

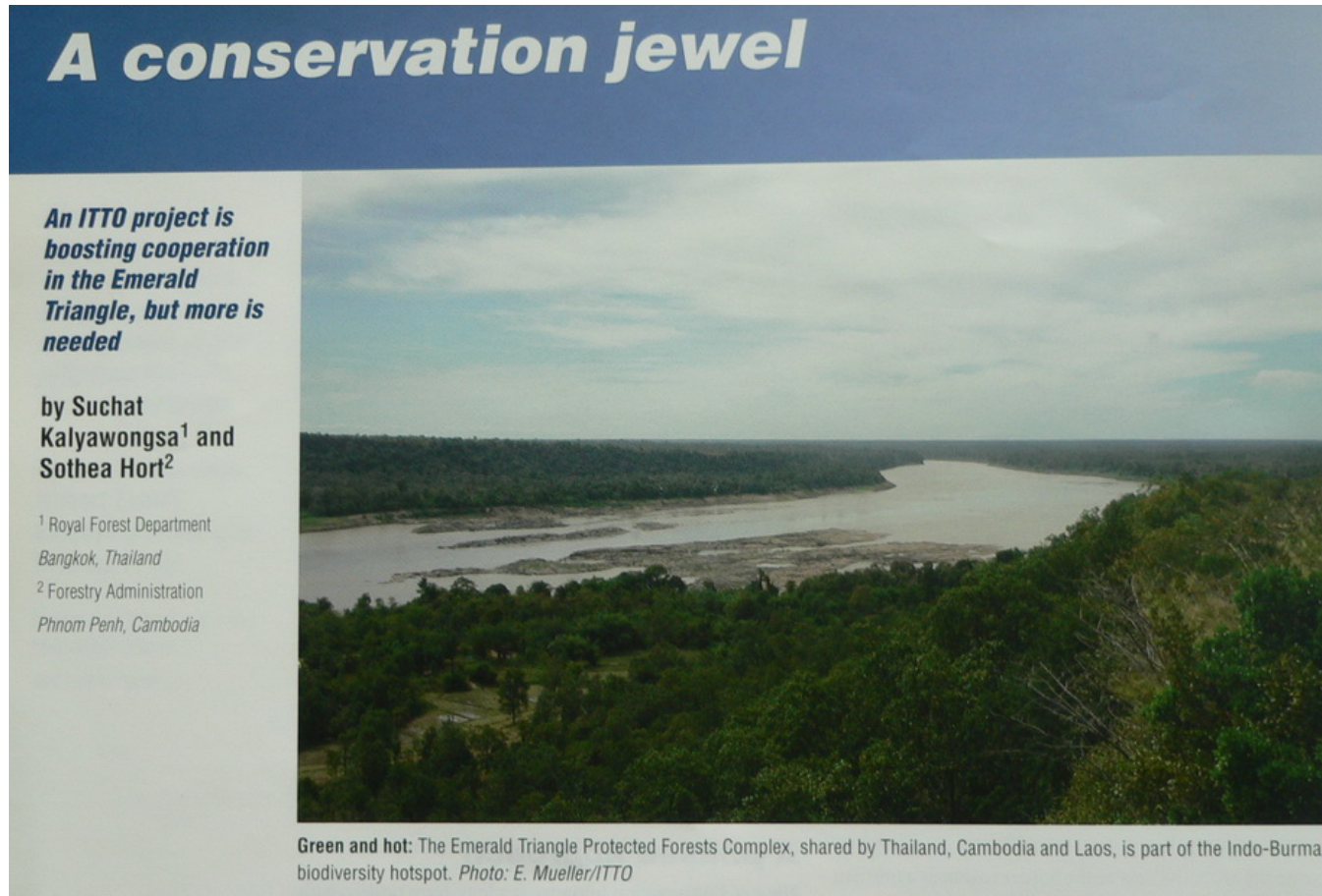


Thailand component of the Emerald Triangle TBCA Project

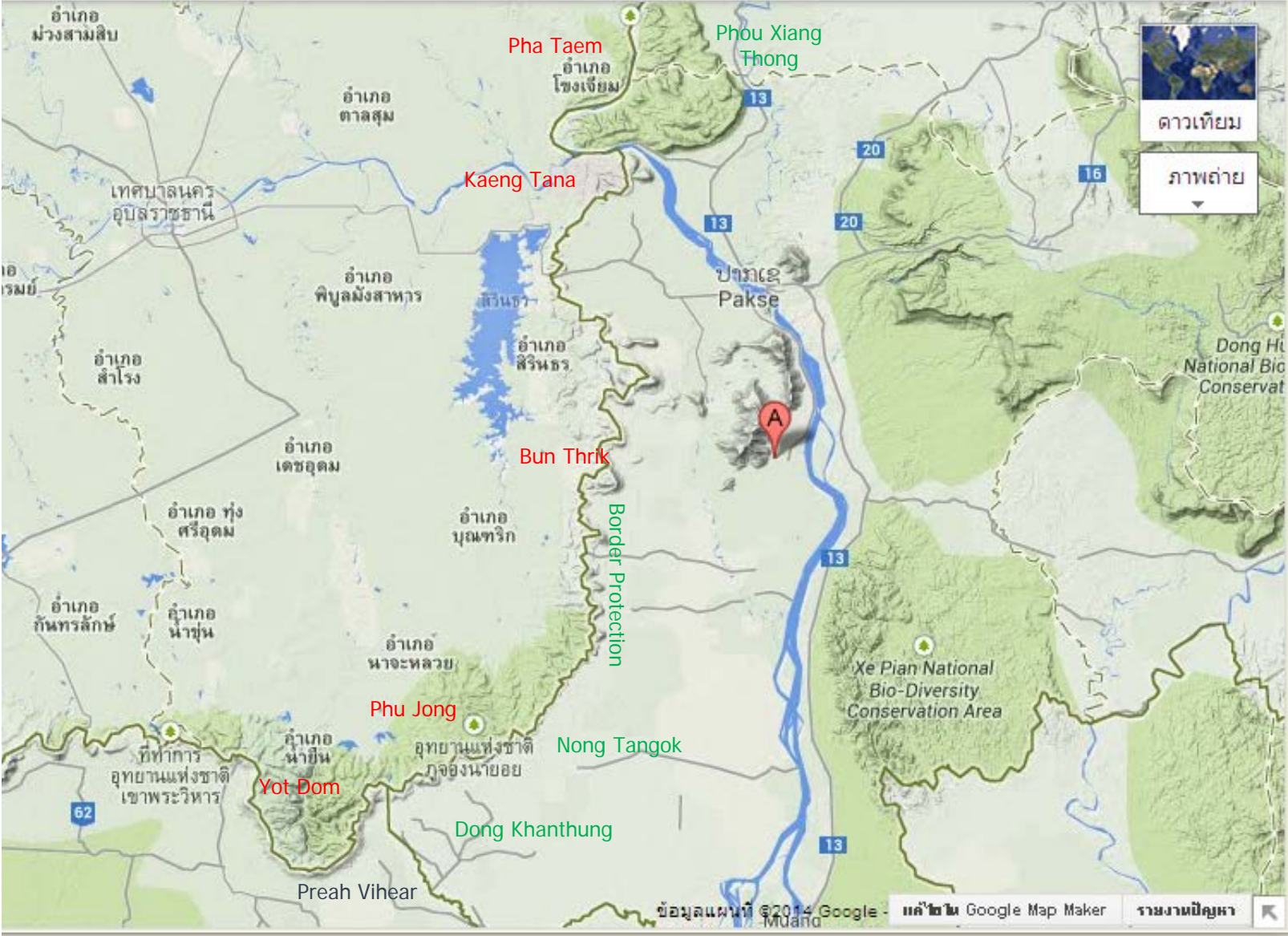
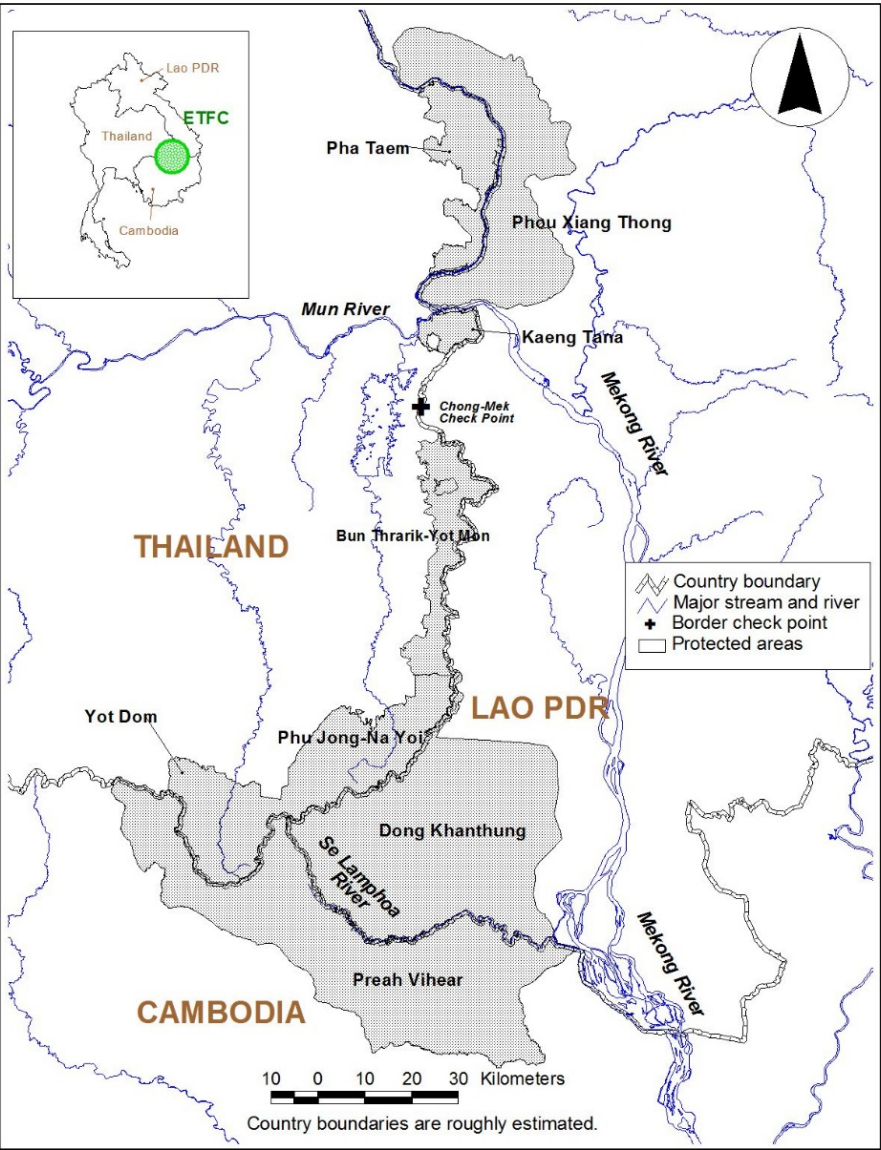


