



Recovery of **TIGERS**

& OTHER THREATENED WILDLIFE

IN THE WESTERN FOREST COMPLEX

2005 - 2013



EXECUTIVE SUMMARY REPORT





Photo by Kwanchai Waitanyakarn/WCS Thailand

CONSERVATION OF WILD TIGERS: THE ULTIMATE MEANING

The tiger is a top predator in Asian natural forest ecosystem. Forests with tigers are wilderness teeming with wild ungulates and other wildlife. If this ecosystem quality is maintained it also means major human disturbances are effectively restricted and under control. Management experiences and science have convinced conservation practitioners that the tiger is *“protection dependent species”*. In Thailand tigers have gone from most forests due mainly to weak protection and management. The Western Forest Complex has become a very last wild place with enough quality to save tigers and many other globally threatened species. A success in conserving tigers not only proves our human decency but also means our capacity to safeguard good environment for current and future generations.



Photo by Khao Nang Ram Wildlife Research Station



Photo by Anak Pattanavibool

EXECUTIVE SUMMARY

This executive summary report on recovery of tigers and other threatened wildlife in the Western Forest Complex aims to carry the message of the efforts that the government of Thailand has invested in saving tigers and other wildlife. The information in this report is focused on key activities under collaborations with the Wildlife Conservation Society (WCS) and the World Wildlife Fund (WWF) and the Faculty of Forestry Kasetsart University (KUFF). The program has started in 2005 in Huai Kha Khaeng Wildlife Sanctuary, expanded to cover Huai Kha Khaeng and Thung Yai World Heritage Site (HKK-TY), and the whole Western Forest Complex (WEFCOM). Although a concerted effort, it is important for readers to recognize that **“saving wild tigers needs a genuine government investment”** equipped with a focused strategy and relentless follow-up. Since 2005 protection to secure an inviolate space has become systematic under the so-call **“Smart patrol system”**. The patrol data has indicated that the patrols in HKK-TY have been one of the intensive efforts in Southeast Asia. The system has now been expanded to cover most part of northern WEFCOM and some protected areas in southern WEFCOM. As an indicator of protection effectiveness, a long-term intensive camera trapping to monitor tiger population has revealed that tigers in HKK-TY have been stabilized at 80 tigers and the trend shows a slow increase. The latest camera trapping in Mae Wong and Klong Lan National Parks next to HKK to the north has also captured 10 tigers with 2 cubs. There is evidence of tigers dispersed from HKK and settled in Mae Wong and Klong Lan. The landscape-scale occupancy shows a pattern of dispersion of wild tigers from core area into surrounding wildlife sanctuaries and national parks in northern part of WEFCOM especially Mae Wong and Klong Lan National Parks. The overall results have pointed to a very hopeful recovery for tigers and endangered wildlife species in this important landscape.

RECOVERY OF TIGERS

& OTHER THREATENED WILDLIFE IN THE WEST

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- An aerial photograph of a vast, dense green forest. In the middle ground, there is a small, lighter green clearing with a narrow path or stream winding through it. The background shows rolling hills and mountains under a hazy sky.
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TURNING THE TIDE OF EXTINCTION

CHANGING THE WAY WE THINK

1ST ASIA MINISTERIAL CONFERENCE ON TIGER CONSERVATION

27-30 JANUARY
HUA HIN, PRACHUAP KHIRI



HUA HIN DECLARATION ON TIGER CONSERVATION AT THE FIRST ASIA MINISTERIAL CONFERENCE ON TIGER CONSERVATION JANUARY 29, 2010

(An excerpt)

WITH REGARD TO LANDSCAPES

- Make critical tiger habitats and existing tiger source populations as true sanctuaries for tigers and be inviolate from economic development.
- Subject bufferzones and corridors that connect the critical tiger habitats and existing tiger source populations to such principles of zoning to ensure that they will remain functional landscape components that facilitate tiger survival and conservation.
- Not support nor finance development projects that adversely affect critical tiger habitats and existing source populations.

**OF WILD TIGERS,
REAT THE WORLD FOR OUR FUTURE GENERATIONS**

CONFERENCE (AMC) SERVATION

**2010,
KHAN, THAILAND**

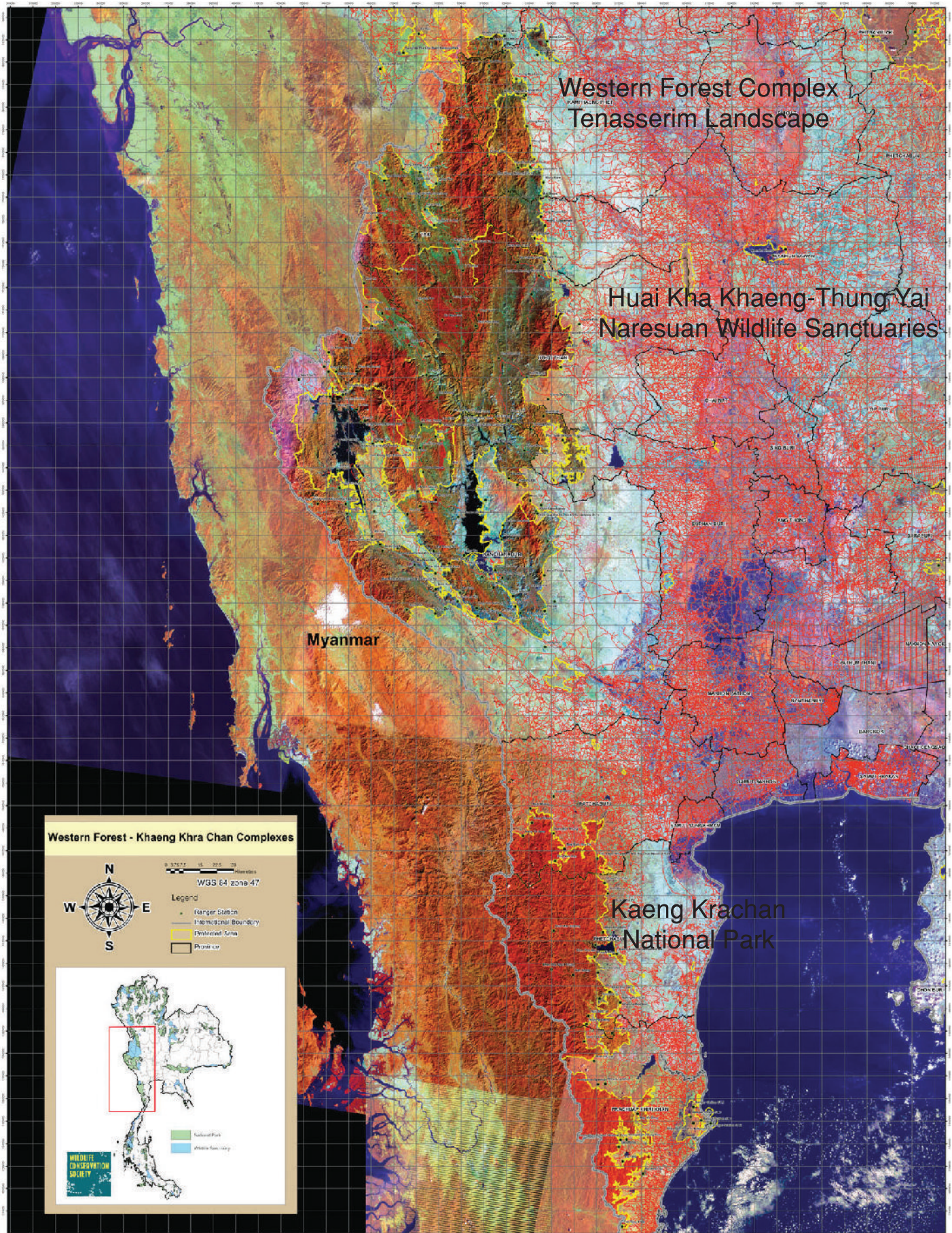


WITH REGARD TO LAW ENFORCEMENT

- Protect wild tigers and their prey base from poaching, and critical tiger habitat from encroachment, through smart patrolling, trans-boundary coordination, and elimination of international trade of tigers and tiger parts, and derivatives through effective laws and their enforcement at national and international levels.

