Section I. Project Information

Project Title: "Khao Laem: Tiger Conservation Project, Phase 5"

Grantee Organisation: Freeland

Location of project: Khao Laem National Park, Kanchanaburi Province, Thailand
(15.059301 N, 98.608739 E)
Park HQ at UTM 47P 456814 1661080 (WGS84)

Size of project area	**Number of tigers in project area, giving evidence & source:**
Total area of PA: 1,497km^2 Total area of 2023 survey efforts: 225km^2 (All 225km^2 via LTM ecological surveys)	Approximately 10-12 individuals. **With 6 tigers recorded and identified in 2023.** The focal site is part of a contiguous series of 18 PAs (previously 17) known as the Western Forest Complex with a combined area of more than 20,000 km^2. There is opportunity for free dispersal of tigers throughout including transboundary westwards to Myanmar. Population estimate is via (unpublished) camera trap data from the site over the previous 8 years.

Partners:
Khao Laem National Park (KLNP); Department of National Parks Wildlife and Plant Conservation (DNP). Starting in 2016 Freeland was invited by KLNP to conduct low intensity tiger ecological monitoring activities there. Since that time, the project has been operating continuously, creating a valuable long term monitoring dataset. All data is immediately shared with Khao Laem management and the park then further shares it with the DNP's Protected Area Regional Office (PARO3) in Ban Pong, which has oversight for PA management in this region. Tiger specific data is shared with the DNP's Wildlife Conservation Division Tiger Research Centre at Khao Nam Ram in Huai Kha Kheng WS. This process ensures all tiger records are cross-referenced against a national tiger identification database.

For enforcement related activities, including training and operations, we collaborate with the Protection Unit from DNP's PARO3 office.

During 2023, the newly retired Superintendent of Khao Laem NP joined Freeland staff as a consultant and counterpart assisting collaboration with the Department of National Parks Wildlife and Plant Conservation headquarters in Bangkok. This has brought many benefits to the Khao Laem project such as management related institutional knowledge and an improved dialogue with the DNP.

Freeland participates in the (IUCN convened) Dawna Tenasserim Tiger Alliance (DTTA) meetings which engages all non-government agencies working in the Dawna Tenasserim landscape. This alliance helps enhance transboundary cooperation and understanding of tiger dispersal across the international border between Thailand and Myanmar. This broad partnership is improving collaborative efforts to conserve tigers and prey.

Further partnerships include FFI Myanmar and Wildlife Asia (Australia) as both organisations have tiger projects in Myanmar. FFI supports Freeland's work in Southern Thailand along the Myanmar border and the latter supports the Karen Wildlife Conservation Initiative (KWCI) which works in neighbouring Myanmar as well as Freeland's work in Salawin National Park and Salawin Wildlife Sanctuary in northwest Thailand. These NGO partnerships bring specialist capacities to our projects, provide foundations for scientifically rigorous surveys and successive data analysis.

Data concerning presence and locations of large felids is also shared with Panthera Inc. (Thailand) and has recently been integrated into a national review of Indochinese leopard and clouded leopard status.

Consultant biologist Jonathan Moore PhD (now working for FFI) helped analyse survey data and joined survey teams during previous SECR survey implementation as well as conducting his own research on ecological fragmentation of wildlife on the islands in the Vajiralongkorn dam reservoir.

Towards the end of 2023, we developed a new partnership with Thong Pha Phum National Park which adjoins Khao Laem and in 2024 we expect to initiate a new tiger conservation project at that protected area.

Project Contact Name:
Tim Redford, Surviving Together Programme Director

Email: tim@freeland.org

Actual start date of project: 1st February 2023

Section II. Project Results

Long Term Impact:

The long-term impact sought by this project is to contribute towards doubling the national tiger population in Thailand by the conclusion of the next Thai Tiger National Action Plan (T-TAP) likely to conclude in 2034. This impact will represent significant progress toward our vision of **'ensuring the persistence of Indochinese tigers'.** Evidence from key source sites within the Western Forest Complex (WEFCOM) landscape already indicate that tiger conservation measures are succeeding and the tiger population is slowly increasing, especially within the core source site at Huai Kha Kheng Wildlife Sanctuary. From there, tigers are dispersing into adjacent protected areas where they are vulnerable to a myriad of threats. Sustaining the recovery of tigers within this landscape therefore requires mitigating and removing threats to be achieved by bolstering protection, especially in edge and transboundary habitats, managing both prey and tigers as a contiguous meta-population with improved coordination between agencies to share information, successes and best practices. A further challenge is engaging the multitude of communities within the protected areas, many of which are overtly engaged in illegal and ecologically damaging vocations. This project has been focussing attention on one key tiger habitat named Khao Laem National Park, with an approach aimed at increasing the capacity of officials and rangers to conduct effective enforcement, to better engage and inform communities and conduct wildlife monitoring to demonstrate trends in wildlife populations.

Conservation Outcome:

Activities have already led to a concise understanding of the tiger population (and threats) within Khao Laem and the function of this protected area facilitating tiger recovery across the southern WEFCOM landscape. Tiger conservation measures have improved at the site - augmented by increased capacity among officials now able to conduct tiger population surveys, implement adaptive protection measures and mitigate human-tiger conflict. Now within the safer environment - Khao Laem NP is experiencing a tiger (and certain prey species) recovery. This outcome is validated by the continued persistence of tigers at the site throughout the last six years.

Until mid-2022, surveys were documenting an increase in key prey species essential in creating a situation conducive for tiger breeding and the successful rearing of cubs. Unfortunately, surveys over the last two years revealed how precarious the situation remains with the emergence of African Swine Fever (ASF) which contributed to a measurable decline in the tiger's major prey species - Wild Boar.

It appears threats to tigers at this site are not simply well-known traditional challenges such as poaching and habitat loss, but anthropogenic, environmental and wildlife health related ones too. Continued surveillance for new and emerging threats is critical so mitigation measures can be introduced early enough to be effective.

Summary of activities and achievements:

This report describes a set of activities conducted in Western Thailand's Khao Laem National Park designed to investigate and solidify the importance of the site in the distribution and conservation of Indochinese tigers (Panthera tigris corbetti) within one section of the huge Western Forest Complex. Work is led by Khao Laem based officials from the Department of National Park, Wildlife and Plant Conservation (DNP), with support from Freeland via the WildCats Conservation Alliance and additional matching support from private US-based donors.

Approaches comprise of a collection of complementary tiger conservation activities which include; park protection, operations support (for SMART and remote GSM anti-poaching cameras), enforcement ranger training, technical and equipment support, community outreach and awareness to schools and communities. The outreach encompassed reducing illegal grazing of cattle, mitigating human-wildlife conflict (HWC), and long-term monitoring (LTM) of tigers, prey and threats to indicate changes.