Naris Bhumpakphan & Yongyut Trisurat
Faculty of Forestry, Kasetsart Univ.
6 March 2018

1. Emerald Triangle Protected Forests Complex: ETPFC



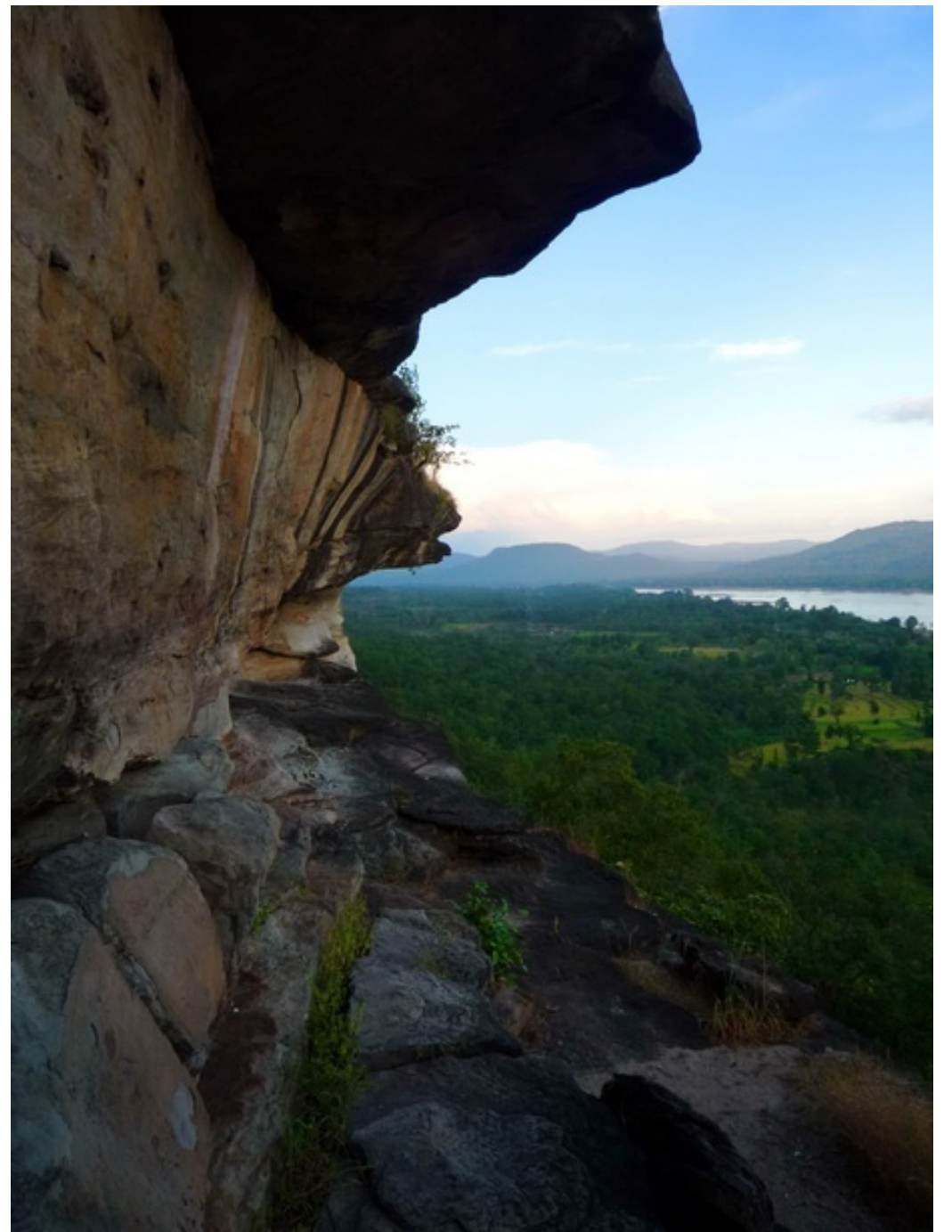
Large Protected Reserve (6,536 km²) of Indochina Sub-region, with 50 Threatened wildlife and 10 Critical Endangered species under good collaboration between tri-countries!