WITH REGARD TO MANAGEMENT

- Implement scientific systems of estimating and monitoring the status of tigers and their prey across all Tiger Range Countries and professionalize and improve management practices by adopting best practice systems, technology, and science.



THE VALUE OF WESTERN FOREST COMPLEX AND TENASSERIM LANDSCAPE

NATURAL SIGNIFICANCE

- The Western Forest Complex (WEFCOM) is a large landscape of 18,000 square kilometers and protected by 11 national parks and 6 wildlife sanctuaries, the strongest protected areas in Thai laws.
- Tenasserim Mountain Range crisscrossing Thailand and Myanmar is largely intact and under the consideration of a transboundary conservation program for both country governments and NGOs.
- The core area of WEFCOM is a world heritage site named Huai Kha Khaeng and Thung Yai Wildlife Sanctuaries (HKK-TY) with a large area of 6,400 square kilometers of various forest and riverine ecosystems.
- HKK-TY World Heritage Site support viable populations of globally threatened and endangered species particularly the tiger, Asian elephant, banteng, wild water buffalo, green peafowl, gaur, sambar, rufous-necked hornbill, etc.
- Mae Wong and Klong Lan National Parks next to HKK-TY to the north have no inhabitants and the areas are composed of large patches of mixed deciduous, open dipterocarp forests suitable for tiger and prey recovery.
- Kaeng Krachan Forest Complex south of WEFCOM is also a large protected landscape of over 4,000 square kilometers that support good population of elephant and few remaining tigers.

TIGER CONSERVATION SIGNIFICANCE

- More than 100 tigers have been camera trapped in HKK-TY from a long term camera trapping monitoring program since 2006.
- WEFCOM and Tenasserim landscape has been classified as Tiger Conservation Landscape CLASS I, meaning supporting more than 100 tigers, and evidence of breeding and GLOBAL PRIORITY, meaning highest possibility of persistence of tiger populations over the long term.
- WEFCOM and Tenasserim landscape is Thailand's highest priority area for tiger recovery under Thailand Tiger Action Plan 2010.
- WEFCOM has a high potential recovery of tigers and their prey including banteng, sambar, gaur, muntjac, and wild pigs.
- Long term investments on tiger conservation from Thai government and international organizations to WEFCOM have been significant in improving protection, monitoring, and research.



THREATS TO TIGER IN THE WESTERN FOREST COMPLEX

- Tiger poisoning for skin, bones, fresh, and body parts has been a major threat to tigers in HKK-TY with the first registered case in 2010.
- Poaching of ungulate prey including banteng, gaur, sambar is a major threat in WEFCOM that has dwindled prey populations in many areas of WEFCOM.
- Habitat alteration to farmland has occurred near villages located inside and along the bufferzone of WEFCOM.
- Large-scale non-timber product collections happening in HKK have not only depleted some food for wildlife but also disturbed wildlife in many ways.
- Livestock in the area near villages in Thung Yai increases chances of spreading diseases into wild ungulates.
- Large development projects particularly dam and road constructions have been reemerging in WEFCOM and can be heavy destructive to tiger and its habitat.
- Ineffective law enforcement in many protected areas in WEFCOM has been a threat to tiger survival and ecosystem integrity.



Photo by Kwanchai Waitanyakarn/WCS Thailand

Thailand Tiger Action Plan 2010-2022



TARGET AND GOAL

Under Thailand Tiger Action Plan 2010 the government has set goals and targets related to WEFCOM-Tenasserim as following.

To increase tiger population in Thailand by 50% by increasing tiger population in WEFCOM-Tenasserim landscape by 2022.

To reach the target of 50% tiger increase by 2022 the 5-year goals include the following.

- Effective management systems that include high standard interventions and monitoring are in place in WEFCOM Tenasserim landscape by 2015.
- Key tiger threats in WEFCOM-Tenasserim show a clear decline by 2015.
- Important tiger ecology (e.g., homerange variation) in WEFCOM Tenasserim very well understood and used to guide management by 2015.
- Tiger populations stabilized or increased in Tenasserim-WEFCOM by 2015.

The key activities that have been established and well maintained under significant support from WCS, WWF, and KUFF include the following.

- Strengthen and standardize the MIST-based Smart Patrol System in protected areas of current tiger source sites especially Tenasserim-WEFCOM.
- Increase the number of competent park rangers up to the level that can secure tigers and prey.
- Ensure that no major infrastructure development occurs in core tiger habitat.
- Maintain and establish high standard annual population monitoring systems for tigers and their prey in tiger source sites.
- Establish landscape scale occupancy monitoring systems for tigers and prey in Tenasserim WEFCOM.



Photo by Kwanchai Waitanyakarn/WCS Thailand

SMART PATROL IN WEFCOM

The Smart patrol system refers to the implementation of a suite of components necessary for effective law enforcement including: adequate numbers of patrol staff trained in enforcement techniques, supported by strong intelligence-networks and equipped with the necessary infrastructure, equipment and resources needed for patrolling, standardized law enforcement monitoring (LEM) protocols implemented and LEM data fully integrated into the strategic planning and deployment of patrols.

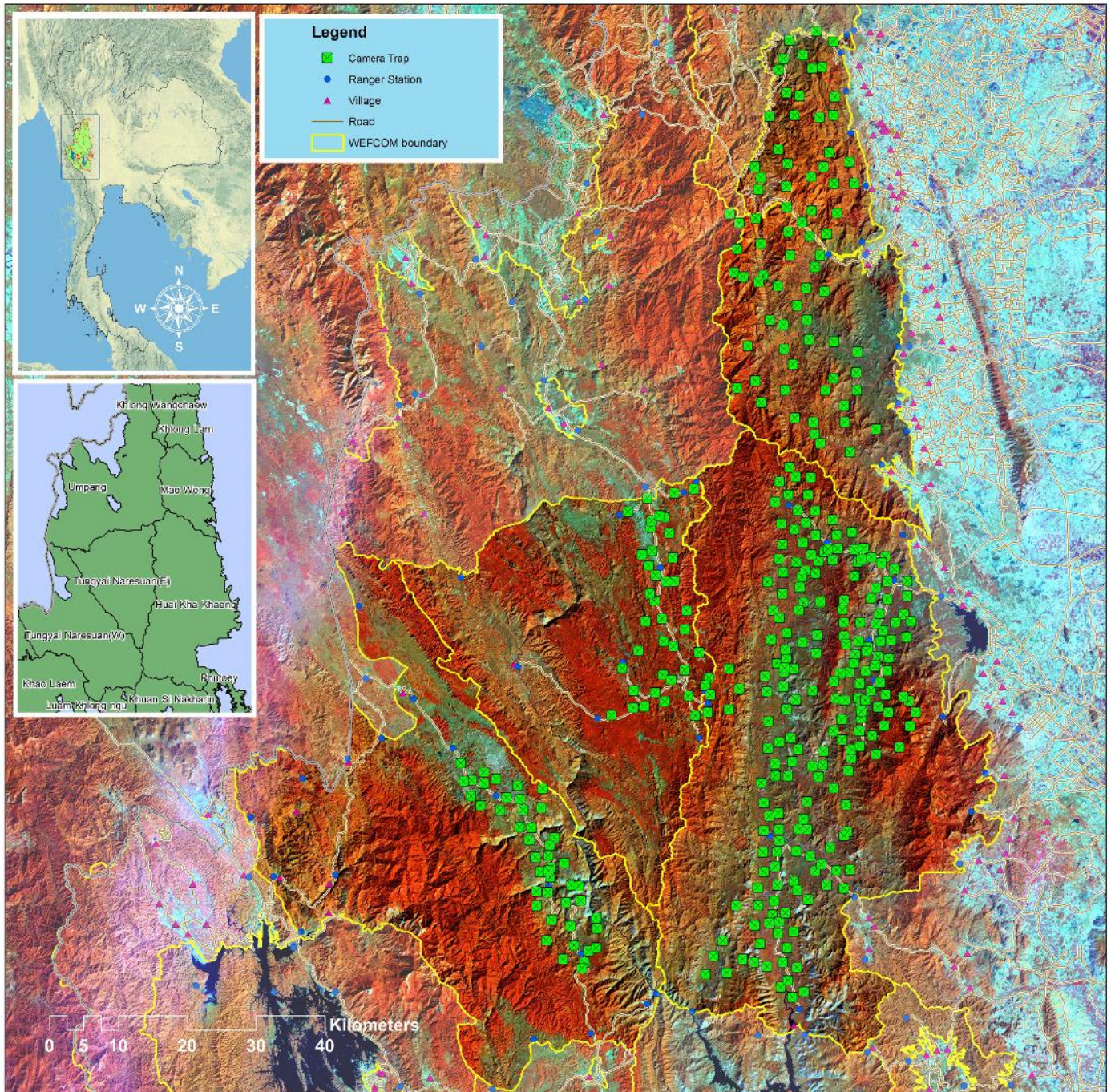
The effective Smart patrol promotes **“good governance”** and **“best practice”** by empowering park rangers to fully engage in decision making process with park managers.

