i> T. Anderson ex Dyer	O	<i>Pithecolobium pauciflorum</i> Hook. & Arn. *	O	<i>Arenga</i>	O						
<i>Actinidia japonica</i> Siebold et Zucc.	O	<i>Polygala tonkinensis</i> Chodat	O	<i>Asplenium</i>	O						
<i>Ardisia gracilentia</i> C.M.Hu & J.E.Vidal	F	<i>Pyrenaria polianensis</i> Gagnep.	F	<i>Brachyotum walkeri</i> Hook.f.	F						
<i>Cestranops acuminatissima</i> (Blume) A. DC.	O	<i>Quercus langbianensis</i> Hickel & A. Camus *	F	<i>Glechertia</i> sp.	O						
<i>Dacrydium elatum</i> (Roxb.) Wall. ex Hook.	A	<i>Schoepfia fragrans</i> Wall.	O	<i>Gomphostemma</i> sp.	F						
<i>Dacrydium elatum</i> (Roxb.) Wall. ex Hook.	A	<i>Sterculia tozophylla</i> Pierre	O	<i>Lindaea erofolia</i> Sw.	O						
<i>Daphniphyllum meunii</i> Müll. Arg.	F	<i>Symplocos sikistromifolia</i> Hayata	O	<i>Melastoma</i> sp.	F						
<i>Garcinia pedunculata</i> Roxb. ex Buch.-Ham.	A	<i>Syzygium antisepticum</i> (Blume) Merr. & L.M.Perry [I]	F	<i>Sabia parviflora</i> Wall. ex Roxb.	O						
<i>Gynnanthes remota</i> (Steenis) Ester	F										
<i>Ilex chapaensis</i> Merr.	O										
<i>Ilex excavata</i> Pierre	O										
<i>Lindera cf. bokorensis</i> Yahara & Tagane	F										
<i>Lithocarpus harmandii</i> (Hornb. & A. Camus) A. Camus	A										
<i>Litsea umbellata</i> (Lour.) Merr.	A										
<i>Momerylon Macinum</i> Zill. & Mor.	O										
DAFOR SCALE: O - Dominant, A - Abundant, F - Frequent, O - Occasional, B - Rare. Red List species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 4.5

Botanical Surveys											
Site name	Survey Block 4	Date and Time	7/27/2021	Latitude	730445	Longitude	1712019	Monitoring Plot ID Number	4-5		
Surveyors	Souladeth, P., Soukthavong, M., Thorphakdy, N., Soukthavong, T.										
Air Temperature (°C)	27	Cloud Cover	4	Rain	5	Wind	6	Brief weather description	Cloudy with moderate-heavy rain and strong breeze		
Habitat types present	Forest protection between Ban Pao and Ban Dek Rem										
Site and vegetation description				Condition assessment: scores and comments (fire, wildlife and human activity)							
Montane evergreen forest, dense of broad-leaved trees and some pine forest				Fire	NA	Wildlife	NA	Human activity	Tree logging		
				Combined impact score							
				Notes on impacts within the plot and nearby		Clear-cutting of vegetation for the Transmission lines and illegal logging throughout the survey sites					
For forest habitat describe canopy, understorey and ground flora:											
Canopy mean height (m)	15	Canopy mean cover (%)	90	Understorey mean height (m)	7	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	5
Approx. age of canopy (yrs)	80	Bare ground cover (%)	10	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	4		
For other habitats record overall max and mean height of vegetation:											
Mean veg height (cm)	200	Max veg height (cm)	320								
Vegetation cover (%)	80	Bare ground cover (%)	10	Water cover (%)							
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR						
<i>Adinandra intagerrima</i> T.Anderson ex Dyer	O	<i>Lithocarpus harmandii</i> (Hickel & A.Camus) A.Camus	F	<i>Symplocos wilsonii</i> Heyata	A						
<i>Artidesmia japonicum</i> Siebold et Zucc.	O	<i>Litsea martabonica</i> (Kurz) Hook.f.	A	<i>Scybalium</i>	F						
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	F	<i>Litsea umbellata</i> (Lour.) Merr.	O								
<i>Dacrydium elatum</i> (Roxb.) Wall. ex Hook.	O	<i>Macaranga kurzii</i> Pax & K.Hoffm.	F	Herbaceous/fern:							
<i>Daphniphyllum majus</i> Mull.Arg.	R	<i>Memecylon</i>	F	<i>Oryzopora cf. umbellata</i> (Hook.f. ex Triana) J.F. Maxwell	O						
<i>Elaeocarpus griffithii</i> (Wight) A.Gray	O	<i>Milletia pachyloba</i> Drake	O	<i>Andalis crenata</i> Sims	O						
<i>Engelhardtia serrata</i> Blume	O	<i>Morinda</i> sp.	F	<i>Asplenium</i>	O						
<i>Elbucklandia tonkinensis</i> (Lecomte) Steenis ex Mak	O	<i>Pinus kesiya</i> Royle ex Gordon	O	<i>Gleichenia</i> sp.	O						
<i>Garcinia pedunculata</i> Roxb. ex Buch.-Ham.	A	<i>Pittosporum pauciflorum</i> Hook. & Arn. *	O	<i>Hedyotis</i> sp.	F						
<i>Gironniera subaequalis</i> Planch	O	<i>Polygala tonkinensis</i> Chodat	O	<i>Lindaea emifolia</i> Sw.	F						
<i>Gymnanthes remota</i> (Steenis) Esser	F	<i>Pyrenaria polianensis</i> Gagnep.	O	<i>Melicope</i> sp.	F						
<i>Ilex chapaensis</i> Merr.	O	<i>Quercus langbianensis</i> Hickey & A.Camus *	F	<i>Pothos</i>	O						
<i>Ilex excavata</i> Pierre	O	<i>Schinus crenata</i> Korth	O	<i>Smilax glabra</i> Roxb.	F						
<i>Illicium</i> sp. 1	R	<i>Schoepfia fragrans</i> Wall.	F	<i>Tetrastigma ramantaceum</i> Planch	O						
<i>Lindera cf. bokorensis</i> Yahara & Tagane	F	<i>Sterculia liasophylla</i> Pierre	O	<i>Zingiber</i>	O						

DAFOR SCALE: O - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.
 Red list species to be marked in list using *
 Invasive species to be marked in list using **