Boundary & topography of the Emerald Triangle Protected Forests Complex

2. Significant of ETPFC

- Unique Biogeography
- Geomorphology & Habitat Heterogeneity
- Hot spot for Biodiversity Conservation
- Large reserves for long-term survival of Biodiversity
- Phataem painting, ca. 3000 years ago, is the largest cave art in Thailand
- Living museum for Research & Education
- Bio-Resources serve for people livelihoods
- First time of the Trans-boundary collaboration of Tri-countries





Large mammals roaming along the Mekong Forest Habitats:
Elephant, gaur, serow, sambar, barking deer and wild boar travel between Phou Xiangthong NBCA and Pha Taem NP. Cave art, *ca.* 3000 years ago at Pha Taem NP showed **elephant swimming across the river.**



Bun Thrik – Yot Mon WS



Yot Dom WS



Yot Dom WS

Gaur, elephant, wild boar and Asiatic jackal are uncommon and common in ETPFC reserves



Update wildlife species lists of ETPFC

Fauna Types	PPFC 2004	ETPFC 2014	PT	KT	BT	PJ	YD	PX	DK	PV 2010
Mammal	51	96	32	51	45	78	85	30	24	61
Bird	148	288	72	131	113	180	259	23	32	255
Reptile	34	81	34	56	38	72	71	15	22	78
Amphibian	14	30	15	22	16	21	28	7	8	12
Fish	29*	101	52	70	24	55	73	52	37	61
Total	276	596	205	330	236	407	516	127	123	467

Notes: PPFC Data obtained from Bhumpakphan 2004

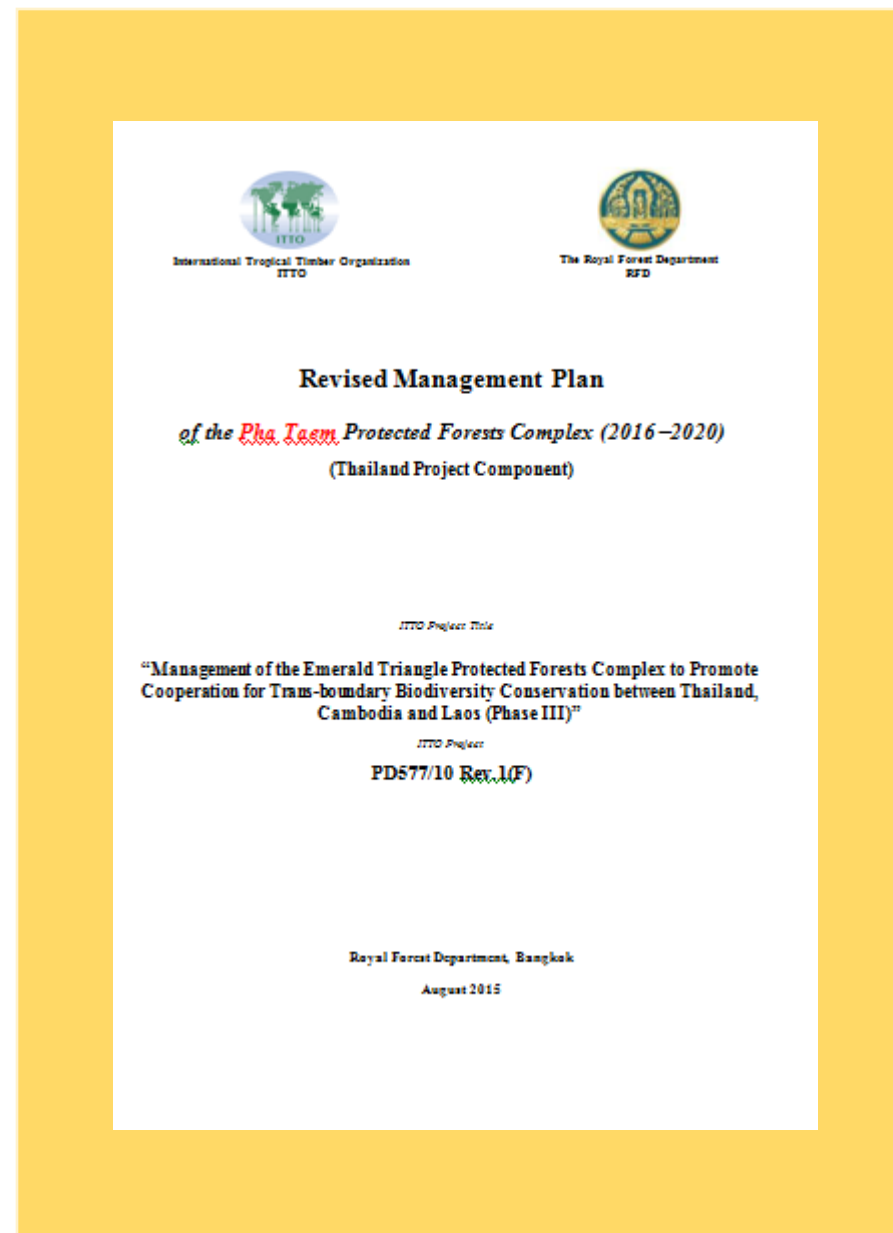
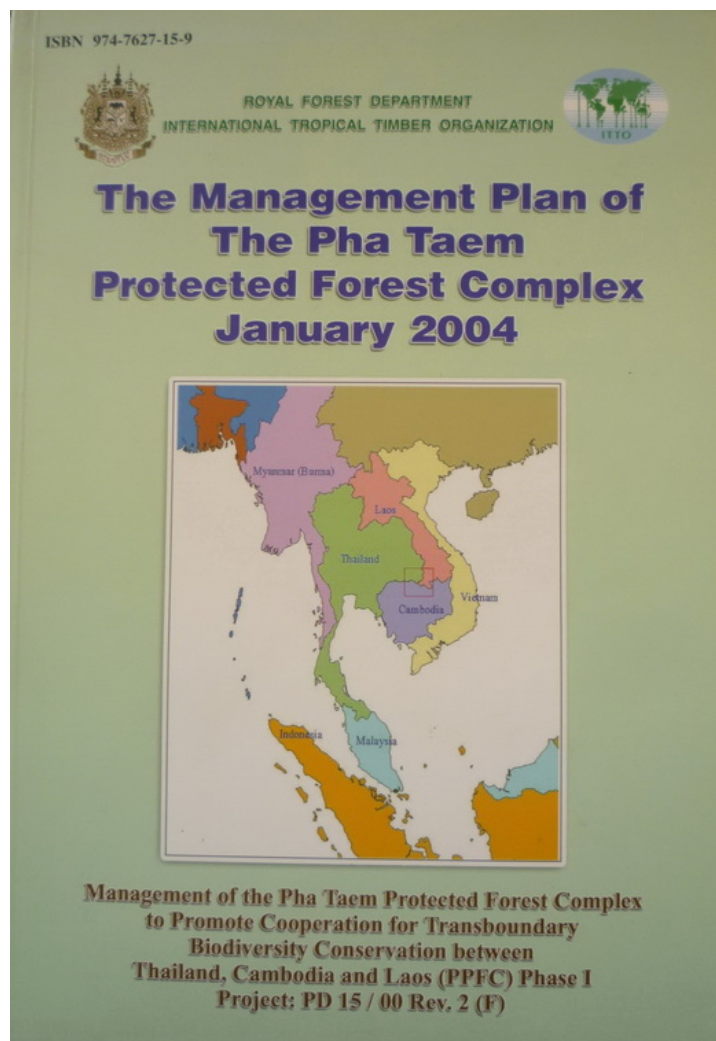
ETPFC Data from this Bhumpakphan 2015, including data obtained from Round 1998