It is globally accepted that under the current pressures on wild tigers in all the remaining wild populations, ***“The tiger is the protection dependent species”***. The smart patrol system has been used as the most important intervention for saving and recovering of tigers in HKK-TY World Heritage Site and WEFCOM. The development process is as following.

- **2001 - 2004:** DNP has started to train park rangers in 17 areas of WEFCOM to understand how to use GPS as an important tool for patrol under the Western Forest Complex Ecosystem Management Project together with a simple wildlife survey database.
- **2005:** Patrol database for Huai Kha Khaeng Wildlife Sanctuary was developed by key protected area managers in the Department of National Parks, Wildlife and Plant Conservation (DNP) together with WCS Thailand. It used ACCESS platform with the modification of MIKE data structure (with permission from MIKE Southeast Asia, Dr. David Lawson) by adding more target species. Park rangers in HKK-TY received a series of Smart patrol training courses from DNP & WCS teams, initiated and run monthly patrol meetings, conducted patrol planning with up-to-date information.
- **Since 2006:** The Smart patrol system has covered most area in HKK and given better protection to tigers and wildlife.
- **Since 2007:** The system has expanded to cover the HKK-TY World Heritage Site.
- **2008:** The adoption of MIST database as a platform for patrol data.
- **2009 - present:** HKK has become a training site for park rangers and managers from protected areas in Thailand and abroad. HKK patrol officers and rangers have become patrol trainers to train park rangers in different protected areas in Thailand.
- **2011 - present:** WWF has joined the effort by helping DNP strengthen the Smart patrol system in Mae Wong and Klong Lan National Parks.
- **2011 - present:** the Elephant Conservation Network (ECN) has supported DNP for Salakpra Wildlife Sanctuary under the standard of the Smart patrol system.
- **2011 - present:** WCS has expanded the support to DNP on Umpang Wildlife Sanctuary
- **2012:** DNP has allocated a budget to train park rangers from 2 more national parks in southern WEFCOM and 14 more protected areas in the country.

TIGER POPULATION MONITORING AT CORE SITE

There are long term tiger population monitoring programs using a camera trapping system in 5 areas in WEFCON including 3 wildlife sanctuaries and 2 national parks as detail below. The total trapping areas are over 2,000 square kilometers. Each camera trap point is setup in a pair of two cameras to get pictures of tigers both sides. The spacing between camera trap points is 3-4 kilometers. If a tiger kill is found the survey team would try to set up camera traps also.



Map showing camera trap points in Huai Kha Khaeng WS, Thung Yai East and West WS, Mae Wong NP and Klong Lan NP .



Photo by Kwanchai Waitanyakarn/WCS Thailand

HUAI KHA KHAENG WILDLIFE SANCTUARY (HKK)

HKK is a site with a longest and largest camera trapping monitoring system in Thailand. HKK total area is 2,700 square kilometers. The trapping efforts at the early years were ad hoc and cover small areas around Khao Nang Ram Wildlife Research Station. The system has started to cover large trapping area in 2006. The trapping efforts have reached an area about 1,000 square kilometers since 2007. This trapping effort has been annually conducted for 6 years. The camera trapping design and effort are as following.

- Number of camera trapping points each year is around 200 points.
- Number of camera trap nights each year is about 3,000 trap nights.
- The annual camera trapping period is from January to May.
- Area of camera trapping is about 1,000 square kilometers.



THUNG YAI NARESUAN EAST WILDLIFE SANCTUARY (TYE)

TYE with a total area of about 1,500 square kilometers is contiguous to HKK. The topography of TYE is around 900 meters in elevation on the eastern side. The western side is a valley mostly occupied by 7 Karen villages. Dry evergreen forest is the majority of forest mixed with patches of grassland being recovered after village relocation. The camera trapping has been done in alternate year since 2007 in an area right next to HKK where habitat has recovered after relocations of Hmong villages by the government more than 20 years ago. The trapping area is small covering about 250 square kilometers. It is considered the best area for tigers and wildlife in TYE because it is far from villages and next to the best tiger source site of HKK. The camera trapping design and effort are as following.

- Number of camera trapping points each year is around 45 points.
- Number of camera trap nights each year is about 650 trap nights.
- The annual camera trapping period is from November to December.
- Area of camera trapping is about 250 square kilometers.





Photo by Thung Yai Naresuan West Wildlife Sanctuary

THUNG YAI NARESUAN WEST WILDLIFE SANCTUARY (TYW)

TYW is next to TYE to the west and part of the area was contiguous to Myanmar. The total area of TYW is about 2,200 square kilometers. The topography of TYW to the east is mostly open woodland and grassland mixed with dry and mixed deciduous forests. The western side is high terrain with evergreen forest. Seven Karen villages occupied and used the areas in the north and west. The camera trapping has been done almost in alternate year since 2006. The trapping area is small covering about 250 square kilometers. The trapping site is mainly on the east side which is considered least disturbed by humans. The camera trapping design and effort are as following.

- Number of camera trapping points each year is around 45 points.
- Number of camera trap nights each year is about 650 trap nights.
- The annual camera trapping period is from November to December.
- Area of camera trapping is about 200 square kilometers.



Photo by Khao Nang Ram Wildlife Research Station

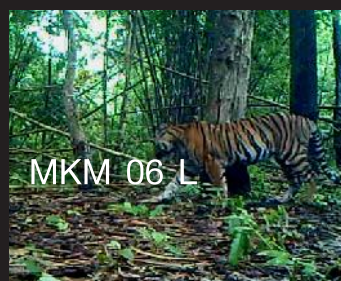
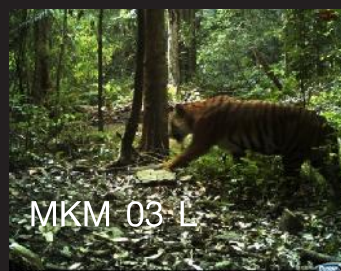
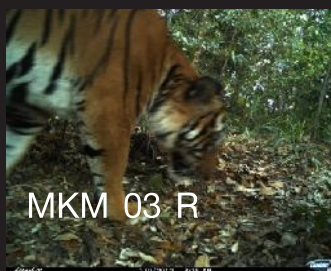