Wildlife surveys conducted over the previous five years categorically demonstrate the permanent presence of both endangered Indochinese tigers and critically endangered Indochinese leopards within a diverse carnivores intraguild at the site. Surveys during 2023 built upon information gained during three

Spatially Explicit Capture-Recapture (SECR) wildlife surveys and previous long-term monitoring during 2020-22, which together encompassed almost the entire protected area.

The project has three main objectives (following here with a condensed list of achievements);

Objective 1. Further improving understanding of tigers, prey and threats in KLNP

Indicator 1a. At least 180km^2 of eastern Khao Laem will be re-surveyed, this represents twenty 3x3km grids.

1a.1. Between February 2023 and January 2024, five systematic long-term monitoring (LTM) surveys (KL34, KL35, KL35, KL37 and KL38) were implemented during which 25 grids (225km^2) were surveyed, surpassing the predicted target. We expected to complete six surveys, but rangers were busy conducting forest fire suppression duties over the final quarter of the year, which delayed the last survey in early 2024.

Specifically, five areas were surveyed;

East Khao Laem

1) San Nok Wua Trail (popular with trekking tourists and open for just 4 months per year)
2) Kong Mong Ta Trail, (northeast)
3) Radar Trail (past San Nok Wua trail, higher on Radar hill)
4) Potana-Thipuye area, (southeast)

[REDACTED]

West Khao Laem

5) Western Khao Laem's Bor Ong-Pilok Kee area (Near where tiger poaching occurred in 2022 [REDACTED])

Note. Apart from dispersing M5 (HKT299M) recorded at [REDACTED], no further tigers were recorded in the west, although there were several track and sign records from patrols and anecdotal complaints from cattle farmers that their stock had been attacked by tigers (no evidence provided).

Sub-indicator 1a.2 # tigers initially identified during survey Baseline: 8, **Target: >10**
The aim was to document an increase in the number of identified tigers from eight (recorded in 2022) to ten individuals during 2023

The target of identifying ten individual tigers was not achieved though, as during 2023 only six tigers were documented over the year. Three of these tigers were individuals recorded previously at Khao Laem and three were new dispersals into the park (M5 (HKT299M), M6 (KST003M) and F8 Potana (this female is still not identified from the National Tiger Database). Four individuals previously resident in Khao Laem were not recorded this year, these were M2, M3, F3, F5, which is concerning as it may indicate external threats forced them to leave, such as the arrival of the three newly recorded dispersing tigers, or that they may have died. One individual M4 has a pronounced limp, this was initially documented more than 1.5 years ago, but this injury does not appear to have impeded his ability to hunt. According to veterinary sources, the limp might be the result of a healed fracture, as no external wound or swelling can be observed in camera trap videos.

Sub-indicator 1a.3 # potential prey species identified during surveys. Baseline: 5, Target: >5. . Surveys assessed abundance and distribution of tiger prey species including; Serow, Red Muntjac, Fea's Muntjac, Gaur, Sambar Deer, and Wild Boar. Due to the previously mentioned ASF outbreak, tigers started preying on smaller species which led to a decrease in their presence too. This was confirmed by decreased LTM and SMART patrol records and so these smaller ungulates are included as prey species. During 2023 no sambar deer were recorded in any of the survey grids.

Sub-indicator 1a.4 Per cent (%) Increase Relative Abundance Indicator (RAI) for tigers and 5 prey species.

Tiger Baseline: 0.42, Target: 1.00 Actual RAI 1.13

Prey:
Wild Boar: 8.36, Target: 10.00 Actual RAI 5.70
Muntjak (combined two species): 4.63, Target: 5.00 Actual RAI 5.02
Serow: 2.55, Target: 3.00, Actual RAI 9.72 (Note increase in graph later in report)
Gaur: 0.40, Target: 1.00, Actual RAI 5.96
Sambar: 0.15, Target: 1.00, Actual RAI 0.00

Sub-indicator 1.1b. #Threats recorded (especially poachers and dogs) decrease (also linked to Objective 2).

#Poachers recorded baseline: 8, **target: TBD**

We predicted as patrol effectiveness increased, the threats - particularly records of poachers and dogs - would decrease. However, as we increased the level of effort in LTM the capture rate of focal species and threats increased accordingly. Even with a decreased number of cameras in western Khao Laem the number of threats remains severe. This is discussed later in the section concerning SMART reporting.

Objective 2. Capacity development for officials to manage and analyse data, reduce threats and utilise pro-active anti-poaching methods

This activity had four forms of capacity development for Khao Laem officials;

2.1 Data collection training during surveys: This aims to promote concise data collection of wildlife and SMART data increasing the quantity and quality of field data input into the SMART database.

Indicator 2.1 The number of rangers trained in data collection during surveys exceeded the initial target of sixty for the year. Each survey team comprised a minimum of six rangers, with two to four teams per survey (covering four routes). Consequently, up to twenty-four rangers were trained simultaneously, totalling 120 trained rangers over the year. This excess indicates some rangers received training multiple times, honing skills through repeated practice. The level of enthusiasm among participating rangers varied, with a few displaying high motivation to master all aspects of camera deployment, data collection, and data retrieval. Proficiency was demonstrated (mostly by team leaders) by monitoring their ability to independently deploy and retrieve cameras, including data collection (camera and SMART).

2.2 Management of SMART Survey Data: This involves enhancing utilization of the SMART database improving accuracy of SMART reports. Activities also include initiating use of the customizable management features.

Indicator 2.2 The number of officials receiving OJT mentoring. Current baseline: two officials trained, with a target of two further officials to be trained. As such data technicians are hired temporarily by the DNP, there is a regular turnover as they can easily find better-paid positions. The mentoring aspect of the project was progressing quite well until our embedded staff member at Khao Laem resigned to continue her education in mid-2023. We were not able to find a suitable replacement and consequently daily mentoring has currently ceased. However, at the park level, the previously trained and mentored technicians were able to continue independently and luckily none have resigned. We were able to occasionally mentor and increase capacity using an independent SMART/GIS consultant who assisted as required. The use of SMART and reporting has improved at Khao Laem and our project manager regularly advises technicians about key information prior to - and during - monthly SMART patrol meetings.

2.3 Law Enforcement Training: Formal training for law enforcement rangers include strategic patrol training and other basic skills to enhance park protection and wildlife survey safety.