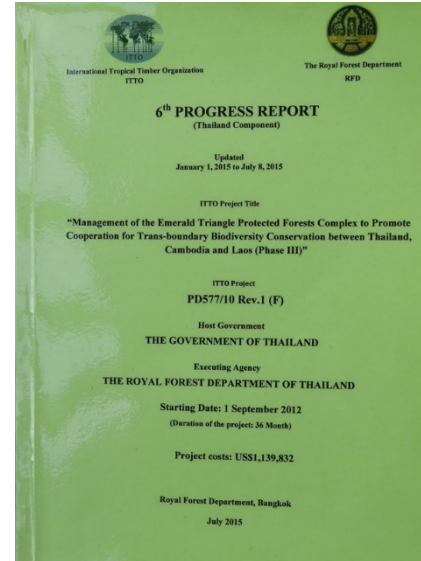
PV Data from Forest Administration 2010

3. ITTO's ETPFC Project

- Phase I (2001 - 2003)
 - Only Thailand run the project with support from Japan, U.S. & Switzerland
 - Landuse/ Forest & wildlife Research/ Socioeconomics of Phataem PFC
 - Created the Management Plan for PPFC (10 years plan)
- Phase II (2008 - 2010)
 - Thailand & Cambodia with support from Japan, U.S. & Switzerland
 - Project area cover trans-boundary of ETPFC
 - Biodiversity survey/research and improve local people livelihoods
- Phase III (2012 – 2015)
 - Thailand and Cambodia adding with Laos/ supported by Japan
 - Build up capacities for ETPFC staff in GIS and wildlife courses
 - Meeting, discussion, data and report sharing







ITTO Project PD 577/10 Rev.1 (F):
Meeting of Project Steering Committee (PSC)

4. ETPFC activities

- Management plans with research results on landscape species which compatible between tri-countries
 - Meeting/communication with Cambodia – Laos Project staff
 - MOU between to carried our research in ETPFC
- Capacity of multi-stakeholders in biodiversity conservation
 - Meeting/communication among Thailand PPFC staff
 - Build up capacities for ETPFC staff in GIS and wildlife courses
 - Collaboration with Protection Unit to prevent collecting of wild flora, wildlife poaching/ trade, and illegal log cutting
 - Workshop on patrolling & Training on Buffer zone management



Food Bank
& Nursery



Painting Competition
& Home Stay



Bamboo Plants
& Handicrafts



Implement activities linking **livelihoods improvement** to reduced dependence on resources of protected areas

- Local livelihoods improvement
 - Meeting & training local residents
 - Ecotourism & home stay
 - Food bank
 - Nursery and Tissue culture lab
 - Bamboo and handicrafts
 - Meeting workshop to discuss and to plan for mitigation on Human-elephant conflicts
 - Research compared between participating & non-participating households, participating one showing positive to ITTO project (Maneethong, 2015)



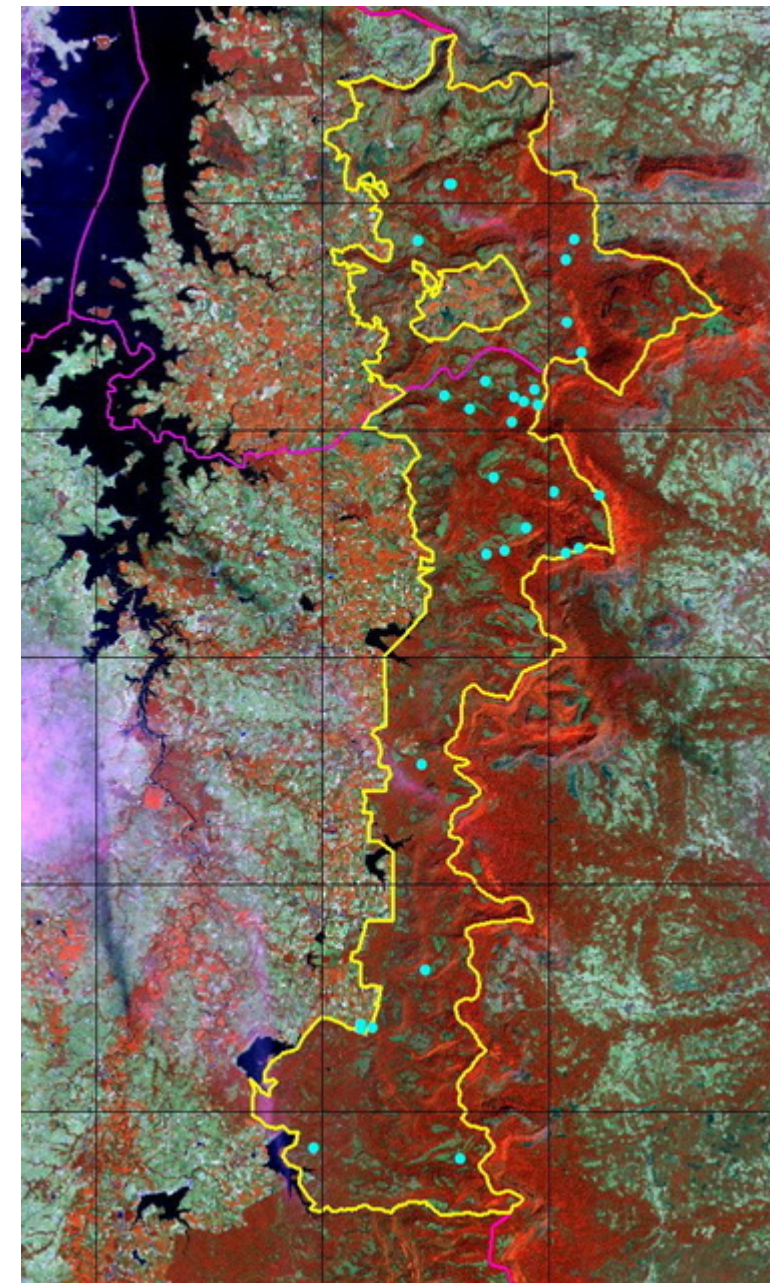
Reduce log cutting and unsustainable use of forest minor products replaced by new knowledge from tissue culture technique and good nursery to locals. Orchid called "Red Ubon" (*Doritis pulcherrima* var. *buyssoniana*) extirpated from Pha Taem & Phu Jong NPs, now they come back.....



Bun Thrik – Yot Mon WS

Elephant population

Totally now 50+ individuals of wild elephants distribution in Bun Thrik – Yot Mon, it is the large population in ETPFC.