Photo by WWF

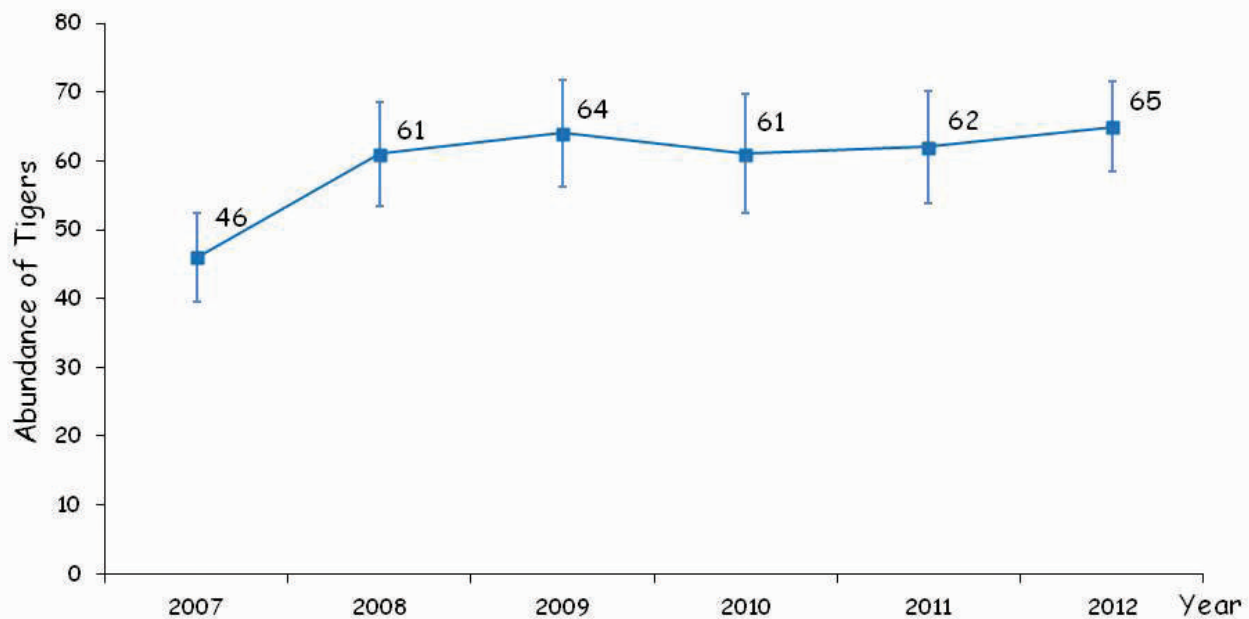


Photo by DNP / WWF

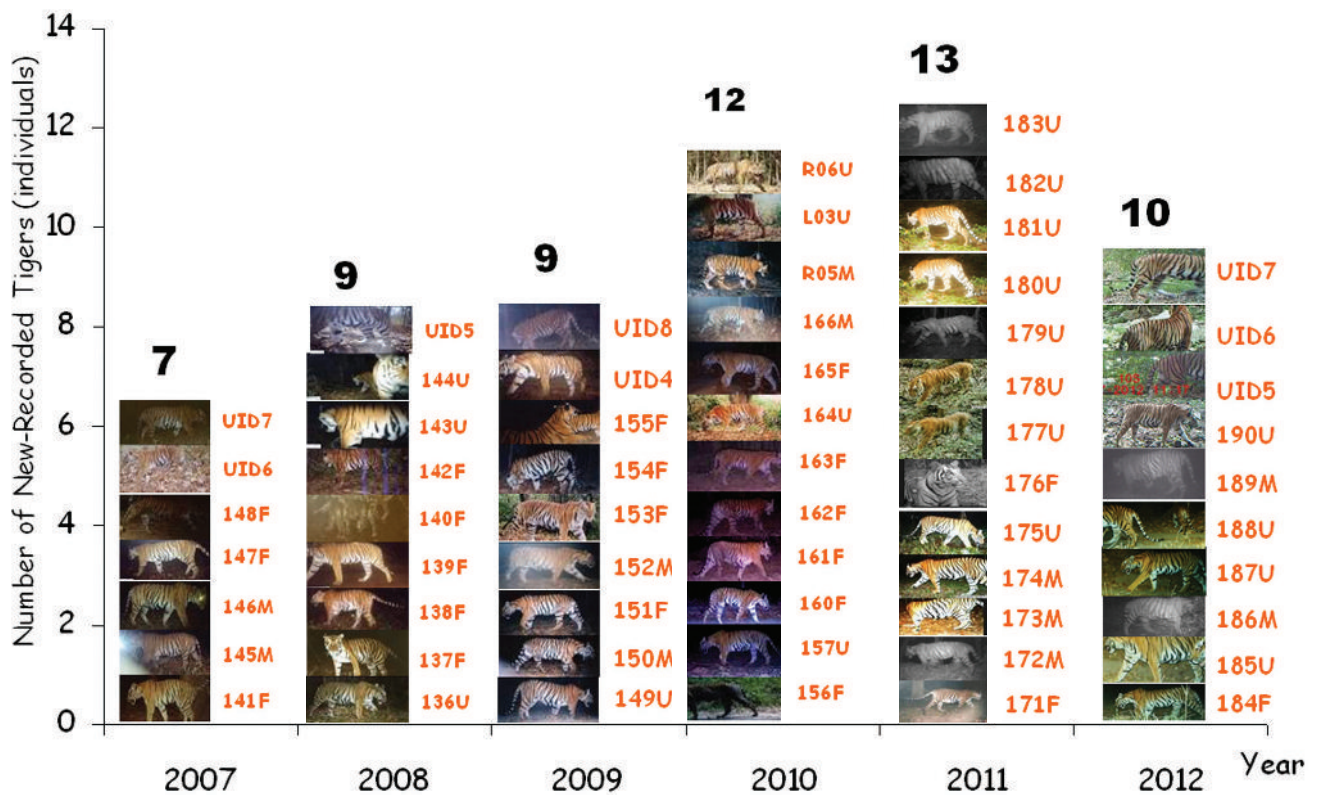
MAE WONG AND KLONGLAN NATIONAL PARKS (MW-KL)

MW-KL is one of the best habitat qualities for recovery of wild tigers and their prey. It has an area of 1,200 square kilometers. Villages have been relocated out of the parks for more than 20 years. The current vegetation cover in Mae Wong to the east is mainly mixed deciduous forest mixed with open dry dipterocarp forest. The habitat along the Mae Wong River to the east is low elevation open woodland and grassland mixed recovery forests after long period of recovery from logging, landuse and settlements. The west is covered with dry and montane evergreen. In Klong Lan, evergreen mixed with deciduous forests are dominating the hilly terrain than Mae Wong. The camera trapping activity has started in MW-KL in 2012. It trapping area covering almost the whole MW-KL. The camera trapping design and effort are as following.

- Number of camera trapping points is around 75 points.
- Number of camera trap nights is about 5,958 trap nights.
- First time camera trapping period is from December 2011 to October 2012.
- Area of camera trapping is less than 1,000 square kilometers.



This graph shows the results of camera trapping in Huai Kha Khaeng Wildlife Sanctuary since 2007 – 2012.



Numbers of new tigers photos captured in Huai Kha Khaeng Wildlife Sanctuary.

TIGERS ARE RECOVERING IN WEFCON'S CORE AREA

The results since the beginning of the large scale camera trapping program launched in 2006 in the core area of WEFCON show a positive response of tiger population to improve management quality. The following are the summary of important indicators.

The camera trapping results in Huai Kha Khaeng during 2007 to 2012 mostly show a stable population at 60-65 adult tigers in the last 5 years. However, the overall trend from 2007 shows a slight increase in the means and almost significantly increase if we compared between the populations in 2007 and 2012.