Plant plot 4.6

Botanical Surveys											
Site name	Survey Block 4	Date and Time	7/27/2021	Latitude	731205	Longitude	1712548	Monitoring Plot ID Number	4-6	Monitoring Plot Size	0.1 ha
Surveyors	Souladeth P., Soukhevong M., Thonphakdy N., Boultavong T.										
Air Temperature [°C]	28	Cloud Cover	3	Rain	2	Wind	5	Brief weather description	Cloudy with moderate-heavy rain and strong breeze		
Habitat types present	Forest protection between Ban Piao and Ban Dak Renn										
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)							
Montane evergreen forest, dense of broad-leaved trees and some pine forest				Fire	NA	Wildlife	NA	Human activity	Tree logging		
				Combined impact score							
				Notes on impacts within the plot and nearby				Clear-cutting of vegetation for the Transmission Lines and illegal logging throughout the survey sites			
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	14	Canopy mean cover (%)	85	Understorey mean height (m)	7	Understorey mean cover (%)	5	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	5
Approx age of canopy (yr)	80	Bare ground cover (%)	15	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	3		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	150	Max veg height (cm)	300								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR						
<i>Adinandra integrifolia</i> T.Anderson ex Dyer	O	<i>Pittosporum pauciflorum</i> Hook. & Arn. *	O	Herbaceous/ferns:							
<i>Antidesma japonicum</i> Siebold et Zucc.	O	<i>Polygala tonkinensis</i> Chodat	O	<i>Adenia</i> sp.	O						
<i>Callicarpa rubella</i> Lindl.	F	<i>Schinus crenata</i> Korth.	F	<i>Aralia villosa</i> Roxb.	O						
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	D	<i>Schoepfia fragrans</i> Wall.	O	<i>Arundina graminifolia</i> (D. Don) Hochr.	F						
<i>Decrydium elatum</i> (Roxb.) Wall. ex Hook.	O	<i>Syngium lineatum</i> (DC.) Merr. & L.M.Perry	O	<i>Asplenium</i>	O						
<i>Daphniphyllum majus</i> Mull.Arg.	O			<i>Brachyotme wallichii</i> Hook.f	F						
<i>Engelhardtia serrata</i> Blume	O			<i>Bremia glauca</i> Craib	O						
<i>Gironniera subaequalis</i> Planch	D	Woody Climber:		<i>Craspedolobium univagum</i> (Gagnep.) Z.Wei & Pedley	O						
<i>Gynnanthes remota</i> (Steenis) Esser	F	<i>Phanera loranthia</i> Pierre ex Gagnep.	F	<i>Embelis ribes</i> Burm.f	O						
<i>Ilex chapensis</i> Merr.	D			<i>Gleichenia</i> sp.	O						
<i>Uthocarpus harmandii</i> (Hickel & A.Camus) A.Camus	A			<i>Gomphodema</i> sp.	O						
<i>Utsea martabanica</i> (Kurz) Hook.f	A			<i>Hedyotis</i> sp.	F						
<i>Utsea umbellata</i> (Lour.) Merr.	O			<i>Lindaea ensifolia</i> Sw.	O						
<i>Macaranga kurzii</i> Pax & K.Hoffm.	F			<i>Melicope</i> sp.	O						
<i>Neolitsea zeylanica</i> (Nees & T. Nees) Merr.	F			<i>Torenia</i> sp.	O						
DAFOR SCALE: O - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **											

Annex 1d-2. Summary of tree species list in the Survey Block 4

No	Scientific Name	Local Name	Family	IUCN Red List
1	<i>Antidesma japonicum</i>	ເໝ້າພູ (Mao phou)	Phyllanthaceae	
2	<i>Castanopsis acuminatissima</i>	ກໍ່ເດືອຍ (Kor deau)	Fagaceae	
3	<i>Dacrydium elatum</i>	ຮຶງຫອມ (Hinh hom)	Podocarpaceae	
4	<i>Daphniphyllum majus</i>	ດິກດົງ (Dik dong)	Daphniphyllaceae	
5	<i>Elaeocarpus griffithii</i>	ມູນ (Moun)	Elaeocarpaceae	
6	<i>Exbucklandia tonkinensis</i>	ໂພກາບລາງ (Pho kablang)	Hamamelidaceae	
7	<i>Garcinia pedunculata</i>	ສົ້ມໂມງ (Som mong)	Clusiaceae	
8	<i>Gironniera subaequalis</i>	ຫາງແມງໄອ່ (Hang maeng-ai)	Cannabaceae	
9	<i>Gymnanthes remota</i>	ປີກ (Pik)	Euphorbiaceae	
10	<i>Ilex chapaensis</i>	ໄຂ່ມິດຊາປ່າ (Khai mod sapa)	Aquifoliaceae	
11	<i>Ilex excavata</i> Pierre	ໄຄ້ຂາວ (Khai mod)	Aquifoliaceae	
12	<i>Illicium</i> sp. 1 ***	ຈັນ (Chan)	Schisandraceae	
13	<i>Lindera bokorensis</i>	ບົງບໍກໍ (Bong bokor)	Lauraceae	
14	<i>Lithocarpus harmandii</i>	ກໍ່ຫັນ (Kor man)	Fagaceae	
15	<i>Litsea martabanica</i>	ຫົ່ມບົງຫອມ (Mee bonghom)	Lauraceae	
16	<i>Litsea umbellata</i>	ບົງຮ້າງ (Bong hang)	Lauraceae	
17	<i>Macaranga kurzii</i>	ແສ້ (Sae)	Euphorbiaceae	
18	<i>Millettia leucantha</i>	ຄໍາພີ່ຕາຄວາຍ (Khamphée ta-khouay)	Fabaceae	
19	<i>Morinda</i> sp.	ຍໍປ່າ (Gno pa)	Rubiaceae	
20	<i>Neolitsea zeylanica</i>	ໄຟເດືອນຫ້າ (Fai deuanha)	Lauraceae	
21	<i>Pinus kesiya</i>	ແປກສາມໃບ (Peak sambai)	Pinaceae	
22	<i>Pittosporum pauciflorum</i>	ສຸມດອກນ້ອຍ (Soum dok-noi)	Pittosporaceae	VU
23	<i>Polygala tonkinensis</i>	ຕ້າງໄກ່ (Tang kai)	Polygalaceae	
24	<i>Pyrenaria poilaneana</i>	ໝັ້ງດົງ (Miang dong)	Theaceae	
25	<i>Quercus langbianensis</i>	ກໍ່ລັງບຽງ (Kor langbian)	Fagaceae	NT
26	<i>Schima crenata</i>	ຄາຍໂສ້ (Khai Soh)	Theaceae	
27	<i>Sterculia lissophylla</i>	ປໍເມືອກ (Por muaek)	Malvaceae	
28	<i>Symplocos wikstroemiifolia</i>	ຄອມປໍ (Khom pa)	Symplocaceae	

Annex 1e-1. Summary of plant plot by Survey Block (SB5 – Phou Yai)

Botanical Surveys											
Site name	Survey Block 3		Date and Time	22/22/7/2021		Latitude			Longitude		
Surveyors	Souladeth, P., Soukhavong, M., Thonghakdy, N., Bouttavong, T.						Monitoring Plot (ID Number)	Plot 5-1/5-2/5-3/5-4/5-5/5-6			
Air Temperature (°C)	22	Cloud Cover	5	Rain	3	Wind	5	Brief weather description	Cloudy with moderate-heavy rain and strong breeze		
Habitat types present	Forest protection near Ban Pao										
Site and vegetation description						Condition assessment scores and comments (fire, wildlife and human activity)					
Disturbed forest near the village, dense of middle and young trees						Fire	NA	Wildlife	NA	Human activity	Cutting trees
						Combined impact score					
						Notes on impacts within the plot and nearby		Clear-cutting of vegetation for the Transmission Lines throughout the survey sites			
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	32	Canopy mean cover (%)	85	Understorey mean height (m)	5	Understorey mean cover (%)	20	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	10
Approx. age of canopy (yrs)	50	Bare ground cover (%)	15	Water cover (%)		Moist Layer mean height (m)	0.3	Moist Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	120	Max veg height (cm)	260								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR				
Acer laurinum	D	Heptaleurum cambodianum	A	Quercus	A						
Aporosa torapleura	D	Ilex chapaensis	F	Semecarpus reticulata	D						
Aporosa yunnanensis	D	Ilicium tenuifolium	R	Symplocos theifolia	A						
Balakata baccata	A	Lindera annamensis	A	Symplocos wilsonii	A						
Benkaya	R	Lithocarpus hamandi	D	Syzygium antiochioides	F						
Calophyllum piperifolium	D	Lithocarpus pierreii	A	Syzygium clausenianum	A						
Camellia lasa	F	Litsea cambodianum	A	Syzygium	O						
Camellia sp. 1	R	Litsea maritima	D	Temstroemia gymnanthera	F						
Castanopsis acuminatissima	A	Machilus angustifolia	D	Toxicodendron succedaneum	D						
Ornithium curvifolium	F	Mastola pentandra subsp. cambodiana	D	Xanthophyllum sp. 1	F						
Ornithium	O	Microtropis	D								
Diospyros	O	Nageia flexuosa *	F								
Elaeocarpus griffithii	D	Neolitsea zeylanica	F								
Engelhardtia serrata	D	Nephelium hypoleucum	A								
Garcinia pedunculata	D	Pinus koya	A								
Gardenia	D	Pittosporum pauciflorum	F								
Gromeria subaequalis	F	Podocarpus pilgeri	A								
Gomphandra	O	Polystachya	O								
Goniochalamus	D	Polygala tonkinensis	O								
Gymnarches remota	A	Psychotria	O								
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.											
Red list species to be marked in list using *											
Invasive species to be marked in list using **											
Photo references											