Indicator 2.3 Five distinct ranger training events occurred at Khao Laem during 2023. Training 100 rangers over 17 days. Mostly over 3 to 4 days per time, the rangers learnt about rapid response enforcement, weapons safety, patrol tactics, use of navigation equipment, first aid, emergency evacuation processes and correct use of VHF radios. Spreading training out over several times and locations caused

less disturbance to the SMART patrol plans and meant rangers could receiving training and then implement new skills during a mentored patrol led by an instructor.

2.4 GSM Camera Usage: Officials will receive training on the setup and installation of GSM cameras (both officially and during operations). This will ensure proper uploading of images, installation within the park, and swift management to organize actions against poachers.

Indicator 2.4 Target: 6 officials to be trained. This was easily achieved as 20 rangers were trained how the GSM cameras worked, installed into the on-line database and placed in the forest. During actual placement operations, only two trusted rangers are involved in this confidential work, to ensure no tip-offs are provided to local poachers.

The cameras are very complex to set up (for non-English language speakers) consequently, ranger users need supervision and regular refresher training. We conducted two GSM camera validation activities designed to check that recipients utilise the skills previously taught, as well as responses to camera alerts in real situations. Several poaching situations were notified by these cameras which led to interdictions. However, the number of available GSM cameras is low, but we hope to obtain more during 2024.

Objective 3. Conduct Community outreach to reduce threats to tigers, including poaching and cattle grazing in the park

This objective had three supported activities; 1. visiting poacher villages, 2. establishing new partnerships with groups working in the area and 3. reducing domestic stock grazing in Khao Laem, including cattle and goats. We added a fourth cost-share component by including educational conservation awareness visits to local schools in conjunction with a new partner the Border Patrol Police.

3.1 Community awareness visits to known 'poaching hotspot' villages to create a better awareness about park laws and local regulations to reduce violations and foster greater interactions with Khao Laem management

Indicator 3.1. Community awareness visits to known 'poaching hotspot' villages to create a better awareness about park laws and local regulations as a way to reduce violations and foster greater interactions between the community and the Khao Laem park management. Our proposed target for this year is three village meetings with milestone 3.1 surpassed**,** as four villages were visited during 2023. A target number of recipients was not predicted as participation is voluntary and many villagers find it hard to participate in meetings during the day as they are usually working.

3.2 Establishing new partnerships to collaborate on community outreach.

As reported in the interim report this idea did not go exactly according to plan. As we evaluated partners, we learned that the behaviour of one potential CSO at a site in Northern Thailand created additional issues by not collaborating well with the park management. Currently, we remain searching for either a local NGO or CSO working in the Thong Pha Phum/Khao Laem area, rather than bringing a group from outside of the area. This is important due to local customs, dialects and languages.

We have developed a good working relationship with the Border Patrol Police (BPP) in several areas around Khao Laem and Thong Pha Phum. We were able to implement conservation awareness to several schools managed by the BPP and they have been incredibly helpful in mitigating human tiger conflict (HTC) in Ban Pilok Kee and Ban Bor Ong, the site where tiger poaching and later human-tiger conflict occurred. The villagers have now become very cooperative in both villages and we are investigating to find ways to introduce conservation/alternative livelihoods to these communities. This is very important because as we work with Khao Laem management to move the cattle out of those areas, the villagers will lose their income-generating livelihood.

3.3 Reducing domestic stock grazing in Khao Laem, including cattle and goats

During the domestic stock surveys carried out in May 2023 (which took more than three weeks), 306 livestock owners were interviewed. **These cattle grazers currently free-roam 6,061 cattle, 1,732 water**

buffalo, 120 goats, no sheep, but they do keep numerous other farm and domestic animals including chickens, ducks, dogs and cats. During the second half of 2023, no further censuses were conducted and so the above data remains the most current information we have. Despite being ordered to remove the cattle, there seems to be little response from the farmers, likely because there are so many of them, they know the park would have difficulty enforcing this order.

A 2022 estimate of 6-8,000 cattle in Khao Laem demonstrated a temporary decrease to 4-600 following the tiger-poaching event. This occurred as grazers sold their cattle (at a loss), out of concern they would be confiscated by the authorities, as the convicted poachers said they killed the tigers as retribution after cattle were predated. This reduced cattle figure which was reported by community leaders in Western Khao Laem was either incorrect, or the figure has increased again since the DNP did not take action as more cattle were brought back into community areas.

There are issues with selling the cattle as merchants do not want to buy livestock from this area due to disease issues and the high cost of transporting them to market. Also, the cattle need to be moved on barges on the reservoir which again adds to the expense of moving them. Additionally, traders know the local farmers are under pressure to remove the cattle and offer less than the market price. So, the farmers do not want to sell. We expect that the number of cattle is increasing substantially as this stock continues to breed. Wildlife survey cameras capture a huge number of young cattle within the free-roaming herds.

During our discussions with the poaching community at Pilok Kee (West Khao Laem), villagers explained they would gladly reduce their cattle if other financial generating livelihoods could be provided.

They suggested the following possible solutions;

1. Move the cattle out of the deep forest to areas near villages and fence the community areas (Would require support for many kilometres of fence)

2. Support the introduction of corrals for raising livestock and supporting feeding of processed animal feed, coupled with veterinary inspections (as this would increase the cattle's value).

3. Promote community participation activities such as the creation of grass plots in community areas.

4. Reduce the livestock population in the park area by supporting auctions (and compensation).

History of the Project:

Khao Laem National Park is one of 18 protected areas in the western forest complex. It covers an area of 935,625 rai or approximately 1,497 square kilometres. A large central valley within the park was inundated by the Vajiralongkorn Dam in 2001, reducing the terrestrial area to 1,109 square kilometres.

Situated in the Tenasserim mountain range, which straddles the Thai-Myanmar border from north to south the protected area borders Thung Yai Naresuan (West) Wildlife Sanctuary to the North and northeast, Lam Khlong Ngu National Park to the east, and Thong Pha Phum National Park to the west. This vast area is a mosaic forest of bamboo, mixed deciduous, dry evergreen, hill evergreen, and dry dipterocarp forest types. The topography mostly consists of steep limestone mountains running north to south, serving as the source of several major rivers such as the Rantree River, the Songkaria River, the Bikee River, with numerous small streams which all flow into the large Khao Laem Reservoir (Vajiralongkorn Dam). Positioned at the confluence of three biogeographical regions, the park's biodiversity-richness is high, with wildlife from both southern and northern Thailand inhabiting the area, as well as several endemic species, mostly amphibians and reptiles. Despite being fragmented by the dam and one highway, its remoteness and rugged terrain, especially in the east, make it ideal habitat for this diverse range of wildlife.