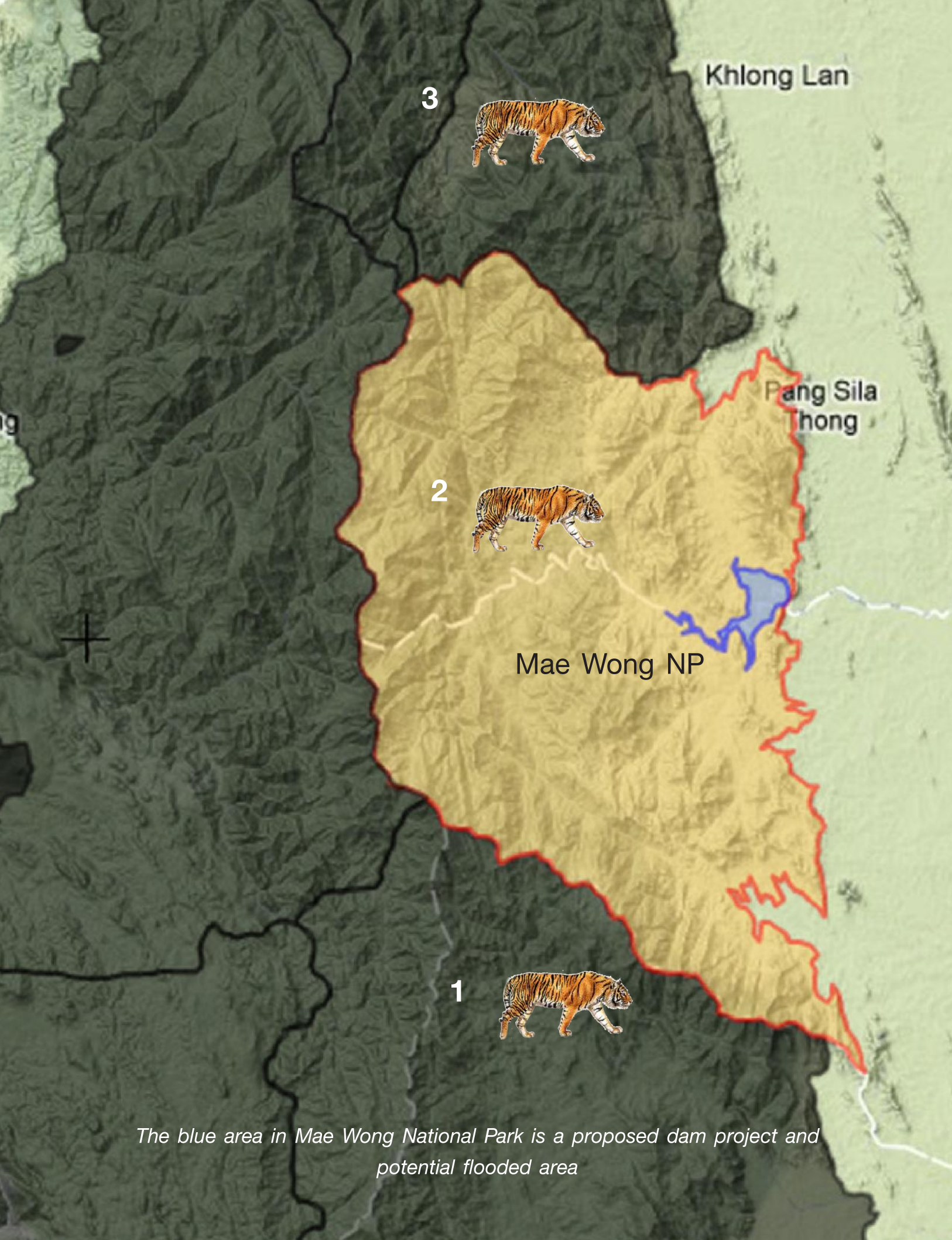
Every year since 2007 there have been approximately 10 new record tigers being photographed in HKK.

Camera trapping results in Thung Yai East (TYE) and Thung Yai West (TYW) have given stable tiger populations at low density of 1 tiger per 100 square kilometers respectively. However, it is to keep in mind that the camera trapping efforts in Thung Yai Naresuan East and West are much less intensive than the efforts in HKK.

In 2011 a mother and 2 cubs have been photographed in TYE as the evidence of breeding.

Site	Period (Nov-June)	Trapping effort	Effective sample area (km ²)	Captured individuals	Tiger density (inds./100km ²)
HKK	2006-07	2,467	1,836	26	1.74 ± 0.24
HKK	2007-08	2,804	1,745	34	2.29 ± 0.29
HKK	2008-09	2,731	1,637	33	2.44 ± 0.30
HKK	2009-10	2,935	1,623	29	2.28 ± 0.31
HKK	2010-11	3,013	1,694	33	2.30 ± 0.30
HKK	2011-12	3,669	1,736	38	2.42 ± 0.24
TYE	2007-08	629	1,036	5	0.48 ± 0.07
TYE	2010-11	648	593	4	0.84 ± 0.26
TYW	2006-07	630	583	7	1.54 ± 0.37
TYW	2009-10	629	688	5	1.12 ± 0.34

Table: the statistics of camera trapping tigers in Huai Kha Khaeng & Thung Yai Narsuan Wildlife Sanctuaries in different years.



Khlong Lan

3



Pang Sila
Thong

2



Mae Wong NP

1



The blue area in Mae Wong National Park is a proposed dam project and potential flooded area

HOPEFUL RECOVERY OF TIGERS IN MAE WONG AND KLONG LAN: EVIDENCE FROM CAMERA TRAPPING

Camera trapping result in Mae Wong and Klong Lan (MW-KL) has been completed for the first time in 2012. It gave a hopeful result of 10 tigers and 2 cubs.

The important evidence of tiger dispersal from Huai Kha Khaeng (HKK) into other area in WEFCON is following.

1. A male tiger was first captured in HKK on April 7, 2011.
2. It was captured again in Mae Wong on January 9, 2012.
3. It was captured the third time in Klong Lan on October 12, 2012. It appears well fed and established in Klong Lan.

This is the strong evidence of a landscape connectivity and integrity in WEFCON that allows hope for recovery of tigers and their prey.

During 2011-2012 survey period, the tiger team has captured 50 adult tigers in Huai Kha Khaeng, Thung Yai Naresuan, and Mae Wong-Klong Lan. This number does not include juvenile ones. Therefore it is clear that WEFCON core area is a source population for tigers.





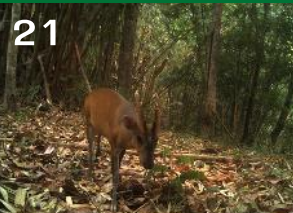
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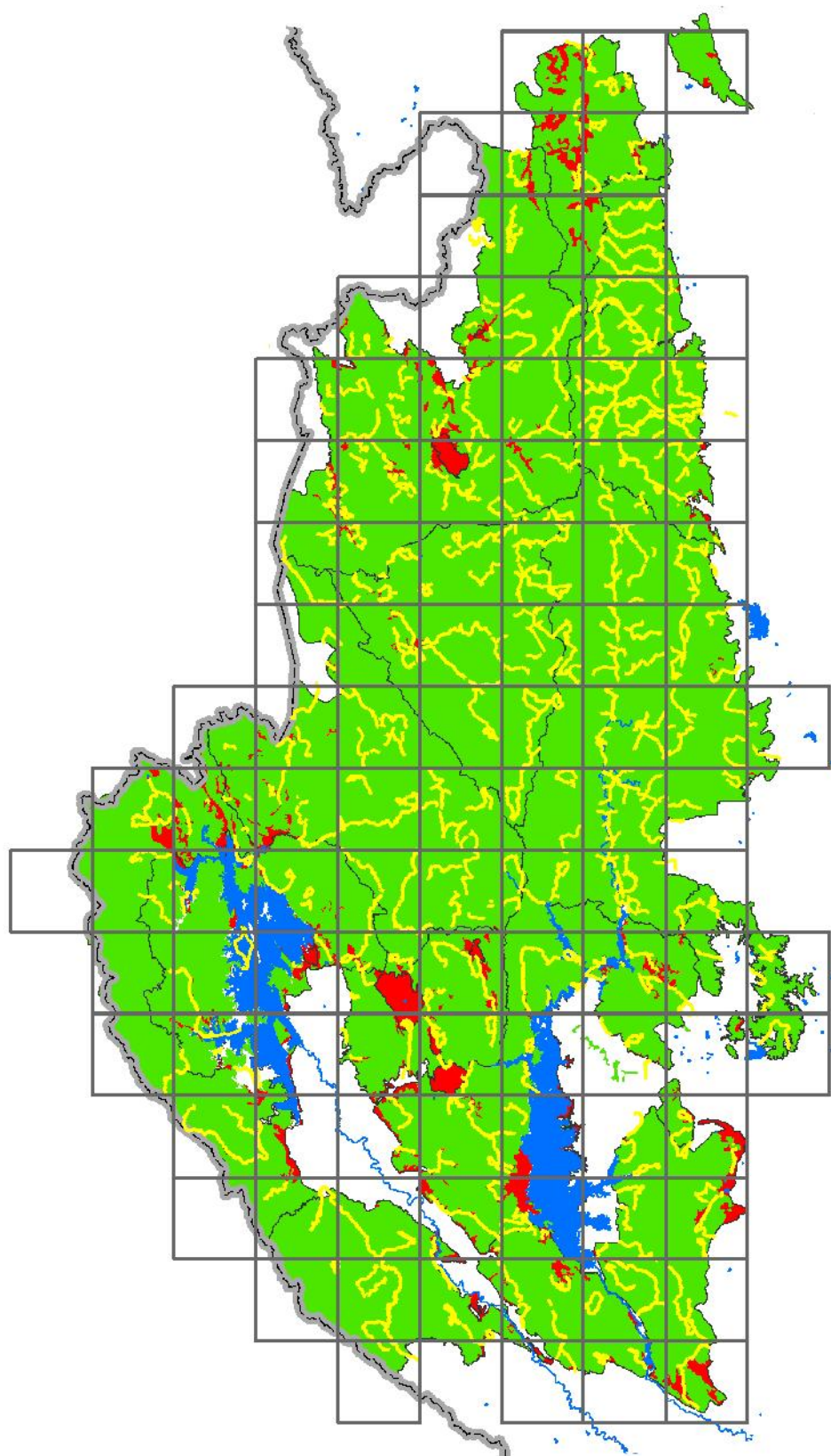
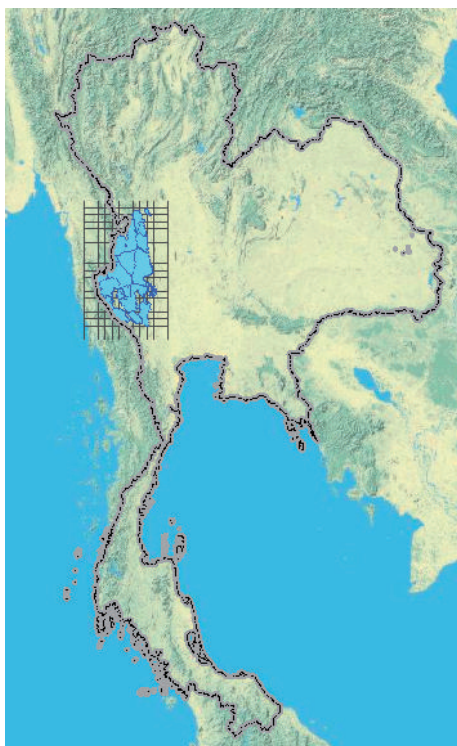
OTHER THREATENED WILDLIFE SPECIES IN MAE WONG-KLONG LAN: CAMERA TRAPPING