List of dominant species within the plot that define the habitat types and any notable species (including Red List/invasive)			
Species	DAFOR	Species	DAFOR
<i>Polystichum attenuatum</i> Tagawa & Z. Inaki	D	<i>Allophila costularis</i> Baker	O
<i>Archidendron clypearia</i> (Jack) J.C. Nees	D	<i>Derris</i> sp.	O
<i>Toneria</i> sp.	D	<i>Ixora</i> sp.	R
<i>Diplazium donianum</i> (Mett.) Tardieu	D	<i>Phyllanthus roseus</i> (Craib & Hutch.) Belle	O
<i>Woodwardia japonica</i> (L.f.) Sm.	D	<i>Calamus</i>	F
<i>Euonymus mitratus</i> Pierre	D	<i>Canthium</i>	O
<i>Heterosmilax paniculata</i> Gagnep.	A	<i>Medinilla septentrionalis</i> (W.W. Sm.) H.L.L.	O
<i>Embelia ribes</i> Burm.f.	A	<i>Melastoma</i>	O
<i>Ardisia villosa</i> Roxb.	A	<i>Odontosoria chinensis</i> (L.) J.Sm.	F
<i>Asplenium</i>	A	<i>Oryzopora</i> sp.	O
<i>Lasiacanthus curtisii</i> King & Gamble	A	<i>Prismatomers</i> sp.	O
<i>Alpinia</i> sp.	R	<i>Rubus rugosus</i> Sm.	O
<i>Arundina graminifolia</i> (D. Don) Hocht.	F	Unknown <i>Acanthaceae</i>	O
<i>Breynia glauca</i> Craib	F	Unknown <i>Arecaceae</i>	O
<i>Callicarpa rubella</i> Lindl.	F	<i>Torenia</i> sp.	F
<i>Craspedobium unguis</i> (Gagnep.) Z. Wei & Pedley	F		
<i>Lasiacanthus herveyi</i> (Roxb.) Merr.	F		
<i>Ophopogon</i> sp.	F		
<i>Smilax corbularia</i> Karth	F		
Unknown <i>Mentispermaceae</i>	R		

DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.
 Red list species to be marked in list using *.
 Invasive species to be marked in list using **

Photo references

Detailed plant plots of the Survey block 5 as below

Plant plot 5.1

Botanical surveys											
Site name	Survey Block 5	Date and Time	7/2/2021	Latitude	725071	Longitude	1720374	Monitoring Plot (ID Number)	5-1		
Surveyors	Soukadeh, P., Soukhaing, M., Thonphakdy, N., Souttayong, T.										
Air Temperature (°C)	22	Cloud Cover	6	Rain	3	Wind	6	Brief weather description	Cloudy with moderate-heavy rain and strong breeze		
Habitat types present	Forest protection near Ban Pao										
Site and vegetation description					Condition assessment scores and comments (fire, wildlife and human activity)						
Disturbed forest near the village, dense of middle and young trees					Fire	NA	Wildlife	NA	Human activity	Cutting trees	
					Combined impact score			Notes on impacts within the plot and nearby	Clear-cutting of vegetation for the Transmission Lines throughout the survey sites		
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	12	Canopy mean cover (%)	80	Understorey mean height (m)	5	Understorey mean cover (%)	20	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	10
Approx age of canopy (yrs)	50	Bare ground cover (%)	20	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation:											
Mean veg height (m)	120	Max veg height (m)	260								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red list/invasive)											
Species	DAFOR			Species	DAFOR			Species	DAFOR		
<i>Acer laurinum</i> Hance			O	<i>Hex chaepensis</i> Merr.			O	<i>Syzygium antisepticum</i> (Blume) Merr. & L.M.Perry (Myrt)			F
<i>Aporosa terapeura</i> Hance			O	<i>Illicium tenuifolium</i> (Ridl.) A.C. Sm.			R	<i>Syzygium claviflorum</i> (Rob.) Wall. ex A.M. Cowen & Cow			O
<i>Aporosa yunnanensis</i> (Pav. & K. Hoffm.) P.P. Nelsalf			O	<i>Lindera annamensis</i> H. Liu, Laurac			F	<i>Ternstroemia gymnanthera</i> (Wight & Arn.) Sprague			O
<i>Balakata hoccata</i> (Roxb.) Esser			F	<i>Lithocarpus hamardii</i> (Hickel & A. Camus) A. Camus			O	<i>Xanthophyllum</i> sp. 3			O
<i>Benkaya</i> sp.			R	<i>Lithocarpus pierreii</i> (Hickel & A. Camus) A. Camus			A				
<i>Camellia kicchi</i> Wall.			F	<i>Litsea cambodianum</i> (Econote			F				
<i>Camellia</i> sp.			R	<i>Machilus angulifolia</i> Mass, Tagane & Yahara			O				
<i>Castanopsis acuminatissima</i> (Blume) A. DC.			F	<i>Microtropis</i> sp.			O	Herbaceous/ferns:			
<i>Cinnamomum curvifolium</i> (Lam.) Nees			F	<i>Nephetium hypoleucum</i> Kurz			O	<i>Archidendron clypearia</i> (Stack) I.C. Nielsen			O
<i>Elaeocarpus griffithii</i> (Wight) A. Gray			O	<i>Pittosporum pauciflorum</i> Hook. & Arn			O	<i>Andria villosa</i> Reob.			O
<i>Engelhardtia serrata</i> Blume			O	<i>Podocarpus pilgeri</i> Foxm.			O	<i>Diplazium donianum</i> (Mett.) Tardieu			F
<i>Garcinia pedunculata</i> Roxb. ex Buch.-Ham.			O	<i>Polygala tenkinensis</i> Chodat			O	<i>Euonymus mitratus</i> Pierre			F
<i>Gironniera subaequalis</i> Planch.			O	<i>Psychotria</i> sp.			F	<i>Heteromilias paniculata</i> Gagnep.			O
<i>Gomphandra</i> sp.			O	<i>Quercus</i> sp.			F	<i>Ophiopogon</i> sp.			O
<i>Goniothalamus</i> sp.			F	<i>Symplocos theifolia</i> D. Don			A	<i>Polystichum attenuatum</i> Tagawa & Z. Iwats.			F
<i>Gynnanthes remota</i> (Steenis) Esser			F	<i>Symplocos wilkstramiifolia</i> Hayata			O	<i>Syzygium antisepticum</i> (Blume) Merr. & L.M. Perry (Myrt)			F
								<i>Woodwardia japonica</i> (L.f.) Sm.			F

DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.
 Red list species to be marked in list using *
 Invasive species to be marked in list using **