Khao Laem management and Freeland first jointly installed camera traps in eastern Khao Laem 2014 and recorded six felid species, including the Leopard Cat (Prionailurus bengalensis), Marbled Cat (Pardofelis marmorata), Asian Golden Cat (Catopuma temminckii), Clouded Leopard (Neofelis nebulosa), Indochinese Leopard (Panthera pardus delacouri), and Indochinese Tiger (Panthera tigris corbetti).

Threats to tigers and prey at Khao Laem are profuse, largely due to numerous villages located around the park border with some even located within the protected area on land allocated as a dam inundated villages in the central valley. Most communities are a mix of Thai and indigenous people who all engage in poaching, illegal cattle grazing and practices which are ecologically damaging which they believe assists their collection of Non-Timber Forest Products (NTFPs), such as burning the forest. The presence of free-roaming domestic stock in the forests introduces disease threats and during 2022-23, a dramatic decline in wild boar was documented, likely due to African Swine Fever (ASF) which is sweeping across all of Southeast Asia. As Khao Laem has few sambar deer due to poaching, the reduction in the tiger's next main prey led to a likely-associated decrease in several other ungulate species, as tigers and other large carnivores were compelled to take smaller-sized prey. By the end of 2023 wild boar were starting to recover somewhat and some were recorded once again in family groups with young, albeit at very low densities.

During 2023 (and January 2024), tiger monitoring at Khao Laem reverted back to using just one format; systematic long term ecological monitoring (LTM). As described later in this report, SMART patrol data also provided an additional way to monitor both threat and wildlife data, but this is operating at less-than-optimal levels.

Totally, 35 mammal species were documented, including six potential tiger prey species; Sambar Deer (Rusa unicolor), Wild Boar (Sus scrofa), Gaur (Bos gaurus), Red Muntjac (Muntiacus muntjak), Fea's Muntjac (Muntiacus feae) and Serow (Capricornis sumatraensis).

Due to the biodiverse richness of Khao Laem, Freeland have continued to conduct wildlife surveys to monitor the status of the Indochinese tiger population and other key mammal species in the park.

Key achievements of this project in 2023

- 120 rangers mentored during LTM surveys (note some rangers were trained more than once, hence this high figure)
- 100 rangers trained during enforcement and technical training activities (formal and informal mentoring)
- Total of 121 cameras installed during LTM in twenty-five 3 x 3km grids
- Cameras operated for 9,821 trap nights
- 225km^2 surveyed
- Six tigers recorded during 2023
- 525 anti-poaching patrols conducted by 9 patrol teams over 1,519 days covered a distance of 18,827kms
- 14 cases of poaching, logging and encroachment were interdicted and sent to the police for further enquiries and prosecution
- 4 villages received awareness outreach (158 recipients)
- 306 livestock owners were interviewed and 7,913 cattle, buffalo and goats were documented being illegally grazed within the park
- 9 Schools were visited and 942 students received information about Khao Laem, its biodiversity and importance in both local and national communities' daily lives.
- Much needed support was provided by the project to Khao Laem NP including a new VHF radio system and repeater to improve patrol effectiveness and safety

Obstacles to success:

Much progress was achieved in 2023 but numerous challenges still exist;

1. **DNP budget reductions and staff changes.** Khao Laem and almost all protected areas in Thailand were subject to the effects of a 2022 alleged corruption case involving the DNP's Director General[1]. During early 2023, this situation was almost resolved with the appointment of a new Director General and senior supporting officers.

[1] https://news.mongabay.com/2023/01/corruption-scandal-in-thai-parks-agency-has-far-reaching-impacts-activists-say/

2. **The 2024 Thailand national budget has still not yet been approved** (at the time of writing) by the newly elected government, leading to national-level administration operational issues (including DNP)
3. **Insufficient resources (staff and funds).** As activities have grown, it has put increased strain on available project resources - the park has been requesting further assistance to resolve staffing and human-tiger conflict issues. We have been able to assist to a limited level, but further funds are required to support the outreach efforts in mitigating Human-Tiger Conflict (HTC).
4. **Poaching.** Wildlife poaching remains a serious issue at Khao Laem. The long-term monitoring and use of GSM cameras clearly identify problem areas where poachers, snares, and illegal collection of NTFPs regularly occur. Engaging some communities is challenging as they feel they have traditional hunting rights, even though this is something they certainly do not, and have even signed contracts not to hunt as part of their approval to reside within and along the park boundary.
5. **Illegal cattle grazing** remains a significant issue and HTC will likely occur if grazers continue to free-roam their cattle despite warnings.
6. **Forest fires** due to dry weather conditions were a considerable problem at Khao Laem this year which preoccupied rangers taking them away from their regular duties.
7. **Insufficient outreach.** It is possible that local language outreach may help resolve issues with the communities, but to be effective more funds are required.
8. **War in Myanmar** is leading to more migrant workers and refugees entering Thailand through the forests in Thong Pha Phum NP which adjoins Khao Laem, causing ecological disturbance. Related subsistence poaching by armed rebels and/or Myanmar military is occurring.

As discussed in the interim report, there are three further emerging/on-going challenges at Khao Laem;

9. **The impact of African swine fever (ASF)** on the prey base and carnivore guild eco-system.

10. **Climate change** especially during El-Nino weather cycles, as the park lacks trained fire-fighting personnel, equipment and resources to implement prevention and suppression activities.

11. An aspect of the new National Park law which allows **collection of NTFPs by local communities**. This has the potential for abuse by migrants and commercial enterprises. Already an increase in NTFP collector traffic has been noted in the forest during LTM and often villagers take their dogs with them, which is illegal. This has the potential for additional ecological damage to the forest, as well as the introduction of viral diseases such as canine distemper virus (CDV) which tigers are susceptible to.

Monitoring and Evaluation:

Project operation was quite smooth this year as delays experienced in previous years caused by covid-19 seem to be over. Furthermore, during 2023 we did not conduct any large scale SECR surveys, which take immense time and resources. This freed our staff (and consultants) to work on surveys, ranger training, community outreach and data management mentoring.

The project work plan and logframe is extremely helpful and a version translated to Thai language guides the project coordinator through implementation by providing clear dates and indicators essential for evaluation. As there are established targets, we are able to utilise these internally to monitor if we remain on track. The Programme Director regularly visits Khao Laem and participates in meetings with the park superintendent and management. The PARO3 regional protected area management office also occasionally participates in discussions and reviews the project.

The major tool for monitoring patrols and associated data is SMART which identifies any changes. We participate in park-based SMART meetings every month and there is a good cross flow of information between the SMART technicians back to park management. This includes the threats recorded during LTM. Here the PARO3 protection division is very helpful in threat response.