It has been generally recognized that Huai Kha Khaeng-Thung Yai Wildlife Sanctuaries (HKK-TY) are also supporting many other globally threatened wildlife species such as Asian elephants, tigers, leopards, marbled cats, dholes, bantengs, gaurs, sambars, rufous-necked hornbills, white-winged ducks, green peafowls, tapirs and many other.

In this report it is also important to emphasize that Mae Wong-Klong Lan National Parks (MW-KL), the protected forest next to HKK-TY, are holding a capacity to recovery of these threatened species too. From camera trapping result in MW-KL in 2012 the team also captured 4 species of endangered species including tigers, Asian elephants, dholes, and tapirs. There are 8 vulnerable species also photographed. Three species including tapirs, serows, and Fea's barking deers are listed as reserved species in Thai's Wildlife Law which is the most critical category of protected species in Thailand.

Species No.	Common Name	Scientific Name	IUCN
			Red list (2012)
1	Tiger	<i>Panthera tigris</i>	EN
2	Asian Elephant	<i>Elephas maximus</i>	EN
3	Malayan Tapir	<i>Tapirus indicus</i>	EN
4	Dhole	<i>Cuon alpinus</i>	EN
5	Clouded Leopard	<i>Neofelis nebulosa</i>	VU
6	Gaur	<i>Bos gaurus</i>	VU
7	Sambar Deer	<i>Rusa unicolor</i>	VU
8	Malayan Sun Bear	<i>Helarctos malayanus</i>	VU
9	Asiatic Black Bear	<i>Ursus thibetanus</i>	VU
10	Binturong	<i>Arctictis binturong</i>	VU
11	Pig-tailed Macaque	<i>Macaca leonina</i>	VU
12	Stump-tailed Macaque	<i>Macaca arctoides</i>	VU
13	Large Spotted Civet	<i>Viverra megaspila</i>	VU
14	Marbled Cat	<i>Pardofelis marmorata</i>	VU
15	Leopard	<i>Panthera pardus</i>	NT
16	Asiatic Golden Cat	<i>Catopuma temminckii</i>	NT
17	Chinese Serow	<i>Capricornis milneedwardsi</i>	NT
18	Hog Badger	<i>Arctonyx collaris</i>	NT
19	Large Indian Civet	<i>Viverra zibetha</i>	NT
20	Leopard Cat	<i>Prionailurus bengalensis</i>	LC
21	Red Muntjac	<i>Muntiacus muntjak</i>	LC
22	Wild Pig	<i>Sus scrofa</i>	LC
23	Golden Jackal	<i>Canis aureus</i>	LC
24	Yellow-throated Marten	<i>Martes flavigula</i>	LC
25	Masked Palm Civet	<i>Paguma larvata</i>	LC
26	Small Indian Civet	<i>Viverricula indica</i>	LC
27	Banded Linsang	<i>Prionodon linsang</i>	LC
28	Crab-eating Mongoose	<i>Herpestes urva</i>	LC
29	Small Asian Mongoose	<i>Herpestes javanicus</i>	LC
30	Malayan Porcupine	<i>Hystrix brachyura</i>	LC
31	Asiatic Brush-tailed Porcupine	<i>Atherurus macrourus</i>	LC
32	Rhesus Macaque	<i>Macaca mulatta</i>	LC
33	Fea's Muntjac	<i>Muntiacus feae</i>	DD

Remarks EN : Endangered, VU : Vulnerable, NT : Near Threatened, LC : Least Concern, DD : Data Deficient



Map of occupancy trails survey in Western Forest Complex 2010-2012

DISTRIBUTION RECOVERY AND OCCUPANCY SURVEY IN WEFCOM

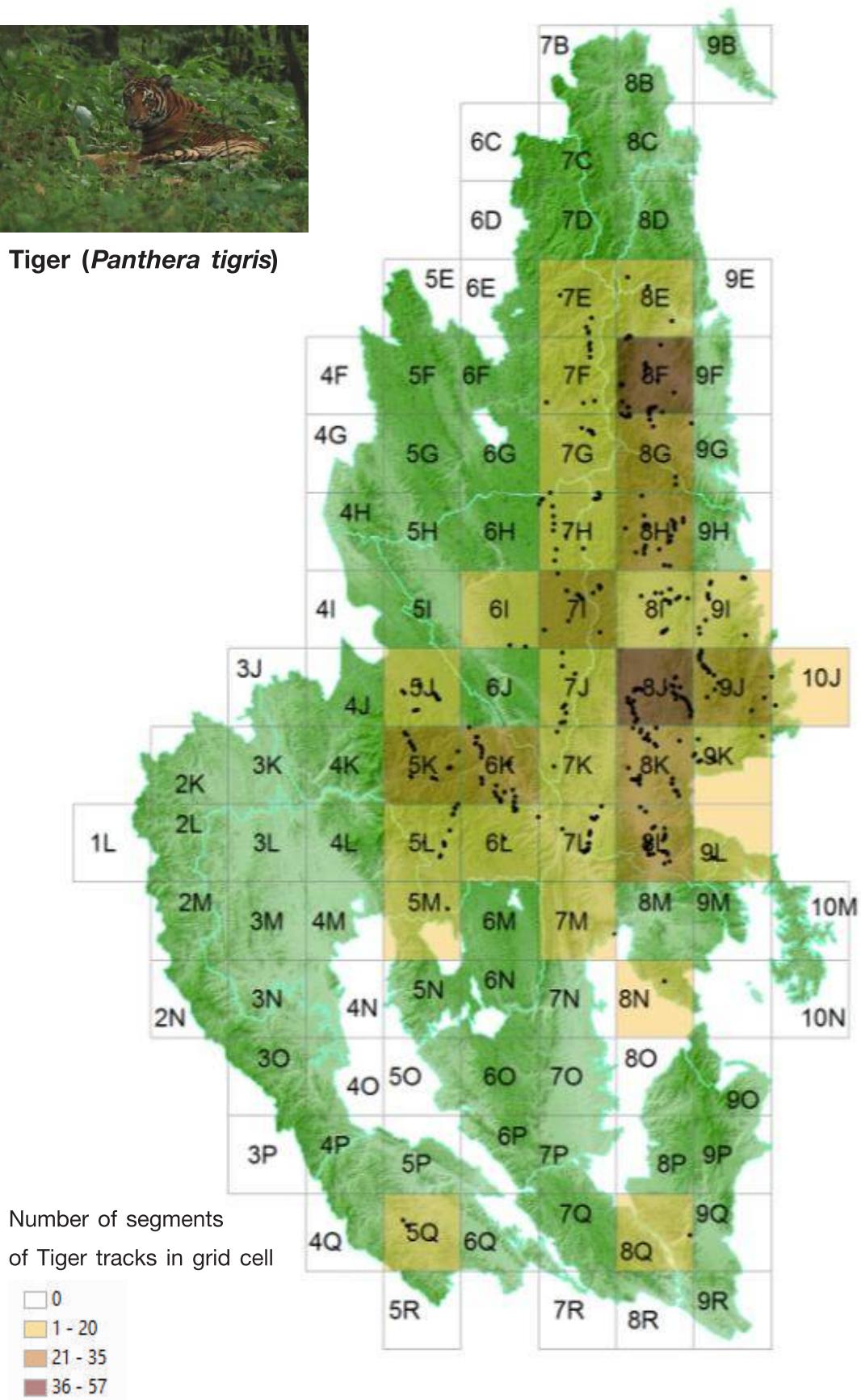
In 2010 and 2012 the tiger team led by Khao Nang Ram Wildlife Research Station, Department of National Parks, Wildlife and Plant Conservation together with Wildlife Conservation Society, and World Wildlife Fund have conducted an occupancy survey for the whole 18,000-square-kilometers of WEFCOM landscape. The survey design and efforts are the most intensive ever happened in history of Thailand's wildlife survey. The following are the brief survey efforts.