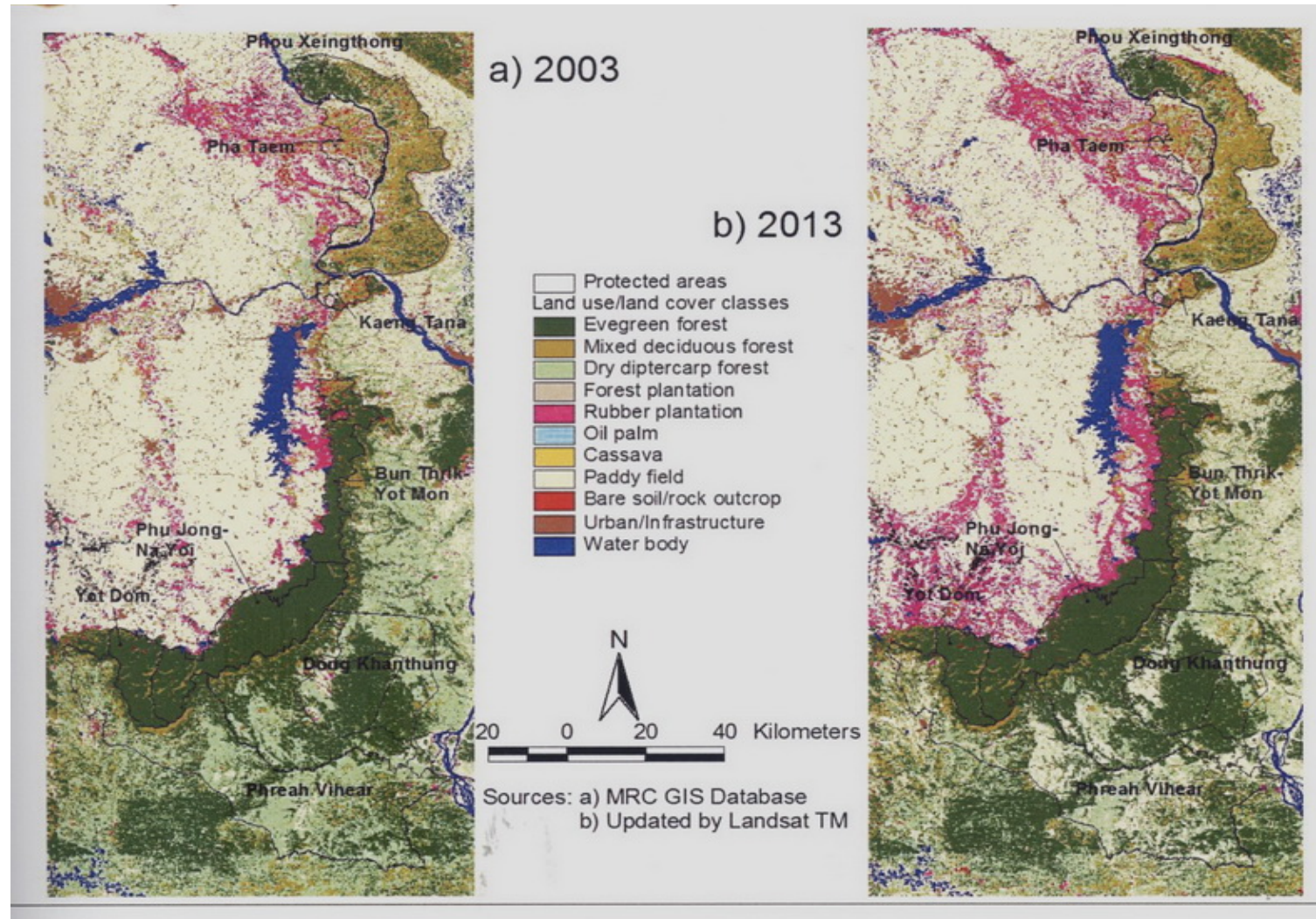
Wichit J.



Meeting workshop on mitigation of HEC at Bun Thrik – Yot Mon WS

There were 50 person from WS and local residents joined and shared with suggestion on HEC.