Data analysis from the surveys has enabled the establishment of baseline figures for tigers and prey, as well as an insight into the threat situation. This allows us to compare the situation both monthly, quarterly as well as with results from the 6 previous years.

Each quarter we meet with the park management to discuss the project status and finetune plans for upcoming activities. Previously, some issues were regarded as sensitive, such as the severity of threats and there appeared there may be some progress to be made in acknowledging the intensity of these. This remains a complex issue to fully resolve, but it is something all are conscious about. We will investigate appropriate ways to bring these challenges into discussions, so ways to resolve them can be mutually agreed.

Communications in Thailand are easy using the many available smart phone applications. Regular calls between management and field-based staff ensures imminent targets are brought to their attention and attained in a timely manner.

Internally at Freeland we hold weekly management meetings during which team leaders explain significant upcoming events in their project and report on a list of each major outputs. These are tracked using an application called 'Trello'[2]. A second meeting each week discusses project reporting. Every Monday, Freeland holds a zoom call for the entire Thai staff when they explain their weekly plans and listen to administrative updates, activities of management and the projects of their colleagues.

We regularly share images and plans concerning the project via several line groups (Line is similar to WhatsApp) and is the preferred app in Thailand. This provides an easy way for our communications team to learn about activities and highlight these using social media.

Ideally, we would like an independent consultant to review the project, but limited resources prevent this. We do consult past consultants to gauge their views about the project and its latest achievements, which to date have all been very positive.

Shared learning:

All information from this project is shared with site management and its custodians, the DNP. Thereby contributing to an enhanced understanding of tiger ecology across the WEFCOM landscape. We have recently contributed data to be integrated into a peer review paper about the distribution and abundance of large carnivore prey species across the Dawna Tenasserim Landscape.

Khao Laem ungulate information was shared with a Thai student. To date though, nothing formal has been published.

Several authors used Khao Laem dataset, including one just published which combines into the world's largest camera trap dataset (with data via Eric Ash and Jonathan Moore)
https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1002/ecy.4299

Most recently data was integrated into a PhD chapter by project consultant biologist Jonathan Moore.

Finally, an MSc student at Queen Mary University in London re-analysed threat data in her thesis.

Earlier this year we prepared 3 pull up banners explaining the project, which are displayed at the Khao Laem visitor centre, and a further 3 banners were displayed during Global Tiger Day, July 31st

Media:

There were no media articles mentioning the project during 2023

Have you provided at least 2 blogs?

No. We have not prepared any project specific blogs, although we have provided ad-hoc updates, information and images to WildCats Conservation Alliance.

[2] https://trello.com/

Have you provided at least 10 high quality images with details of the relevant credit? Y/N?

Yes

Details of activities and results:

Objective 1. Improving knowledge of tigers, prey and threats in KLNP and adjacent areas,

Objective 2. Mentoring capacity in DNP staff to manage and analyse data to foster greater understanding of threats and forest connectivity *and;*

Objective 3. Reducing specific threats to tigers, including cattle grazing in the park.

Section III. Appendix

Did you carry out camera trapping as part of this project? Yes

If yes: Total camera trap nights/days: LTM. 121 cameras produced a combined total of **9,821 survey days**	**Total area surveyed:** LTM (East) - 25 x 3x3km grids Totalling 225km^2.
Numbers of tiger/leopard/prey recorded Six individual tigers were recorded during twenty independent captures (IC) over 49 total captures (TC) during LTM. Leopard (only melanistic morphs) over 54 IC with 84 TC recorded an underdetermined number of individuals. Five prey species were recorded during LTM over 494 independent captures (this demonstrates a considerable decline since 2021).	**Please include data on other species recorded** Totally 46 mammal species were recorded – see list in appendix Felines included; Clouded leopards 10 IC & 25 TC (an increase on 2022) Golden Cats 5 IC & 10 TC (an increase on 2022) Marbled Cat 4 IC & 17 TC (an increase on 2022) Leopard cats 54 IC & 113 TC (an increase on 2022) Other carnivores included Dhole, Asiatic black bears, Sun bears, hog badgers, and several civet species.

Are numbers of tigers/leopards/prey increasing or decreasing in your project area? Please show trends
Tigers (individuals recorded)

2018	2019	2020	2021	2022	2023
2	5	4	4	8	6

See comparative tables/graphs in appendix for leopard and prey records

Did you carry out other surveys? No.

If yes:

Did you carry out patrolling as part of this project? Yes (as a cost share)

If yes: Total distance patrolled: 18,827 km	Total area patrolled: 1,229.34 Km^2,

Do you use Patrol Monitoring software such as SMART? Yes

If yes:
Total distance patrolled using patrol monitoring software?
As above

How do you collect data? Handheld devices/paper/other? Please give details?
Hand held Garmin GPS and paper reporting forms later given to SMART technicians

Please provide comparison data from your patrolling over time

See tables in accompanying report

Type of crime	2018	2019	2020	2021	2022	2023
Encroachment	1	3	8	6	2	6
Wildlife Poaching	25	215	65	83	5	4
Illegal fishing	0	54	38	15	37	7
Illegal logging	7	56	44	26	2	4
Illegal NTFP collection	0	61	41	64	97	0

Was the data you collected analysed by a SMART specialist?

Collated but not analysed

Please provide data on violations recorded/arrests/successful prosecutions

	2018	2019	2020	2021	2022	2023
Cases (Combined all types)	33	389	196	194	186	14
Prosecutions (Court)	0	4	12	10	2	Unk

The judicial process in Thailand is very prolonged and cases may take up to 4 years to conclusion. We do not have any information about how many of the above cases successfully concluded with a judgement. Also, in the event of small-scale offenses administrative fines are imposed at the park level.

Does your project work with local communities? Yes, but very low level due to financial resources and local language issues

If yes: (please be as specific as possible and include gender split)	**What did you do? Was it successful?**	How many people did you reach?
Who? See table below **158 people (85M:73F)**	Activities involved; Community visits to four villages to explain about local laws, responsibilities of residents if they reside inside the PA, why conservation of wildlife and forests is important, why cattle are ecologically damaging.	158 adults (mostly Karen indigenous people)

How do you measure the success of this activity?

As community participation is purely voluntary and that many recipients cannot read and write Thai, no formal evaluation of immediate uptake was conducted.