- WEFCOM is divided into 104 grid cells of 256 square kilometers each.
- The walking effort in a grid cell is determined by the percentage of tiger habitat as following.
 - If 100% tiger habitat, the distance walk is 60 kilometers.
 - If 50% tiger habitat, the distance walk is 30 kilometers,
 - If 10% tiger habitat, the distance walk is 10 kilometers.
- The walking routes were random to cover grid cells as much as possible with careful attentions were at salt licks, water holes, food sources, riversides, etc.
- Data on presence and absence of tigers, elephants, and ungulates were recorded in every 100 meters.
- Threats were recorded in every 100 meters.
- From two years of occupancy survey in WEFCOM the total distance walk is about 4,000 square kilometers.



Tiger (*Panthera tigris*)



Tiger occupancy and distribution abundance in WEFCON

TIGERS AND OTHER WILDLIFE ARE RECOVERING IN NORTHERN WEFCON

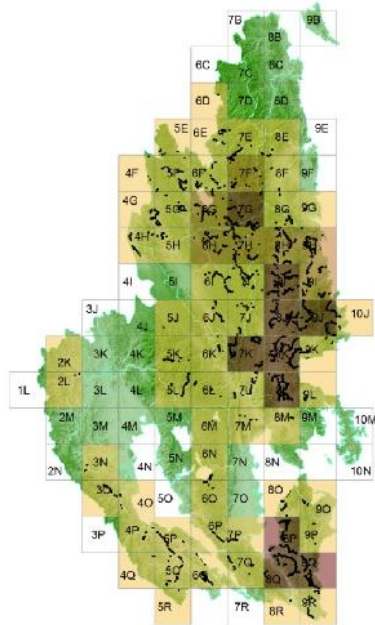
The preliminary occupancy results also show that tigers use Huai Kha Khaeng as their most current distribution. They have also disperse into northern WEFCON especially Mae Wong as their distribution abundance has shown. They have also used Thung Yai East, Thung Yai West, and Umpang Wildlife Sanctuaries in medium to low abundance.

In southern WEFCON very few tiger tracks and signs were detected. Very few tracks in Salakpra Wildlife Sanctuary and Sai Yok National Park were recorded. With the shredded habitat and high human disturbances in southern WEFCON recovery of tigers will be much more challenging that northern WEFCON.

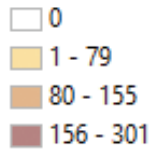
This pattern is also the same for other species including Asian elephant, gaur, sambar, wild pig, and muntjac.



Photo by WWF

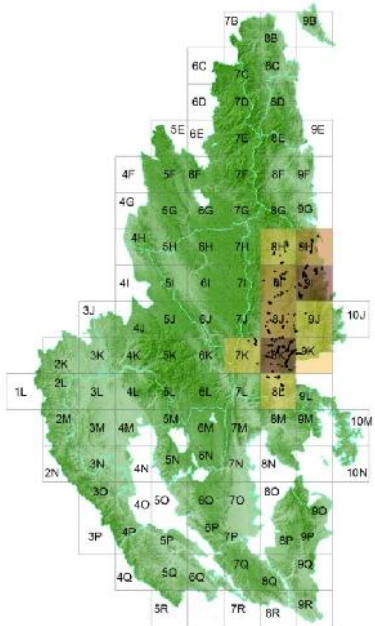


Number of segments
of Asian Elephant tracks
in grid cell

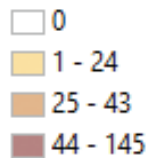


Asian Elephant (*Elephas maximus*)

- Tracks are clearly abundant in HKK, TY East, and Salakpra,
- Fragments of populations are still found in large area of WEFCON in different types of habitats.

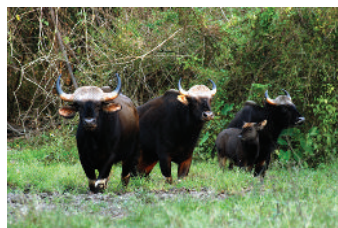
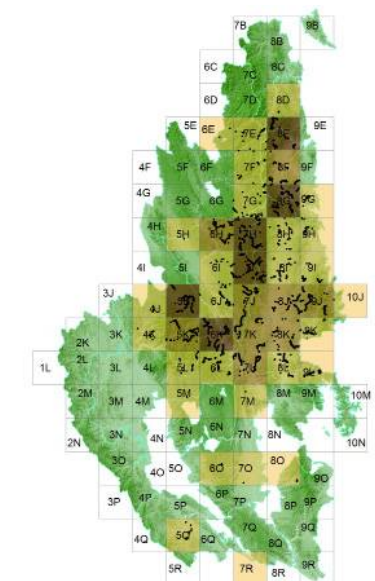


Number of segments
of Banteng tracks
in grid cell

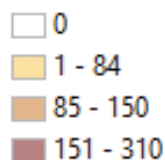


Banteng (*Bos javanicus*)

- Almost strictly remaining in HKK with high abundant in some areas due to its habitat specialist of open forest and past pressures from hunting and human development.



Number of segments
of Gaur tracks
in grid cell



Gaur (*Bos gaurus*)

Tracks were more abundant in

- Evergreen part of HKK and TY East
- Savanna-like habitat in TY West
- Evergreen part of Mae Wong & Klong Lan