Plant plot 5.2

Botanical Surveys											
Site name	Survey Block 5	Date and Time	7/21/2021	Latitude	728254	Longitude	1710886	Monitoring Plot (ID Number)	5-2		
Surveyors	Souladeth P, Soukhavong M, Thonphakdy N, Bouthavong T.							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	25	Cloud Cover	4	Rain	3	Wind	6	Brief weather description: Cloudy with moderate-heavy rain and strong breeze			
Habitat types present	Forest protection near Ban Piao										
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)							
Disturbed forest near the village, dense of middle and young trees				Fire	NA	Wildlife	NA	Human activity	Cutting trees		
				Combined Impact score							
				Notes on impacts within the plot and nearby		Clear-cutting of vegetation for the Transmission Lines throughout the survey sites					
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	10	Canopy mean cover (%)	80	Understorey mean height (m)	5	Understorey mean cover (%)	20	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	10
Approx age of canopy (yrs)	50	Bare ground cover (%)	20	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (m)	120	Max veg height (m)	260								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR						
Acer laurinum Hassk.	O	Microtropis sp.	O	Alpinia sp.	R						
Aporosa terapeura Hance	A	Pinus kesiya Royle ex Gordon	D	Archidendron clypearia (Jack) J.C. Nielsen	O						
Balakata baccata (Roxb.) Exer	F	Pittosporum pauciflorum Hook & Arn.	O	Breymia glauca Craib	O						
Benkaya sp.	O	Podocarpus pilgeri Fow.	O	Calamus	O						
Camelia kissii Wall.	F	Psychotria sp.	F	Calliarge rubella Lindl.	F						
Castanopsis acuminatissima (Blume) A.DC.	F	Quercus sp.	F	Diplazium donianum (Mett.) Tardieu	F						
Ginniera subaequalis Planch	O	Symplocos theibolia D Don	O	Embellia ribes Burm.f.	F						
Gomphandra sp.	O	Ternstroemia gynnanthera (Wight & Arn.) Sprague	O	Euonymus mitratus Pierre	O						
Goniothalamus sp.	A	Ranthophyllum sp. 3	O	Lasianthus curtisi King & Gamble	F						
Gynnanthes remota (Steenis) Esser	F			Lasianthus hirsutus (Roxb.) Merr.	F						
Ilex chapaensis Merr.	O			Polystichum attenuatum Tagawa & Z. Svats.	O						
Lindera annamensis H. Liu, Laurac	F			Smilax corbularia Kunth	O						
Lithocarpus pierrei (Hickel & A.Camus) A.Camus	F			Unknown, Menispermaceae	R						
Utsea cambodianum Lecomte	F			Woodwardia japonica (L.f.) Sm.	O						
Machilus angustifolia Mase, Tagawa & Yahara	F										
DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare. Red list species to be marked in list using * Invasive species to be marked in list using **											

Plant plot 5.3

Botanical Surveys											
Site name	Survey Block 5	Date and Time	7/21/2011	Latitude	722916	Longitude	1711735	Monitoring Plot (ID Number)	S-3		
Surveyors	Souleleth, P., Soukheang, M., Thonghakly, N., Boustvang, T.										
Air Temperature (°C)	28	Cloud Cover	4	Rain	3	Wind	8	Brief weather description	Cloudy with moderate heavy rain and strong breeze		
Habitat types present	Forest protection near San Flap										
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)							
Disturbed forest near the village, dense of middle and young trees				Fire	NA	Wildlife	NA	Human activity	Cutting trees		
				Combined impact score:				Clear-cutting of vegetation for the Transmission Lines throughout the survey sites			
Notes on impacts within the plot and nearby:											
For forest habitat describe canopy, understorey and ground flora:											
Canopy mean height (m)	12	Canopy mean cover (%)	80	Understorey mean height (m)	5	Understorey mean cover (%)	20	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	7
Approx age of canopy (yr)	50	Bare ground cover (%)	20	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation:											
Mean veg height (m)	100	Max veg height (m)	250								
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR	Species	DAFOR		
<i>Ardisia gracilenta</i> C.M.Hu & J.E.Vidal	O	<i>Nepenthes hypoleucum</i> Kunt	A	<i>Archidendron clypearia</i> (Jack) C.Nielsen	A						
<i>Aporosa leiophleura</i> Hance	D	<i>Pithecolobium pauciflorum</i> Hook. & Arn.	D	<i>Ardisia villosa</i> Robt.	D						
<i>Balakata baccata</i> (Roub.) Esser	F	<i>Polypogon tonkinensis</i> Chodan	D	<i>Acrostichum graminifolium</i> (L.) Presl	F						
<i>Castanopsis acuminatissima</i> (Blume) A.DC.	F	<i>Psychotria</i> sp.	D	<i>Crepidodolobium unijugum</i> (Gagnep.) Z.Wei & Pedley	D						
<i>Garcinia pedunculata</i> Robt. ex Buch.-Ham.	O	<i>Symplocos theifolia</i> D.Don	D	<i>Diplazium donianum</i> (Mett.) Tardieu	O						
<i>Goniothalamus</i> sp.	F	<i>Syzygium antisepticum</i> (Blume) Merr. & L.M.Perry (M)	F	<i>Erebacca rufes</i> Benth.	O						
<i>Gymnanthes remota</i> (Steenis) Esser	F	<i>Ternstroemia gymnanthera</i> (Wight & Arn.) Sprague	O	<i>Eucryphia mitratus</i> Pierre	O						
<i>Hepptaleurum cf. cambodianum</i> Yahara & Tagane	O			<i>Heterosmilax paniculata</i> Gagnep.	O						
<i>Ilex chapaensis</i> Merr.	D			<i>Ophiopogon</i> sp.	O						
<i>Illicium tenuifolium</i> (Bl.) A.C. Sm.	E			<i>Phanera loranthifolia</i> Pierre ex Gagnep.	O						
<i>Lindera annamensis</i> H. Liu, Laurae	D			<i>Polystichum attenuatum</i> Tagawa & Z. Iwats.	O						
<i>Lithocarpus pierre</i> (Hickel & A.Camus) A.Camus	A			<i>Torenia</i> sp.	F						
<i>Utsea cambodianum</i> Lecointe	A										
<i>Machilus angustifolia</i> Mase, Tagane & Yahara	D										
<i>Microtropis</i> sp.	O										

DAFOR SCALE: O - Dominant, A - Abundant, F - Frequent, D - Occasional, R - Rare
 Red list species to be marked in list using *
 Invasive species to be marked in list using **

Plant plot 5.4

Botanical Surveys											
Site name	Survey Block 5	Date and Time	7/22/2021	Latitude	722424	Longitude	1712428	Monitoring Plot (ID Number)	5-4		
Surveyors	Sculadeth P, Soukhevang M, Thongkeidy N, Bouitxavong T							Monitoring Plot Size	0.1 ha		
Air Temperature (°C)	27	Cloud Cover	5	Rain	3	Wind	6	Brief weather description	Cloudy with moderate heavy rain and strong breeze		
Habitat types present	Forest protection near Ban Piao										
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)							
Disturbed forest near the village, dense of middle and young trees				Fire	NA	Wildlife	NA	Human activity	Cutting trees		
				Combined impact score				Notes on impacts within the plot and nearby		Clear-cutting of vegetation for the Transmission Lines throughout the survey sites	
For forest habitat describe canopy, understory and ground flora											
Canopy mean height (m)	10	Canopy mean cover (%)	80	Understorey mean height (m)	5	Understorey mean cover (%)	15	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	10
Approx age of canopy (yr)	50	Bare ground cover (%)	20	Water cover (%)		Moss Layer mean height (m)	0.1	Moss Layer mean cover (%)	5		
For other habitats record overall max and mean height of vegetation											
Mean veg height (cm)	100	Max veg height (cm)	250								
Vegetation cover (%)	80	Bare ground cover (%)	20	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)											
Species	DAFOR	Species	DAFOR	Species	DAFOR						
Acer laurinum Hassk.	D	Polyalthia	F	Archidendron clypearia (Jack) I.C.Nielsen	F						
Ardisia gracilenta C.M.Hu & J.E.Vidal	O	Polygala tonkinensis Chodat	O	Ardisia villosa Roxb.	O						
Balakata baccata (Roxb.) Esler	A	Psychotria sp.	F	Ayundina graminifolia (D. Don) Hochr.	F						
Calophyllum piferum Planch. & Triana	D	Semecarpus reticulata Lecomte	O	Asplenium	O						
Canthium	F	Symplocos theifolia D. Don	O	Craspedolobium unijugum (Gagnep.) Z.Wei & Pedley	F						
Castanopsis acuminatissima (Blume) A.D.C.	A	Scygium antisepticum (Blume) Merr. & L.M.Perry (N)	A	Diplazium donianum (Mett.) Tardieu	O						
Cinnamomum curvifolium (Lam.) Nees	F	Ternstroemia gymnanthera (Wight & Arn.) Sprague	O	Embellia ribes Burm.f.	O						
Gynnanthes remota (Steenis) Esser	F	Toxicodendron succedaneum (L.) Kuntze	O	Euonymus mitratus Pierre	O						
Litocarpus harmandii (Hickel & A.Camus) A.Camus	A	Kanthophyllum sp. 3	O	Heterosmilax paniculata Gagnep.	O						
Litsea martabanica (Kurz) Hook.f.	D			Phanera lorantha Pierre ex Gagnep.	F						
Mezilaurus angustifolia Makr. Tagawa & Yahara	O			Polytichum attenuatum Tagawa & J. Iwats.	O						
Melastoma	O			Torenia sp.	O						
Melicope obovata (Champ. ex Benth.) T.G. Hartley	O										
Nephelepis hypoleucum Kurz	F										
Podocarpus pilgeri Fowr.	O										

DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.
 Red list species to be marked in list using *
 Invasive species to be marked in list using **

Plant plot 5.5

Botanical Surveys									
Site name	Survey Block 5	Date and Time	7/22/2021	Latitude	722080	Longitude	1713133	Monitoring Plot (ID Number)	S-5
Surveyors	Souladeth, P., Soukhavong, M., Thorephakdy, N., Bouttavong, T.						Monitoring Plot Size	0.1 ha	
Air Temperature (°C)	26	Cloud Cover	4	Rain	3	Wind	6	Brief weather description	Cloudy with moderate-heavy rain and strong breezes
Habitat types present	Forest protection near Ban Pao								
Site and vegetation description				Condition assessment scores and comments (fire, wildlife and human activity)					
Disturbed forest near the village, dense of middle and young trees				Fire	NA	Wildlife	NA	Human activity	Cutting trees
				Combined impact score					
				Notes on impacts within the plot and nearby		Clear-cutting of vegetation for the Transmission Lines throughout the survey sites			
For forest habitat describe canopy, understorey and ground flora									
Canopy mean height (m)	10	Canopy mean cover (%)	80	Understorey mean height (m)	5	Understorey mean cover (%)	15	Herbaceous layer mean height (m)	0.5
Approx. age of canopy (yrs)	50	Bare ground cover (%)	20	Water cover (%)		Moss Layer mean height (m)	0.3	Moss Layer mean cover (%)	5
For other habitats record overall max and mean height of vegetation									
Mean veg height (cm)	120	Mean veg height (cm)	260						
Vegetation cover (%)	85	Bare ground cover (%)	15	Water cover (%)	0				
List of dominant species within the plot that define the habitat types and any notable species (including Red List/Invasive)									
Species	DAFOR	Species	DAFOR	Species	DAFOR				
<i>Acer laurinum</i> Hook.	F	<i>Ardisia villosa</i> Roeb.	O	<i>Alpinia</i> sp.	R				
<i>Calophyllum piferum</i> Planch. & Triana	A	<i>Breynia glauca</i> Craib	O	<i>Abopha costularis</i> Baker	O				
<i>Gardenia</i>	A	<i>Callicarpa rubella</i> Lindl.	O	<i>Derris</i> sp.	O				
<i>Heptapleurum cf. cambodianum</i> Yahara & Tagane	D	<i>Isora</i> sp.	O	<i>Diplazium dorianum</i> (Metz.) Tardieu	F				
<i>Lithocarpus harmandi</i> (Hickel & A. Camus) A. Camus	D	<i>Lasiacanthus curtisii</i> King & Gamble	A	<i>Embelia ribes</i> Burm.f.	O				
<i>Litsea martabanica</i> (Burr.) Hook.f.	D	<i>Lasiacanthus hirsutus</i> (Roeb.) Merr.	O	<i>Odontoporia chinensis</i> (L.) Sm.	O				
<i>Machilus angustifolia</i> Mase, Tagane & Yahara	D	<i>Medinilla septentrionalis</i> (N. W. Sm.) H. L. L.	O	<i>Phanera loranthifera</i> Pierre ex Gagnep.	F				
<i>Mastixia pentandra</i> subsp. <i>cambodiana</i> (Pierre) K.M.L.	O	<i>Oryzora</i> sp.	O	<i>Phyllanthus roseus</i> (Craib & Hutch.) Bell	O				
<i>Neolitsea zeylanica</i> (Nees & T. Nees) Merr.	A	<i>Prismatomeris</i> sp.	O	<i>Pleocnemia</i> sp.	R				
<i>Polygala tonkinensis</i> Chodat	F	<i>Robus rugosus</i> Sm.	O	<i>Polytichum attenuatum</i> Tagawa & T. Swats.	O				
<i>Quercus</i> sp.	O	<i>Urophyllum</i> sp.	F	<i>Torenia</i> sp.	F				
<i>Strygium antisepticum</i> (Blume) Merr. & L.M.Perry (M)	O			<i>Ulinston</i> <i>Merrispermaceae</i>	O				
<i>Strygium</i> sp.	A			<i>Woodwardia japonica</i> (L.f.) Sm.	O				

DAFOR SCALE: D - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare.
 Red list species to be marked in list using *
 Invasive species to be marked in list using **

Plant plot 5.6

Botanical Survey											
Site name	Survey Block	Date and Time	Latitude	Longitude	Monitoring Plot (ID Number)	Monitoring Plot Size					
Surveyors	Souladeth, P., Soukhavong, M., Thonphakdy, N., Bouttavong, T.										
Air Temperature (°C)	27	Cloud Cover	3	Rain	3	Wind	5	Brief weather description			
Habitat types present		Forest protection near Ban Pao									
Site and vegetation description				Condition assessment scores and comments (Fire, Wildlife and human activity)							
Disturbed forest near the village, dense of middle and young trees				Fire	NA	Wildlife	NA	Human activity	Cutting trees		
				Combined impact score			Clear-cutting of vegetation for the Transmission Lines throughout the survey sites				
Notes on impacts within the plot and nearby											
For forest habitat describe canopy, understorey and ground flora											
Canopy mean height (m)	22	Canopy mean cover (%)	80	Understorey mean height (m)	5	Understorey mean cover (%)	10	Herbaceous layer mean height (m)	0.5	Herbaceous layer mean cover (%)	5
Approx age of canopy (yrs)	50	Bare ground cover (%)	20	Water cover (%)		Miss Layer mean height (m)	0.1	Miss Layer mean cover (%)	3		
For other habitats record overall max and mean height of vegetation											
Max veg height (cm)	120	Max veg height (cm)	260								
Vegetation cover (%)	80	Bare ground cover (%)	20	Water cover (%)	0						
List of dominant species within the plot that define the habitat types and any notable species (including food list/involved)											
Species	DAFOR	Species	DAFOR	Species	DAFOR						
<i>Acer laurinum</i> Hassk.	O	<i>Allicium ternstroemii</i> (Bl.) A.C. Sm.	A	<i>Alpinia</i> sp.	R						
<i>Aporosa yunnanensis</i> (Pav. & K. Hoffm.) F.P. Metcalf	O	<i>Undera annamensis</i> H. Liu, Laurac	A	<i>Archidendron clypearia</i> (Jack) J.C. Nielsen	A						
<i>Balakata baccata</i> (Roxb.) Esser	F	<i>Lithocarpus pierreii</i> (Hickel & A.Camus) A.Camus	A	<i>Andraia villosa</i> Roxb.	O						
<i>Benkaya</i> sp.	R	<i>Litsea cambodianum</i> (Lecote)	D	<i>Clerodendrum</i> sp.	F						
<i>Calophyllum plaxiferum</i> Planch. & Triana	A	<i>Machilus angustifolia</i> Mass. Tagane & Yahara	A	<i>Craspedolobium unguatum</i> (Gagnep.) Z. Wei & Pedley	F						
<i>Camellia kissii</i> Wall.	F	<i>Microtropis</i> sp.	O	<i>Diplazium donianum</i> (Mett.) Tardieu	O						
<i>Camellia</i> sp.	R	<i>Plagalis fleuryi</i> (Hickel) de Laub.*	A	<i>Embellia ribes</i> Burm.f.	A						
<i>Castanopsis acuminatissima</i> (Blume) A. DC.	F	<i>Nephelium hypoleucum</i> Kurz	A	<i>Euonymus nitratus</i> Pierre	O						
<i>Cinnamomum curvifolium</i> (Lam.) Nees	O	<i>Podocarpus pilgeri</i> Foxw.	O	<i>Ixora</i> sp.	R						
<i>Cinnamomum</i> sp.	O	<i>Quercus</i> sp.	O	<i>Medinilla septentrionalis</i> (W. W. Sm.) H. L. Li	F						
<i>Diostyros</i> sp.	O	<i>Symplocos theifolia</i> D. Don	O	<i>Ophiopogon</i> sp.	F						
<i>Gomphandra</i> sp.	O	<i>Symplocos wilstroemii</i> Hayata	O	<i>Oxyptera</i> sp.	F						
<i>Goniothalamus</i> sp.	O	<i>Syzygium claviflorum</i> (Roxb.) Wall. ex A.M. Cowan &	A	<i>Rubus rugosus</i> Sm.	D						
<i>Gynnanthes remota</i> (Steenis) Esser	F	<i>Ternstroemia gynnanthera</i> (Wight & Arn.) Serague	O	<i>Tarenia</i> sp.	O						
<i>Heptaleurum cf. cambodianum</i> Tagane & Tagane	O	<i>Xanthophyllum</i> sp. 3	O								
DAFOR SCALE: O - Dominant, A - Abundant, F - Frequent, O - Occasional, R - Rare											
Red list species to be marked in list using *											
Invasive species to be marked in list using **											