Did you carry out educational activities with adults or children? Yes, as a cost share – see below

If yes: (please be as specific as possible and include gender and numbers) **942 (472M/470F)** *See more details in appendix*	**Activities involved;** Eight school visits over six days	**How many people reached?** 942 students
Have you seen behaviour change from these activities? (Please give details of your results and of how this is measured) In communities the villagers have changed their mindsets considerably since 5 villagers were jailed for tiger poaching in 2023. They have become more receptive to park-based engagements and somewhat more compliant in their habits living within Khao Laem. In schools, pre/post evaluations were conducted to register immediate uptake of topics discussed. A questionnaire will identify if content of topics were retained.		
Did you carry out training activities for any staff/community member on the project? Yes		
If yes: (please be as specific as possible and include gender split) 100 patrol rangers trained (40M:0F) 120 rangers mentored in data collection Who? Khao Laem enforcement rangers	**What did you do? Was it effective?** Feedback from ranger team leaders and the new park superintendent indicated training was useful and directly resulted in an increase of enthusiasm among rangers. A request for more enforcement training was received.	**How many staff trained?** 120 park officials were trained (although some of these were the same rangers trained twice)
How do you measure the effectiveness of this training? If resources allow, a follow-up training validation will be held in May 2023		
Did you carry out conflict mitigation activities with community members? Yes		
If yes: **Who?** Freeland field staff participated in several village meetings facilitated by the Border Patrol, Police. During community meetings with village head person and villagers from Pilok Kee.	**What?** The intervention discussions about park regulations, national laws and the community members requested support for vocational training in alternative livelihoods for villagers wishing to cease illegally grazing cattle inside the park.	**How many people did this include?** >60 in Pilok Kee and Bor Ong

Have you seen behaviour change from these activities? (Please give details of your results and how this is measured)

After our staff spent time in the community and conducted discussions the villagers seem more friendly towards the rangers and better understand the problems they caused by illegally grazing cattle in the park. They are receptive to collaborative interactions and more open to discussions about the situation that led to the previous tiger poaching and HTC. The community members appear to want to cooperate and participate in conservation measures, provided they can receive some benefits in return. Note, their continued residency living within the park is dependent on their behaviour, especially abiding by park regulations.

The four communities which lie within Western Khao Laem NP regularly participate in wildlife poaching and many villagers are blatant in their disregard for park and national laws. Much more is required in the form of greater enforcement, outreach and liaison with these communities.

In Eastern Khao Laem some communities are actively involved in many types of illegal activities, including logging, poaching, guiding migrants and allegedly human and narcotic trafficking. Many community members themselves are illegal migrants and are likely serving soldiers of the KNU National army and armed with war weapons.

To formally measure behaviour change among these communities, additional resources are required - including staff, equipment and finances.

Were any scientific papers/articles published because of your project? Data was contributed to several papers

If so, please give details or provide copies. Details in shared learning section.

Work plan

Below is the final work plan beginning in February 2023 and concluding at the end of January 2024. Most activities were conducted as predicted and targets achieved.

The main challenge remains cattle grazing within the park. This has not yet been resolved, likely due to the lack of resources from the DNP to conduct initiatives to remove the cattle.

Annex 3 Work plan - "Khao Laem: Tiger Conservation Project, Phase 5"

			2023											2024	Post
	Month		1	2	3	4	5	6	7	8	9	10	11	12	13
Objective	Activity	Team Members	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb
Objective 0. Planning, preparation and project management															
0	Preparing and buying field equipment	TR, Bkk logistic staff	✓	✓											
0	Synchronising survey's with park management	TR, WI, SS,	✓			✓			✓			✓			
0	Planning surveys, data management and analysis	SS, EA, TR, WI		✓			✓			✓			✓		
0	Participating in Khao Laem's monthly SMART meetings	WI, WM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Objective 1. Objective 1. Further improving understanding of tigers, prey and threats in KLNP															
1	Tiger surveys - long term monitoring (implementing, data cataloguing and data analysis)	WI, SR, AS, SS, WM	✓			✓			✓			✓		✓	
Objective 2. Capacity development for officials to manage and analyse data, reduce threats and utilise pro-active anti-poaching methods															
2.1	On-job-training in data collection	WI, SR	✓		✓	✓			✓			✓		✓	
2.2	On-job-training (mentoring) managing data (SMART and survey)	WI, WM	✓	✓	✓	✓	✓	✓	X	X	X	X	X	X	
2,3	Enforcement ranger training.	KN, WJ, TR			✓	✓	✓	✓		✓					
2.4	Use of GSM cameras training	WJ	✓	✓	✓	✓									
Objective 3. Outreach to reduce threats to tigers, including poaching and cattle grazing in the park															
3.1	Community awareness visits to known 'poaching hotpot' villages	WI	✓				✓		✓			✓			
3.2	Establishing new partnerships to collaborate on community outreach.	TR, KN	✓												
3.3	Reducing domestic stock grazing in Khao Laem, including cattle and goats	WI, WR				✓	X	X	X						
Others.															
	Reporting and debrief with PA (including midterm evaluation and review)	TR, SS, WI				✓			✓			✓			✓

Team members:
TR - Tim Redford, WI - Wongsathit Intawong, WR - Waraporn Raksachat, SS - Saifon Sittimongkol, SR - Sayan Raksachart, EA - Eric Ash, AS - Atcharee Sangrawee, KN - Kajohn Nutaung, WJ - Worawut J., WM - Waleerut Meechai

2023 **Logframe with results** **"Khao Laem: Tiger Conservation Project, Phase 5"**

Impact; **To 'Secure the Thai tiger population by institutionalising sound conservation practices', with the goal of contributing towards doubling its population by 2034**			
Project Summary	**Measurable Indicators**	**Means of Verification**	**Final outputs / situation status**
Outcome: **Khao Laem National Park management practices improve, leading to a precise understanding of their tiger and prey populations, threats are mitigated and the function of the park facilitates tiger recovery across southern WEFCOM**	**Indicator A. Nationally-agreed standards are utilised to survey tigers and prey.** See indicators in objective 1 which will contribute towards; **-** A measurable increase in survey effort and size of surveyed area **-** Resident tiger population figure is catalogued and demonstrates an increase **-** Identifying unknown tigers by sharing photographs with the Khao Nam Ram research station in Huai Kha Kheng WS and ensuring any previously unidentified tigers are entered into the national database **Indicator B. Survey data analysis improves the understanding of tiger density and produces comparative baseline figure for tigers** *- We will update the tiger density figure (tigers per 100km^2). Analysis of 2021-22 data established an occupancy of 1.2/100km^2 for eastern Khao Laem*	Verification A1. Tabular data from surveys validates the increased area and level of effort, with a secondary verification being the increased quantity of images compared with previous years. Verification A2. Utilising the existing Khao Laem and national tiger database individual animals are positively identified. Verification A3. By comparing tiger photos with national tiger database, we will differentiate resident individuals from those dispersing from Thung Yai-Huai Kha Kheng source site	A1. During all tiger monitoring activities, we try to follow a (Thailand) standard protocol which all conservation groups here also use. This way, results can easily be compared with other sites within the Western Forest Complex and nationally. A2. This year we were able to substantially increase the level of LTM effort from just 90km2 to 225km2. This contributed to the increase in total capture rate of tiger images. Unfortunately, it did not lead to an increase in individually identified tigers, as we expected. Nevertheless, we were able to record and identify dispersing and previously undocumented tigers in a timely manner.