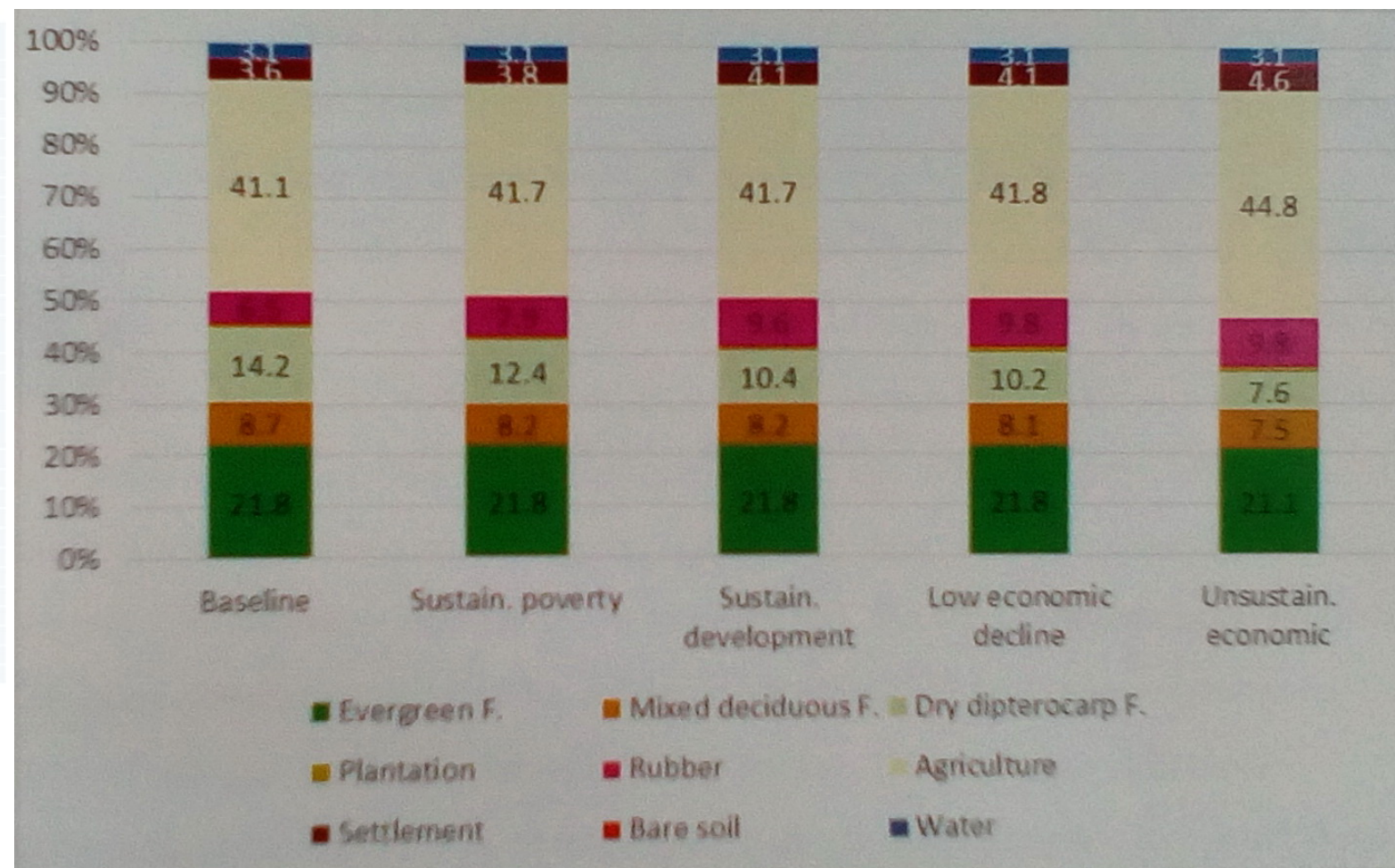
5. Landuse /Land cover /Species map



Yongyut has been worked on Landuse & map of ETPFC from Phase I to present

Land Use Scenario & Modeling

Scenario II			Scenario I			Class
High Population growth						
C11:	1.25%	Up 1.06	C11:	1.00%	Up 0.81	Settlement
C10:	0.02%	Down 0.02	C10:	0.02%	Down 0.02	Water
C9:	0.01%	Down 0.01	C9:	0.01%	Down 0.01	Rockout
C8:	0.00%	Same	C8:	0.00%	Same	Riparian
C7:	23.75%	Down 12.98	C7:	25.50%	Down 11.23	EGF
C6:	7.45%	Down 2.00	C6:	7.45%	Down 2.00	Deciduous
C5:	6.14%	Up 6.09	C5:	8.14%	Up 8.09	Bare Soil
C4:	19.88%	Down 11.00	C4:	15.88%	Down 15.00	Shrubland
C3:	5.85%	Up 5.85	C3:	5.00%	Up 5.00	Plantation
C2:	6.15%	Up 5.99	C2:	10.00%	Up 9.84	Oil Palm
C1:	1.75%	Up 1.75	C1:	2.00%	Up 2.00	Cassava
C0:	27.75%	Up 5.27	C0:	25.00%	Up 2.52	Paddy
Low Economic growth	100.00%			100.00%		High Economic growth
Scenario IV			Scenario III			Economic growth affected by:
C11:	0.58%	Up 0.39	C11:	0.85%	Up 0.66	Paddy
C10:	0.03%	Down 0.01	C10:	0.02%	Down 0.02	Cassava
C9:	0.02%	Same	C9:	0.01%	Down 0.01	Oil Palm
C8:	0.00%	Same	C8:	0.00%	Same	Plantation
C7:	30.39%	Down 6.34	C7:	29.25%	Down 7.48	EGF
C6:	8.15%	Down 1.30	C6:	8.25%	Down 1.20	Settlement
C5:	5.15%	Up 5.10	C5:	3.14%	Up 3.09	
C4:	26.95%	Down 1.00				
C3:	1.00%	Up 1.00				
C2:	1.00%	Up 1.00				
C1:	0.50%	Up 0.50				
C0:	26.23%	Up 3.00				
	100.00%					



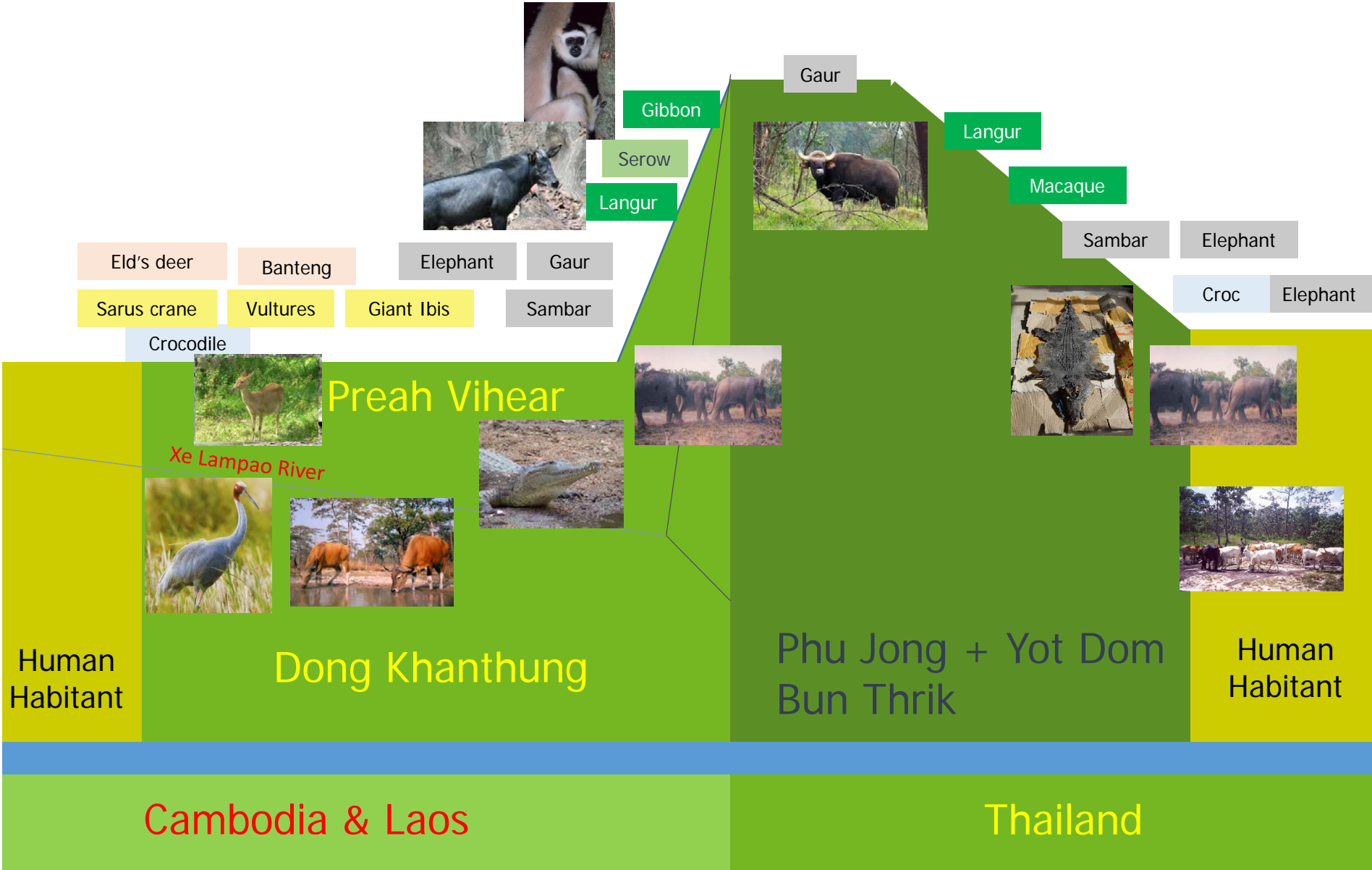
Trisurat (2015) has predicted LU change from 2013 to the year 2030

Joint Wildlife Research & Landuse Training



Class room training and field practices for technical staff of 3 countries.
Training for GIS & ground verification / Wildlife Training course and field survey.

Wildlife Distributions in Heterogeneous Landscapes



Species selection criteria

- 1) Having trans-boundary territory (>2 countries)
- 2) Regionally and nationally threatened status (IUCN)
- 3) Iconic or flagship for conservation
- 4) Adequate observation records (≥ 10 points; Wisz *et al.*, 2008)