Annex 1e-2. Summary of tree species list in the Survey Block 5

No	Scientific Name	Local Name	Family	IUCN Red List
1	<i>Acer laurinum</i>	ກ່ວມ (Kuam)	Sapindaceae	
2	<i>Aporosa terapleura</i>	ໝື່ອດພູ (Maud phou)	Phyllanthaceae	
3	<i>Aporosa yunnanensis</i>	ໝື່ອດໃບແຫຼມ (Maud bai-laem)	Phyllanthaceae	
4	<i>Balakata baccata</i>	ລັບແລ (Lab lae)	Euphorbiaceae	
5	<i>Benkara</i>	ຄັດເຄົ້າ (Khat khao)	Rubiaceae	
6	<i>Calophyllum pisiferum</i>	ກະທົງ (Ka thueng)	Calophyllaceae	
7	<i>Camellia kissii</i>	ໝັງງອາມ (Miang arm)	Theaceae	
8	<i>Camellia sp.1</i>	ໝັງງ (Miang)	Theaceae	
9	<i>Castanopsis acuminatissima</i>	ກໍ່ເດືອຍ (Kor deau)	Fagaceae	
10	<i>Cinnamomum curvifolium</i>	ຈວງ (Juang)	Lauraceae	
11	<i>Cinnamomum</i>	ຈວງ (Juang)	Lauraceae	
12	<i>Diospyros</i>	ໝາກເກືອ (Mak keau)	Ebenaceae	
13	<i>Elaeocarpus griffithii</i>	ມຸນ (Moun)	Elaeocarpaceae	
14	<i>Engelhardtia serrata</i>	ຟ່າວຂຽວໝາມ (Phao khiew)	Juglandraceae	
15	<i>Garcinia pedunculata</i>	ສົ້ມໂມງ (Som mong)	Clusiaceae	
16	<i>Gardenia</i>	ພຸດຜາ (Phout pha)	Rubiaceae	
17	<i>Gironniera subaequalis</i>	ຫາງແມງໄອ່ (Hang maeng-ai)	Cannabaceae	
18	<i>Gomphandra</i>	ພູຟ່າ (Phou pha)	Stemonuraceae	
19	<i>Goniothalamus</i>	ເຂົ້າຫຼາມດົງ (Khao-larm dong)	Annonaceae	
20	<i>Gymnanthes remota</i>	ປີກ (Pik)	Euphorbiaceae	
21	<i>Heptapleurum cambodianum</i>	ຕ້າງ (Tang)	Araliaceae	
22	<i>Ilex chapaensis</i>	ໄຂ່ມິດຊາປ່າ (Khai mod sapa)	Aquifoliaceae	
23	<i>Illicium tenuifolium</i>	ຈັນບານ (Chan ban)	Schisandraceae	
24	<i>Lindera annamensis</i>	ລິນດາລາກ້ານແດງ (Lindara Kandaeng)	Lauraceae	
25	<i>Lithocarpus harmandii</i>	ກໍ່ໝັນ (Kor man)	Fagaceae	
26	<i>Lithocarpus pierrei</i>	ກໍ່ກັກ (Kor Kak)	Fagaceae	
27	<i>Litsea cambodianum</i>	ບົງຂະເໝນ (Bong khmer)	Lauraceae	
28	<i>Litsea martabanica</i>	ໝໍ້ບົງຫອມ (Mee bonghom)	Lauraceae	
29	<i>Machilus angustifolia</i>	ຕອງຫອມໃບແຄບ (Tong Hom bai khaeb)	Lauraceae	
30	<i>Mastixia pentandra subsp. cambodiana</i>	ໝາກເຖິນ (Mak thern)	Cornaceae	
31	<i>Microtropis</i>	ຂາງແດງ (Khang daeng)	Celastraceae	
32	<i>Nageia fleuryi</i>	ພະຍາໄມ້ (Phaya mai)	Podocarpaceae	NT
33	<i>Neolitsea zeylanica</i>	ໄຟເດືອນຫ້າ (Fai deuanha)	Lauraceae	
34	<i>Nephelium hypoleucum</i>	ຄໍ່ແລນ (Kho lane)	Sapindaceae	
35	<i>Pinus kesiya</i>	ແປກສາມໃບ (Peak sambai)	Pinaceae	
36	<i>Pittosporum pauciflorum</i>	ສຸມດອກນ້ອຍ (Soum dok-noi)	Pittosporaceae	VU
37	<i>Podocarpus pilgeri</i>	ກະດອງ (Ka-dong)	Podocarpaceae	
38	<i>Polyalthia</i>	ນ້ຳເຕົ້າກົກ (Namtao kok)	Annonaceae	
39	<i>Polygala tonkinensis</i>	ຕ້າງໄກ່ (Tang kai)	Polygalaceae	
40	<i>Psychotria</i>	ດູກໄກ່ (Douk kai)	Rubiaceae	
41	<i>Quercus</i>	ກໍ່ (Kor)	Fagaceae	
42	<i>Semecarpus reticulata</i>	ນ້ຳກ້ຽງດໍາ (Namkieng dam)	Anacardiaceae	

43	<i>Symplocos theifolia</i>	ເໝືອດດົງ (Maud dong)	Symplocaceae	
44	<i>Symplocos wikstroemiifolia</i>	ຄອມປ໌ (Khom pa)	Symplocaceae	
45	<i>Syzygium antisepticum</i>	ສະເມັກແດງ (Samek deang)	Myrtaceae	
46	<i>Syzygium claviflorum</i>	ຫວ້າຫິນ (Wha hin)	Myrtaceae	
47	<i>Syzygium</i>	ຫວ້າ (Wha)	Myrtaceae	
48	<i>Ternstroemia gymnanthera</i>	ເມືອກ (Mueak)	Pentaphylacaceae	
49	<i>Toxicodendron succedaneum</i>	ເປັນຮັກ (Ben hak)	Anacardiaceae	
50	<i>Xanthophyllum sp.1</i>	ແສງດົງ (Seng dong)	Polygalaceae	