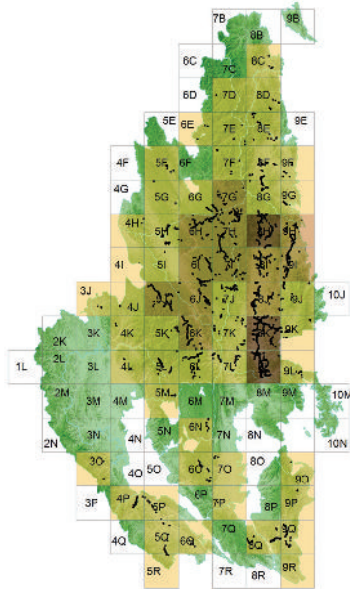
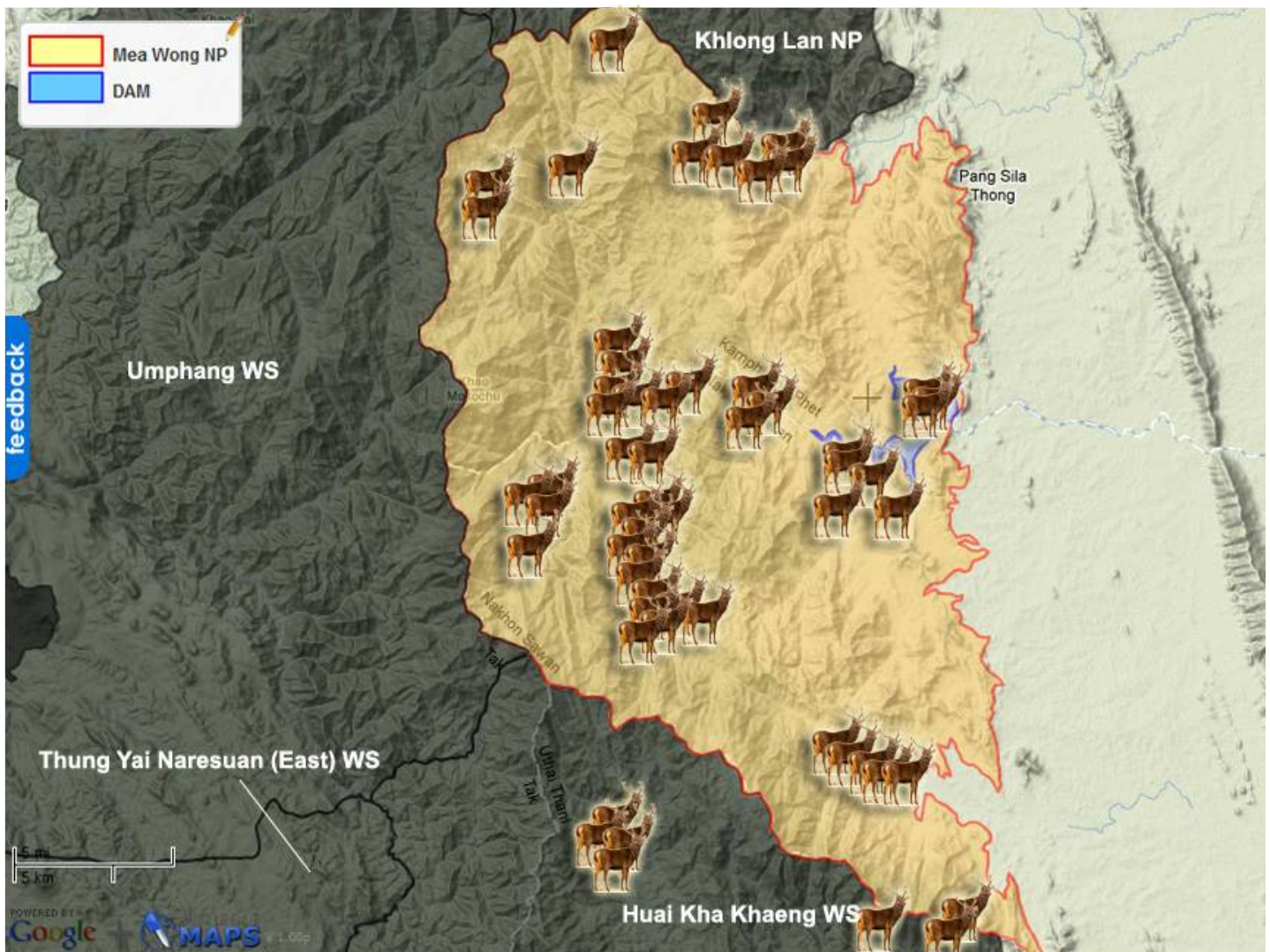




Photo: Kwanchai Waitanyakarn/WCS Thailand

RECOVERY OF SAMBAR IN MAE WONG NATIONAL PARK

The key species that is important to recovery of tigers in WEFCON is sambar. From the occupancy survey it is clear that sambar have been recovered well in Mae Wong National Park. Sambar tracks appear in the area where sambar was almost extinct particularly the area in the eastern part of Mae Wong where a proposed Mae Wong Dam project has been under severely criticized by academic and conservation organizations.



Sambar distribution abundance in Mae Wong National Park



Photo by Kwanchai Waitanyakarn/WCS Thailand

LESSON LEARNED & FUTURE CONSERVATION

The tiger conservation and recovery project in the Western Forest Complex (WEFCOM) has given Thai government, conservation organizations, and academic institutes lesson learned for future conservation as following.

- Conserving a large forest landscape like the Western Forest Complex is a critical way of conserving large area requiring species like tiger.
- Keeping the core area as Huai Kha Khaeng and Thung Yai Wildlife Sanctuaries inviolate from human disturbances allows tigers to recover and become a source population to disperse into the surrounding suitable habitat.
- Effective protection under intensive monitoring program can sustain the population of tigers and allow them to recover.
- Saving tigers also saves many other target-poaching species as it has clearly shown here for elephants, bantengs, gaurs, sambars, muntjacs, wild pigs.
- Integrity of habitat and degree disturbances are one of the most critical factors to allow tigers and other wildlife to recover as the results here show that recovery has happened in northern WEFCOM with more intact forest and less human disturbances than southern WEFCOM where habitat is shredded with large reservoirs, roads, and human settlements.
- Science-based protection and population monitoring are imperative for tiger and wildlife conservation in a large landscape.
- Genuine investment from the government on protection together with supports from local and international non-government conservation organizations, and relevant academic institutes is an important recipe for the success of tiger and wildlife conservation.

LIST OF THAILAND TIGER TEAM

DEPARTMENT OF NATIONAL PARKS, WILDLIFE AND PLANT CONSERVATION

Role: The sole authority for protection and research on tigers and their habitat in national parks and wildlife sanctuaries in Thailand.

Key persons:

Dr. Theerapat Prayurasiddhi	Mr. Chatchawan Pisdamkham
Dr. Saksit Simcharoen	Mr. Somphot Duangchantrasiri
Mr. Soontorn Chaiwatana	Ms. Budsabong Kanchanasaka
Mr. Somphoch Maneerat	Ms. Weraya O-chakull
Mr. Sompong Thongsikhem	Mr. Thawatchai Petcharaburanin
Mr. Pisit Piyasomboon	Mr. Kreakpon Wongchoo
Mr. Mumeen Malinee	

WILDLIFE CONSERVATION SOCIETY

Role: Support DNP on technology and additional expense to run the Smart patrol system and tiger population monitoring system for HKK-TY World Heritage Site. WCS also supports DNP on cost and technology to run the occupancy monitoring at the landscape scale of WEFCOM.

Key persons:

Dr. Anak Pattanavibool	Ms. Mayuree Umponjan
Ms. Jutamas Tifong	Mr. Sitthichai Jinamoy
Mr. Kamon Faengbubpha	Ms. Ratchanee Chokcharoen
Mr. Witthaya Teuk-tao	Mr. Donroman Chatson
Mr. Chaksin Praiket	

WORLD WILDLIFE FUND

Role: Support DNP on technology and additional expense to run the Smart patrol system and tiger population monitoring system for Mae Wong and Klong Lan National Parks. WWF also share the cost to run the occupancy monitoring for those two national parks in WEFCOM.

Key person:

Ms. Phansiri Winichagoon

Dr. Rungnapa Phoonjampa

Mr. Utai Dachyosdee

Mr. Tanasin Yimnoi

Mr. Sonthaya Purintarapiban

Mr. Petch Manopawitr

Dr. Robert Steinmetz

Mr. Surasak Srirattanaorn

Mr. Worrapan Phumanee

Mr. Warayuts Choonhawong

FACULTY OF FORESTRY, KASETSART UNIVERSITY

Role: Train all the wildlife and protected area managers for DNP especially all the key persons in DNP, WCS, and WWF working on tiger conservation. KUFF also supports the technology, student volunteers, and future generations of tiger and wildlife conservation scientists and managers.

Key persons:

Dr. Anak Pattanavibool

Dr. Vijak Chimchome

Dr. Yongyut Trisurat

Dr. Naris Bhumpakphan

Dr. Ronglarp Sukmasuang

Dr. Prateep Duengkae

Technical & Financial Support



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Seub Nakhasathien Foundation

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