	- Prey species richness figures are compared and density of prey is at a sufficient level to support the local tiger population (Note prey density figures were shared with Smithsonian Inst. (2022) who are compiling a landscape scale paper for the DTL comparing tiger prey densities between Thailand and Myanmar. **Indicator C. Cost share:** KLNP demonstrates dedication to continuing park-based wildlife and violation monitoring. SMART-based metrics will include: *Number of potential threats, or disturbances, documented and compared for changes over six years starting with 2018 baseline figures (see previous project reports).* *Number of patrol reports (SMART) generated independently by the park (Baseline 12 – remains at 12)* *Overall improvement in patrol effectiveness compared with the 2022 project period.*	Verification B1. Initial analysis of camera data using Camerasweet[3] and later during a data analysis workshop (date TBD) using R suite packages, will re-confirm tiger and prey abundance for Khao Laem NP Verification B2. Comparing prey density figures with other sites to understand if it is sufficient to support tigers and all a population recovery Verification C1. Park SMART database will be utilised to compare the previous 5 years patrol coverage, violations and wildlife sign. As patrols become more efficient, we *expect* to eventually see a decline in violations and an increase in wildlife sign recorded. However, there are many	A3. Dispersing tigers from the HKK-TY Source site were identified. B1. Only a minimal data analysis was conducted this year, as resources and data remain low. We were able to obtain RAI figures for the tigers, other carnivores and prey. B2. We contributed KL prey data to a landscape-scale prey data analysis. This research is still on-going and we hope in late 2024 or early 2025 we may have news about this aspect of the project. We can see from the absence of sambar and the number of images of poachers that poaching of prey remains a constraining factor for the subsistence of tigers. C1. See tables later in the report. SMART is now being regularly utilised, although in a very basic manner.

3

	Utilising SMART, we will compare 2018 baseline figures (see previous project reports).	factors that may influence variation either way, some of which require attention before SMART becomes totally reliable e.g., excessive patrol coverage is distracting from interdictions and reducing these each year. We do not believe the patrolling is yet achieving its desired deterrent effect. Verification C2. We will audit official SMART data by conducting random comparisons with patrol data obtained directly from rangers Verification C3. Post-project debrief questionnaire with DNP officials with key focal indicators reviewed, including ranger efficiency, interdicted crimes, and news from confidential informants	Records do demonstrate a decline in violations, but this is unlikely to be because of more effective patrolling as central policy on park patrol coverage is hindering effective patrols and reducing interdictions. C2. Information from rangers suggests that poaching remains a serious issue and that they are missing many events. Quantifying this is complex and although we managed to audit this in 2022, it has not been so easy this year. C3. We have not yet conducted the full 2023 project debrief and there remains a sensitivity about the actual level of violations. It should be noted that SMART was used during the entire year and reports were produced on a monthly basis. Also, each month SMART patrol meetings were conducted and to some extent patrol routes were planned, albeit for coverage rather than reactive or adaptive to counter poaching.

Objective 1. Further improving understanding of tigers, prey and threats in KLNP			
Output 1 Between Feb' 2023 and Jan' 2024, six long term ecological monitoring surveys will be implemented utilising a minimum of 20 cameras in Eastern Khao Laem and 10 cameras in key areas in Western Khao Laem	**Indicator** 1a. At least 180km^2 of previously surveyed tiger habitat in eastern Khao Laem will be re-surveyed Baseline 126km^2 (surveyed in 2021) ecological survey coverage **Target: 180km^2 surveyed** # Tigers initially identified during survey Baseline 8 - **Target: >10** # Of potential prey species identified during surveys. Baseline 5 - **Target: >5** % Increase RAI for tigers and 5 prey species Baseline tiger 0.42 Target 1.00 Prey Wild Boar 8.36 Target 10.00 Muntjak 4.63 Target 5.00 Serow 2.55 Target 3.00 Gaur 0.40 Target 1.00 Sambar 0.15 Target 1.00 Indicator 1b. #Threats recorded during surveys (especially poachers and dogs) recorded decreases (also linked to Objective 2) #Poachers recorded baseline 8 target TBD (Note. forest edge cameras will record more poaching) #Dogs recorded, Baseline 12 target 0	**Verification** 1a.1. Camera-trap survey results will lead to an immediate identification of individual tigers and prey species and a basic understanding of abundance of these using both RAI and occupancy. **Verification** 1b.1. Direct counts of threats recorded in camera trap images and their comparing with previous years surveys **Verification** 1b.2. Following data analysis and discussions during the proposed post-activity workshop, key dispersal sites requiring increased protection will be identified.	1a.1. All aspects of this objective were achieved. 225km^2 was re-surveyed. 1a.1. Tigers identified. Only 6 tigers were identified in Khao Laem in 2023. 1a.1. Number of prey species target was reached. However, the situation for one major prey species the sambar deer is very bleak at Khao Laem with zero records in 2023. 1a.1. Rai records were generally on track and some targets were surpassed due to the increase in survey effort. Actual figures in report narrative. Sample Tiger Baseline: 0.42, Target: 1.00 Actual RAI 1.13 1b.1. Threats recorded during surveys (especially poachers and dogs) did not decrease. Again, likely due to increased survey effort.
Objective 2. Capacity development for officials to manage and analyse data, reduce threats and utilise pro-active anti-poaching methods			
Output 2a.	**Indicator 2.1** will be the number of rangers who receive training during surveys. This is generally 6 rangers per team and we are	**Verification 2.1** Each survey, the participating rangers will be listed on the data sheets and names	**2.1** Only five surveys were conducted, nevertheless, the number of rangers