Annex 2. List of mammal records from the survey area

No	Common Name	Scientific Name	Lao Name	Cons. status	Level of Report	Level of Detection	Survey Blocks					Field Confirmation					Season	
							SB1	SB2	SB3	SB4	SB5	Seen	Track	Fecal	Other	Photo	Wet	Dry
1	Common Treeshrew	<i>Tupaia glis</i>	Ka tae		L	O	X	X	X	X	X				X	X		X
2	Indochinese ground squirrel	<i>Menetes bernores</i>	Ka tae khanglai		M	O	X	X	X	X	X	X				X	X	X
3	Eurasian Wild pig	<i>Sus scrofa</i>	Mou Pa		H	C	X	X	X	X	X	X	X		X	X	X	X
4	Wild pig	<i>Sus bucculentus</i>	Mou Pa													X		X
5	Bengal Slow Loris	<i>Nycticebus bengalensis</i>	Ling Lom	EN	H		X	X	X	X	X							
6	Pygmy Slow Loris	<i>Nycticebus pygmaeus</i>	Ling Lomnoy	EN	L			X										
7	Stump-tailed Macaque	<i>Macaca arctoides</i>	Ling din	VU	H	O		X	X	X	X		X		X	X	X	X
8	Long-tailed Monkey	<i>Macaca fascicularis (ff)</i>	Ling hang yao	VU	L	O						X						
9	Clouded Leopard	<i>Neofelis nebulosa</i>	Sua lai mek	VU	L													
10	Large antlered Muntjac	<i>Muntiacus vuquangensis</i>	Fan khao nyai	CR	L													
11	Northern Pig-tailed Macaque	<i>Macaca leonina</i>	Ling kang	VU	L						X				X	X		X
12	Northern Buff-cheeked gibbon	<i>Normascus annamensis</i>	Thani kam toun	EN	H	O	X	X	X	X					X	X	X	
13	Indo. Silvered Leaf Monkey	<i>Trachypithecus Germaini</i>	Ta Lung	EN	M			X	X	X	X							
14	Red-shanked Douc Langur	<i>Pygathrix nemaeus</i>	Khadeng	CR	H	O		X	X	X		X			X		X	X
15	Black Giant Squirrel	<i>Ratufa bicolor</i>	Kadang		H	O		X	X	X	X	X			X		X	X
16	Long-tailed Giant Rat	<i>Leopoldamys Sabanus</i>	Nou Wai		M	O		X	X	X	X		X		X	X	X	X
17	Greater Bandicoot Rat	<i>Bandicota indica</i>	Nou Phouk		H			X	X	X	X				X	X		X
18	Berdmore's berylmys	<i>Berylmys berdmorei</i>	Nou Thongkhao		H	F	X	X	X	X	X		X		X		X	X
19	Red-Spin Maxomys	<i>Maxomys surifer</i>	Nou Thongluang		H	O	X	X	X	X	X		X		X		X	X
20	House Rat	<i>Rattus Rattus</i>	Nou Ban		H	O	X	X	X	X	X		X				X	X
21	Cook's Mouse	<i>Mus cookii</i>	Nou Zing		H	O	X	X	X	X	X	X	X		X		X	X
22	Short-tailed Gymnure	<i>Hylomys suillus</i>			H	O			X	X	X	X				X	X	
23	Chinese Pangolin	<i>Manis pentadactyla</i>	Lin Ngua	CR	H	O	X	X	X	X			X		X	X	X	X
24	Sunda Pangolin	<i>Manis javanica</i>	Lin Khouy	CR	H	F		X	X	X			X		X	X	X	X
25	Pallas' Squirrel	<i>Callosciurus erythraeus</i>	Ka Hok Thongdeng		M		X	X	X	X	X	X				X	X	X
26	Red-cheeked Squirrel	<i>Dremomys refigenis</i>	Ka Hok Keamdaeng								X					X		X
27	Squirrel spp.	<i>Callosciurus spp.</i>	Ka Hok Moum		L			X										
28	Eastern Striped Squirrel	<i>Tamias maritimus</i>	Ka Len Dong		M	O		X	X		X	X					X	X
29	Cambodian Striped Squirrel	<i>Tamias rodolphii</i>	Ka Len		M	F			X			X						X
30	Black Giant Squirrel	<i>Ratufa bicolor</i>	Kadang		H	F	X	X	X	X		X					X	
31	Indian Giant Flying Squirrel	<i>Petaurista philippensis</i>	Bang Loua		H			X	X	X					X		X	
32	Phayrei's flying squirrel	<i>Hylomys phayrei</i>	Bang Tong							x	x							
33	Red-cheeked Flying Squirrel	<i>Hylomys spadiceus</i>	Bang nai							x	x							
34	Hoary Bamboo Rat	<i>Rhizomys Pruinosis</i>	Oon Yai		M			X		X	X							
35	Bamboo Rat	<i>Rhizomys</i>	Oon Noy		M			X		X	X							
36	Moonrat	<i>Echinosorex gummarus</i>	Toon		M					X	X							
37	East Asian Porcupine	<i>Hystrix brachyura</i>	Men					X	X	X					X	X	X	X
38	Brush tailed Porcupine	<i>Atherurus macrourus</i>	Hon		M				X	X							X	X
39	Dhole	<i>Cuon alpinus</i>	Ma Nai	EN	M													
40	Binturong	<i>Arctictis Binturong</i>	Ngen Khor	VU	M													
41	Masked Palm Civet	<i>Paguma larvata</i>	Ngen kheua		L	O					X				X	X		X
42	Spotted Linsang		Ngen lingsang		L	O					X				X	X		X

43	Large Indian Civet	<i>Virverra zibetha</i>	Ngen Feng		H		X	X	X	X	X	X			X	X		X
44	Small Indian Civet	<i>Virverricular indica</i>	Ngen Eton		M		X	X	X	X	X	X						X
45	Common Palm Civet	<i>Paradoxurus hermaphroditus</i>	Ngen Om		M		X	X	X	X	X		X					X
46	Owston's Civet	<i>Chrotogale owstoni</i>	Ngen Lai Phat khon	EN	L				X	X								X
47	Yellow Throated Marten	<i>Martes flavigular</i>	Ma mai		M			X	X	X	X							X
48	Smooth coated Otter	<i>Lutrogale perspicillata</i>	Nak Khon Lep	VU	M			X	X	X								X
49	Crab-eating Mongoose	<i>Herpestes urva</i>	Jon Phone kin pu		H		X	X	X	X	X							X
50	Small Asian Mongoose	<i>Herpestes javanicus</i>	Jon Phoenoy		H		X	X	X	X	X							X
51	Asiatic Black Bear	<i>Ursus thibetanus</i>	Mee Khouy	VU	H			X										X
52	Sun Bear	<i>Ursus malayanus</i>	Mee Ma	VU	H	O	X	X	X	X	X		X		X			X
53	Great Hog Badger	<i>Arctonyx collaris</i>	Mou Leung	VU	M			X	X	X	X				X	X		X
54	Small-toothed Ferret Badger	<i>Melogale moschata</i>	Ma Leung		H	O		X	X	X	X				X	X		X
55	Leopard Cat	<i>Prionailurus bengalensis</i>	Sua Meo		H	O	X	X	X	X	X		X					X
56	Chinese Serow	<i>Capricornis milneedwardsii</i>	Nyouang	VU	H	F		X	X	X	X			X				X
57	Red Muntjac	<i>Muntiacus muntjac</i>	Fan		H	O	X	X	X	X		X	X	X	X	X	X	X
58	Annamite Muntjac	<i>Muntiacus truongson</i>	Fan Moh		H	O		X	X	X	X		X	X	X	X	X	X
59	Sambar Deer	<i>Cervus unicolor</i>	Kuang	VU	H	O	X	X	X	X	X		X		X	X		X
60	Chinese Goral	<i>Naemorhedus greseus</i>	Nyouang Pha	VU	M				X	X								
61	Annamite Striped Rabbit	<i>Negolagus timminsi</i>	Ka tai lai sua	EN	M													
Remarks: Level of Report Confidence: L = Low, M = Medium and H = High; Level of Detection: O = Occasional, F = Frequent, C = Common;																		