* Important prey species



12 target species

Tiger

Leopard

Elephant

Gaur

Bantang

Sambar

Eld's deer

Giant ibis

Sarus crane

Lesser adjutant

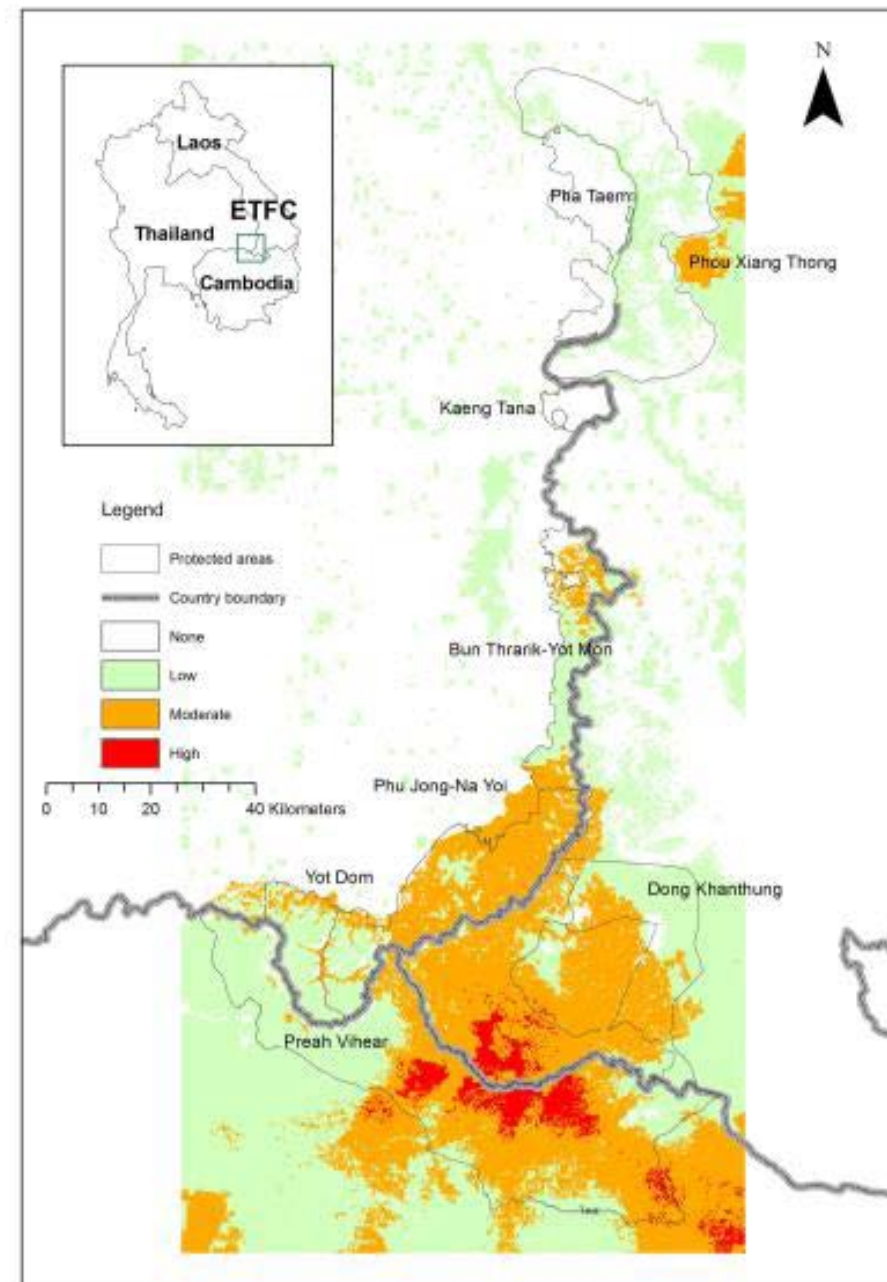
Wild boar

Barking deer





Inpaeng Duangvongsa

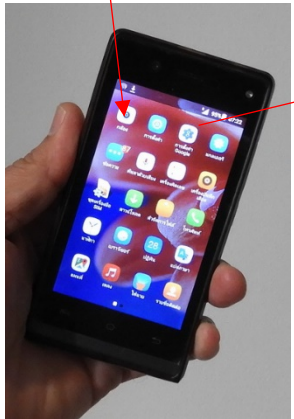


Wildlife habitat suitability in ETPFC, Xe Lam Phao river between Laos & Cambodia
Source: Trisurat 2015

6. Trans-boundary for peace & collaboration



"By 2020, Cambodia, Laos and Thailand will have established a common cooperative framework for the conservation and sustainable management of the ETFC of the GMS in order to strengthen the protection of the trans-boundary habitats of wide-ranging wildlife species and will endeavor to maintain the viability and ecological integrity of the forest ecosystems and increase its land use and climate change adaptation capability to transform the ETFC into an international symbol of TBCAs."



NCAPS to follow up illegal log cutting / wildlife hunting and transportation



Sensor GPS tracker

7. Future for ITTO Emerald Triangle Trans-boundary Biodiversity Conservation - Phase IV (Proposed Project duration 3 Years)



Thailand and Cambodia components revised and developed the new proposal for Phase IV at Kasetsart University's Faculty of Forestry on 26 September 2015. This was the last job of Khun Kamol Wisuprakan before he passed away.

Specific Objective:

- To expand and increase the protection of trans-boundary habitats of wide-ranging wildlife species and biological resources in the Emerald Triangle and increase opportunities for local communities to enhance incomes to reduce dependence on unsustainable resource use.

Development Objective:

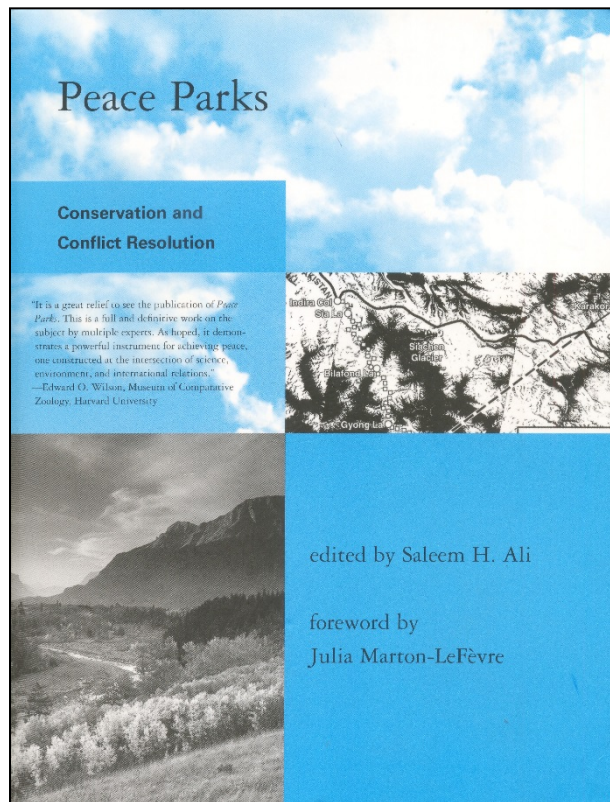
- To strengthen the conservation of trans-boundary biodiversity and sustainable natural resources management in the Emerald Triangle Protected Forests Complex between Thailand, Cambodia and Laos

Four Out put

- Management capacity of government officials and local authorities responsible for management of protected areas in the Emerald Triangle is expanded and strengthened
- Bilateral Trans-boundary Biodiversity Conservation Coordination
- Management plans incorporating research results on wide-ranging wildlife species, ecological processes and planned adaptations to climate change and projected patterns of land use throughout the trans-boundary area are established and integrated into management initiatives
- Local communities are supported in efforts to increase incomes through activities linking livelihood improvement with reduced dependence on protected area

8. Report and Publication





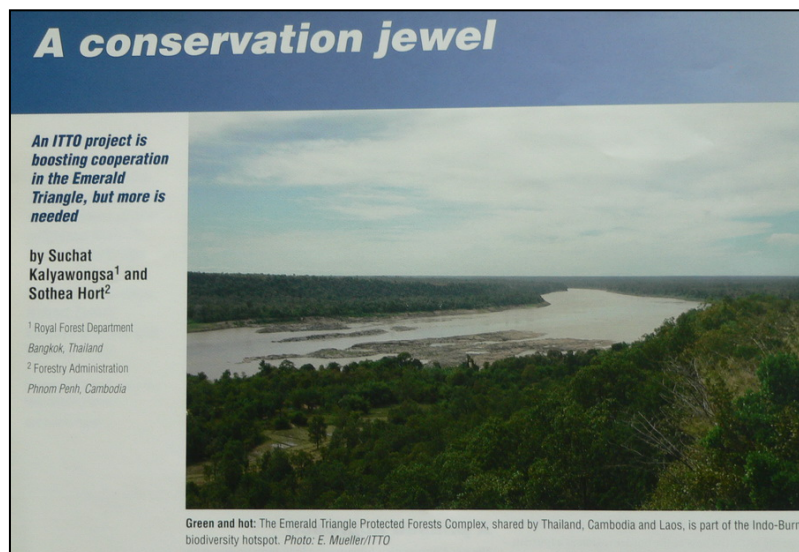
Trisurat, Y. 2007
Chapter 8,
pp: 141-162



Borderline decisions

Thousands of border disputes in the world's nations have caused noxious, invasive transnational borders and the loss of forests over territory and resources, even migration, over the passage of goods and services over shared ecosystems under the law. A good example was the recently disputed territory in the border region between Laos and Laos. In 1995, Laos and Laos signed a bilateral agreement to create a transboundary conservation zone in the region, allowing for the development and the development of a cooperation program between the two countries. The agreement was signed in 1995, and the area involved was 100,000 hectares. The area involved was 100,000 hectares.