This activity has four forms of capacity development planned for the Khao Laem officials during this year; 2.1) **Data collection On-job-training** (OJT during surveys)**.** To encourage wildlife and SMART data collection in the correct manner, which will increase the volume of field data delivered and entered into SMART 2.2) **Managing data** (OJT SMART and survey). To enhance use of SMART and to produce more accurate and relevant SMART reports (and start using its adaptive management features) 2.3) **Enforcement ranger training**. (Formal training) Training of patrol tactics and other basic skills to improve patrol success. 2.4) **Use of GSM cameras** (mix of formal and OJT). Rangers will be taught how to set-up these cameras so images are uploaded, ways to place them in the	expecting at least two teams per LTM survey. (This would be 72 rangers over 6 surveys) The 2021-22 baseline for survey and data collection training was exceptional, as we conducted three SECR surveys and five LTM surveys delivering training to 75 rangers and 12 team leaders. We do not expect to surpass that figure, therefore the proposed OJT will be more of a refresher format to update already trained rangers. Current baseline 75 **Target 60** **Milestone 2.1** Will be 12 rangers every 2 months. **Indicator 2.2** Will be the number of officials receiving OJT mentoring. As these officials are temporary workers there is a regular turnover as they resign to seek better-paid positions. Current baseline 2 officials trained **Target 2** officials trained **Milestone 2.2** One official mentored per 6 months **Indicator 2.3** As we have not yet conducted a large-scale formal enforcement ranger training at Khao Laem there is no baseline for this activity. Current baseline 0 rangers trained **Target 25** rangers trained **Milestone 2.3** Course conducted in second half of project so no early indicator.	maintained. This is untested OJT and each survey team leader will have the responsibility to administer the training and to assess the skills of recipients. Name list of participants available on request. **Verification 2.2** A short report from Freeland's SMART technician will review the skills of each recipient and note any challenges observed. Highlights to be included in project reports. **Verification 2.3** An enforcement training course report will explain specific objectives of the training and topics taught. Instructors will review each of the 25 participants and they will be scored during a test. We would expect to see an increase in the number of criminal interdictions following the course. **Verification 2.4** The instructor conducting this	surpassed the target figure. Totally 120 rangers were trained over the year. **2.2.** The predicted number of SMART data technicians mentored did not reach the target due to several reasons, the main being our staff based at the project resigned to continue her education. **2.3** Rangers trained in enforcement and other park protection activities surpassed the target and we were able to train 100 rangers over 17 days. This was a combination of formal and informal training. Topics included; rapid response training including how to prepare, assemble and respond e.g., get to the field, to track and interdict poachers. Enforcement Training, patrol tactics, weapons safety, mentored patrol (including enforcement tactics during the patrol). Use of VHF radios, wilderness first aid, navigation and SMART data collection during patrols 2.4 GSM camera training. This involved two aspects to the training, firstly the theoretical and office-based set up of the system, cameras and data base, then practical field sessions when mentored rangers placed cameras on poacher trails and

forest and rapid responses to interdict poachers	**Indicator 2.4** These GSM cameras are being utilised covertly and their use at Khao Laem is not common knowledge. To avoid leaks of information (to the poaching communities where some rangers live) training will be restricted to a few 'need-to-know' senior rangers. We have previously conducted limited training in this equipment, but as the cameras are very technical (for non-English language speakers) the training recipients need refresher training and will be few in number. Current baseline 6 Trained **Target 6 trained** **Milestone 2.4** Six officials to be trained in the first 6 months of 2023	GSM camera training will decide on which rangers should be taught (as he is familiar with them) and an informal review will be given to the park superintendent to explain the rangers' skill level and to plan how these cameras may be best used. We expect the number of interdictions to rise when utilising these cameras (although this is confidential and not discussed in monthly planning meetings).	monitored them. Totally 13 rangers were taught about these cameras and rapid response techniques.
Objective 3. Conduct Community outreach to reduce threats to tigers, including poaching and cattle grazing in the park			
Output 3 **3.1 Community awareness visits** to known 'poaching hotpot' villages to create a better awareness about park laws and local regulations to reduce violations and foster greater interactions with Khao Laem management **3.2 Establishing new partnerships** to collaborate on community outreach.	**Indicator 3.1** There are several indicators for these visits; # of villages, # participants (M/F), responses to pre/post activity questionnaires Current baseline 1 village **Target 3 villages** **Milestone 3.1** Two villages visited in the first 6 months of 2023 **Indicator 3.2** To foster greater collaboration with communities we will establish new partnerships to Khao Laem, firstly with a Chiang Mai based Karen NGO. We have been working with this group in a park in N. Thailand and feel their local Karen language outreach may be applicable at Khao Laem	**Verification 3.1.** Project report from implementing outreach staff with relevant information, and numbers of people reached. **Verification 3.2.** Letters of agreement or confirmation of collaboration with these two potential partner agencies. **Verification 3.2. a & b.** A situational analysis report on cattle and other stock in the park that establishes new baselines for domestic stock currently maintained by	3.1 As in the above table, the number of villages visited was surpassed. But is considerably lower than is required. In the four villages the outreach team met 158 (85M/73F) villagers 3.2 Most outreach activities were implemented in conjunction with the Border Patrol Police (BPP). They have a good relationship with villagers as they provide schooling and healthcare for villagers in return for their cooperation in national security. The project did not have much success finding local NGOs/CSOs around Khao Laem to collaborate with. One well-known local CSO has largely ceased

3.3 Reducing domestic stock grazing in Khao Laem, including cattle and goats	We have a working relationship with the Thai Border Patrol Police at other sites and note they have a school near Khao Laem. We would like to conduct educational awareness in conservation with this school. Current baseline 0 outreach partners **Target 2 partners** **Milestone 3.2** Two organisations contacted in first 6 months of 2023 and a decision on partnering in the second half of 2023 **Indicator 3.3a.** A short report documenting locations of villages with cattle and numbers of cattle. **Indicator 3.3b.** Number of meetings to negotiate the further removal of free-ranging stock from Khao Laem Current 2022 baseline 1 meeting **Target 3 meetings** **Milestone 3.3a/b.** 2 further meetings held in second half of 2023	villagers in the park and a second report that documents meetings and commitments by villagers to reduce their cattle.	activities following the death (of natural causes) of its activist leader in 2022. The Chiang Mai-based Karen NGO proved inappropriate for collaboration at Khao Laem. 3.3 Status of cattle in Khao Laem National Park. The project helped support a park-wide census of domestic stock inside the protected area. A report (and data base) was prepared for the regional DNP office More than 300 cattle owners were interviewed and their stock registered in a park-managed database. In all, 6,061 cattle, 1,732 water buffalo, 120 goats were registered. Since May 2023, little has progressed on removing these animals although there is at the time of writing, some pressure on park Superintendents to enforce the law and remove these animals. Two meetings were held in western Khao Laem to talk to villagers and their responses were documented and highlighted in the project full report. The next steps in removing cattle require some considerable investment.