Annex 3a. List of herpetofauna (reptile) records from the survey area

#	Common Name	Family and Scientific Name	Local Name	Recorded by	IUCN Redlist	Survey block					Abundance	Survey season		Comments
						SB1	SB2	SB3	SB4	SB45		Wet	Dry	
		LIZARDS												
		Anguillidae												
1		<i>Dopasia sokolovi</i>	Ngou din	Recorded by other team member	LC				1	?	X			2nd record of Laos
		Agamidae												
2	Lizard	<i>Acanthosaura nataliae</i>	Katang Phou		LC	2		2	2	1	2	X	X	
3	Lizard	<i>Acanthosaura prasina</i>	Katang	Recorded by other team member	?				1	?	X			First record of Laos!
4		<i>Pseudocalotes ziegleri</i>			DD			1		1	X			2nd record of Laos!
5		<i>Pseudocalotes versicolor</i>			LC	1				4	X	X		
		Scincidae												
6		<i>Sphenomorphus unid</i>						1				X		
7		<i>Scincella unid</i>					1					X		
8		<i>Scincella unid</i>		Observed only				1				X		
9		<i>Plestiodon quadrilineatus</i>		Recorded by other teams	LC	1				1	X			First record of Laos? (needs to be confirmed)
		Gekkonidae												
10		<i>Cyrtodactylus pseudoquadrivirgatus</i>			LC	2	1	2	3	2	X	X		
		SNAKES												
		Colubridae												
11		<i>Pseudoxenodon macrops</i>			LC				1			X		
12		<i>Lycodon ruhstrati abditus</i>			LC			1				X		
13		<i>Hebius boulengeri</i>		Found death in stream	LC			1				X		
14		<i>Hebius annamensis</i>			DD			1				X		
15		<i>Rhabdophis chrysargos</i>		Recorded by other team member	LC		1					X		
16		<i>Sibynophis collaris</i>		Recorded by other team member	LC			1				X		
17		<i>Elaphe taeniura</i>		Recorded by other team member					1	1		X		
		Pareidae												
18		<i>Pareas formosensis</i>			LC			1	1			X		
		Xenodermidae												
19		<i>Fimbrios klossi</i>		Recorded by other team member	LC				1			X		
		Pseudaspidae												
20		<i>Psammodynastes pulverulentus</i>		Recorded by other team member	LC		1		2	1		X	X	
		Viperidae												
21		<i>Trimeresurus vogeli</i>	Ngou Khiew		LC	2		1	2	1	2	X	X	
22	White Lipped Pit Viper	<i>Trimeresurus cf. alboalabris</i>	Ngou Khiew						2			X		Species complex
23		<i>Protobothrops mucrosquamatus</i>			LC	1			2	1		X	X	Not rare according to locals, fairly common.
		Elaphidae												
24	Red River Krait	<i>Bungarus slowinskii</i>	Ngou Tham than noy	Found death on road, killed by locals.	VU		1					X		
		Elapidae												
25	King Cobra	<i>Ophiophagus hannah</i>	Ngou Chang Ang	Village report only	VU		X	X	X					Not on the map
26	Spitting Cobra	<i>Naja siamensis</i>	Ngou hao	Village report only	VU		X	X	X	X				Not on the map, only confident report
		Pythonidae												
27	Burmese Python	<i>Python bivittatus</i>	Ngou Leam	Village report only	VU		X	X	X	X				Not on the map, only confident report
		Testudinidae												
28	Elongated Tortoise	<i>Indotestudo elongata</i>	Tao Phek	Village report only	EN	X	X	X						Not on the map
29	Impressed Tortoise	<i>Manouria impressa</i>	Tao Deuay		VU	X	X	X	X				X	Not on the map, its carapace was seen in villages
		Geoemynidae												
30	Keeled Box Turtle	<i>Cuora mouhoti</i>	Tao	Village report only	EN		X	X	X				-	Not on the map
		Trionychidae												
31	Asiatic soft-shell Turtle	<i>Amyda cartilaginea</i>	Pa Fa Ong		VU			X	X					
32	Chinese soft-shell Turtle	<i>Pelodiscus sinensis</i>	Pa Fa Ong Chin		VU	X	X						X	It was found by local villager of Ban Dak Dom
Remarks: Abundance: 1. Rare/Low = 1; 2. Occasional = 2-5; 3. Frequent =5-10; 4. Common =10-20; 5. Abundant >20														

Annex 3b. List of herpetofauna (amphibian) records from the survey area

#	Common Name	Scientific Name	Local Name	Recorded by	IUCN Redlist	Survey block					Survey season		Abundance	Comments
						SB1	SB2	SB3	SB4	SB45	Wet	Dry		
		Bufonidae												
1		<i>Duttaphrynus melanostictus</i>			LC					1	x			Very common in open/ disturbed area. Dakcheung to
2		<i>Ingerophrynus galeatus</i>			LC			1	2		x		2	
		Ranidae												
3		<i>Odorrana morafkai</i>			LC	5	5	5	5	2	x		5	
4		<i>Odorrana banaorum</i>			LC	3	3	3	4		x		4	
5		<i>Odorrana khalam</i>			LC	1					x		1	
6		<i>Odorrana absita</i>			LC			1			x		1	
7		<i>Odorrana sp.</i>						1			x		1	With green on limbs
8		<i>Papurana milleti</i>			LC		2	3	5	2	x		4	
9		<i>Papurana attigua</i>			LC	3		3	2	1	x		3	
10		<i>Sylvirana montosa</i>			LC				1		x	x		
11		<i>Amolops spinaepectoralis</i>			LC			3			x		2	First record of Laos! Found only locally.
		Dicroglossidae												
12		<i>Fejervarya limnocharis</i>			LC					1	x	x	4	Abundant in disturbed areas.
13		<i>Quasipaa sp.</i>									x			Undescribed species
14		<i>Limnonectes cf taylori</i>			LC		1				x	x		
15		<i>Limnonectes kiziriani</i>			LC		1				x	x		
16		<i>Limnonectes poilani</i>			LC						x			First record of Laos!
17		Spiny torrent						3	4	2		x	4	
		Megophryidae												
18		<i>Ophryophryne hansi</i>			DD	4	3	4	5	1	x		4	Common along forest streams
19		<i>Ophryophryne poilani</i>						1			x			
20		<i>Leptobranchella firthi</i>				2					x			First record of Laos!
21		<i>Leptobranchella unid.</i>									x			
22		<i>Brachytarsophrys intermedia</i>		Found by local people	LC		2				x			Near Dakchung township
23		<i>Xenophrys cf maosonensis</i>					3		5		x		4	Undescribed species
		Microhylidae												
24		<i>Microhyla berdmorei</i>									x			
25		<i>Microhyla butleri</i>									x			Only found in open disturbed area
26		<i>Microhyla heymonsii</i>									x			Only found in open disturbed area
27		<i>Micryletta sp.</i>						1			x			Only found in open disturbed area
28		<i>Nanohyla marmorata</i>			LC	1		2	4	1	x			
29		<i>Nanohyla nanapollexa</i>		Just observed	DD	1					x			

	Rhacophoridae												
30	Raorchestes sp.					1				x			
31	Kurixalus balliogaster		LC	1		1	3	2		x			More common at open areas
32	Kurixalus odontotarsus		LC				5	1		x			Locally distributed
33	Serrate Frilled Treefrog	Kurixalus cf. gryllus	VU				1			x		1	Seems rare
34		Zhangixalus feae	LC	1		1				x		2	
35		Rhacophorus robertingeri	LC	3		3			1	x		4	
36		Rhacophorus sp. nov.				1				x			Undescribed species. Found in open area
37		Theلودerma gordonii	LC					1		x			
38		Theلودerma truongsensis	DD					1		x			First record of Laos!
39		Gracixalus supercornutus	NT	1			2			x			Locally fairly abundant e.g. northern Phou Kounking
40		Polypedates megacephalus								x			Common species of open and disturbed habitats.
41		Polypedates impresus				1	1			x			
42		Polypedates sp.?				1				x			Unusual red coloration, appears overall different
Remarks: Abundance: 1. Rare/Low = 1; 2. Occasional = 2-5; 3. Frequent = 5-10; 4. Common = 10-20; 5. Abundant >20													