Inside ► transboundary conservation ►
Council initiates more action ► more ...



An ITTO project is boosting cooperation in the Emerald Triangle, but more is needed

by Suchat Kalyawongsa¹ and Sothea Hort²

¹ Royal Forest Department
Bangkok, Thailand
² Forestry Administration
Phnom Penh, Cambodia



Green and hot: The Emerald Triangle Protected Forests Complex, shared by Thailand, Cambodia and Laos, is part of the Indo-Burma biodiversity hotspot. Photo: E. Mueller/ITTO

Application of Geo-informatics to Trans-boundary Biodiversity Conservation across Thailand, Lao PDR, and Cambodia

Yongyut Trisurat

Faculty of Forestry, Kasetsart University, Thailand

ABSTRACT

The objective of this paper was to elaborate the application of Geo-informatics for trans-boundary biodiversity conservation across Thailand, Lao PDR, and Cambodia under the Pha Taem Protected Forests Complex (PPFC) Project Phase I (2001-2004). This involved monitoring land use/land cover change, mapping distributions of selected wildlife species, and defining management zones. The results predict that forest cover in the PPFC landscape will continue to decline in the future, while agricultural area, especially in the buffer zone, will significantly increase. In addition, protected areas in the south of the complex and areas across the national borders contain relatively high to high suitability for landscape species while protected areas in the northern part provide relatively low suitability due to intensive human pressures. However, further clearing of forest could jeopardize the viability of rare large mammal species. Furthermore, ecological management zones were developed to provide a framework for trans-boundary biodiversity conservation in the adjoining protected forests and reducing the conflict of resource uses by local residents in the buffer zone. The outputs of Geo-informatics applications were providing valuable inputs to formulate long-term management plan of the PPFC and the formulation of the Project Phase II.

KEYWORDS

Pha Taem Protected Forests Complex; Trans-boundary biodiversity conservation; Ecological management zones; Geo-informatics

The Journal of Terrestrial Observation | Volume 1 Number 2 (Spring 2009)
17



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Applied Geography 29 (2009) 260–275



www.elsevier.com/locate/apgeog

Transboundary biodiversity conservation of the Pha Taem Protected Forest Complex: A bioregional approach

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Abstract

With the financial assistance from the International Tropical Timber Organization (ITTO), the Thailand's Royal Forest Department (RFD) has initiated a strategy for cooperation in transboundary biodiversity conservation with Cambodia and Laos. The Pha Taem Protected Forests Complex (PPFC) in northeastern region was chosen as a pilot project because of the increasing pressure on biodiversity from illegal trade in plants and wildlife across the tri-national borders. The PPFC covers five protected areas in Thailand and adjoins the Phuengphong National Biodiversity Conservation Area (NBA) in Laos and the Cambodia's Protected Forest for Conservation of Genetic Resources of Plants and Wildlife. Two important outputs derived from the project phase I (2001–2004) were a long-term management plan in a framework of transboundary biodiversity conservation and initiative cooperation between the three countries. Cooperation is achieved at certain level and Laos is reluctant to nominate the Phuengphong NBA for inclusion in the project's second phase. In addition, forest cover in buffer zone has been reconstructed for agricultural practices. The ecological management zones using bioregional approach was developed to provide a framework for transboundary biodiversity conservation in the adjoining protected forests and reducing the conflict of resource uses by local residents in the buffer zone. © 2006 Elsevier Ltd. All rights reserved.

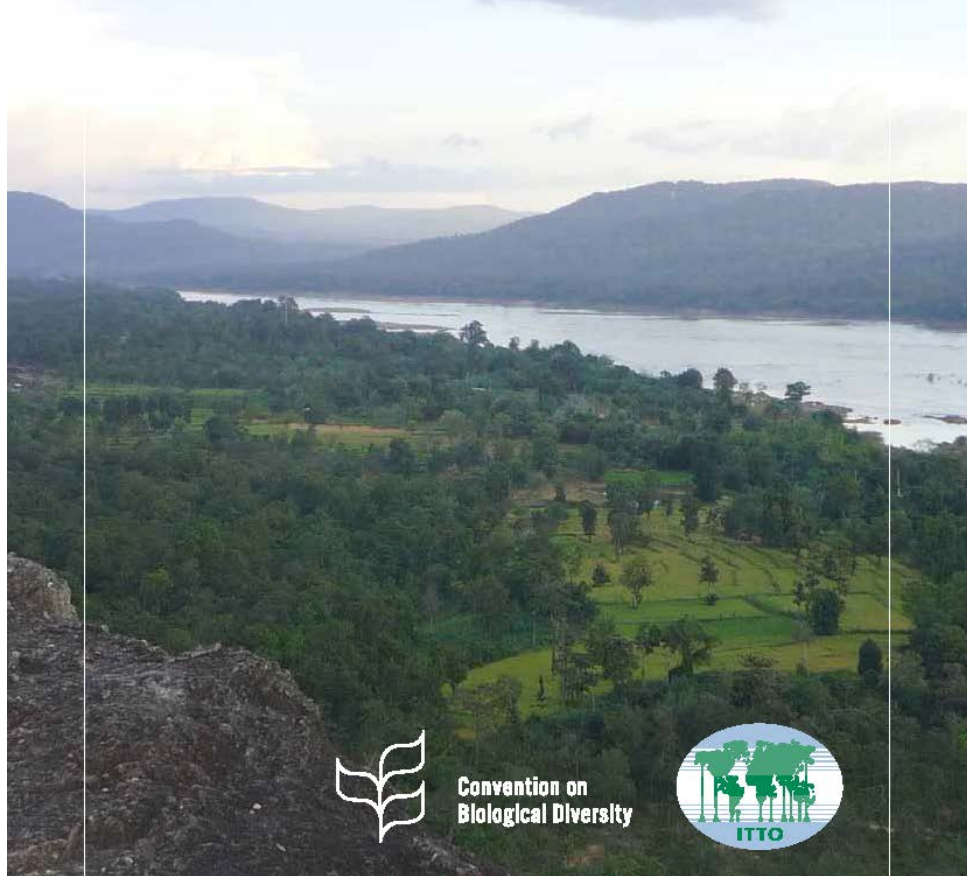
Keywords: Pha Taem Protected Forests Complex; Transboundary biodiversity conservation; Ecological management zones; Geographic Information System (GIS); Bioregional approach

TECHNICAL SERIES
46

THE BRIGHT GREEN HOTSPOT

Outcomes of the Emerald Triangle Protected Forests Complex project, 2000–2016

NOVEMBER 2017



Convention on
Biological Diversity



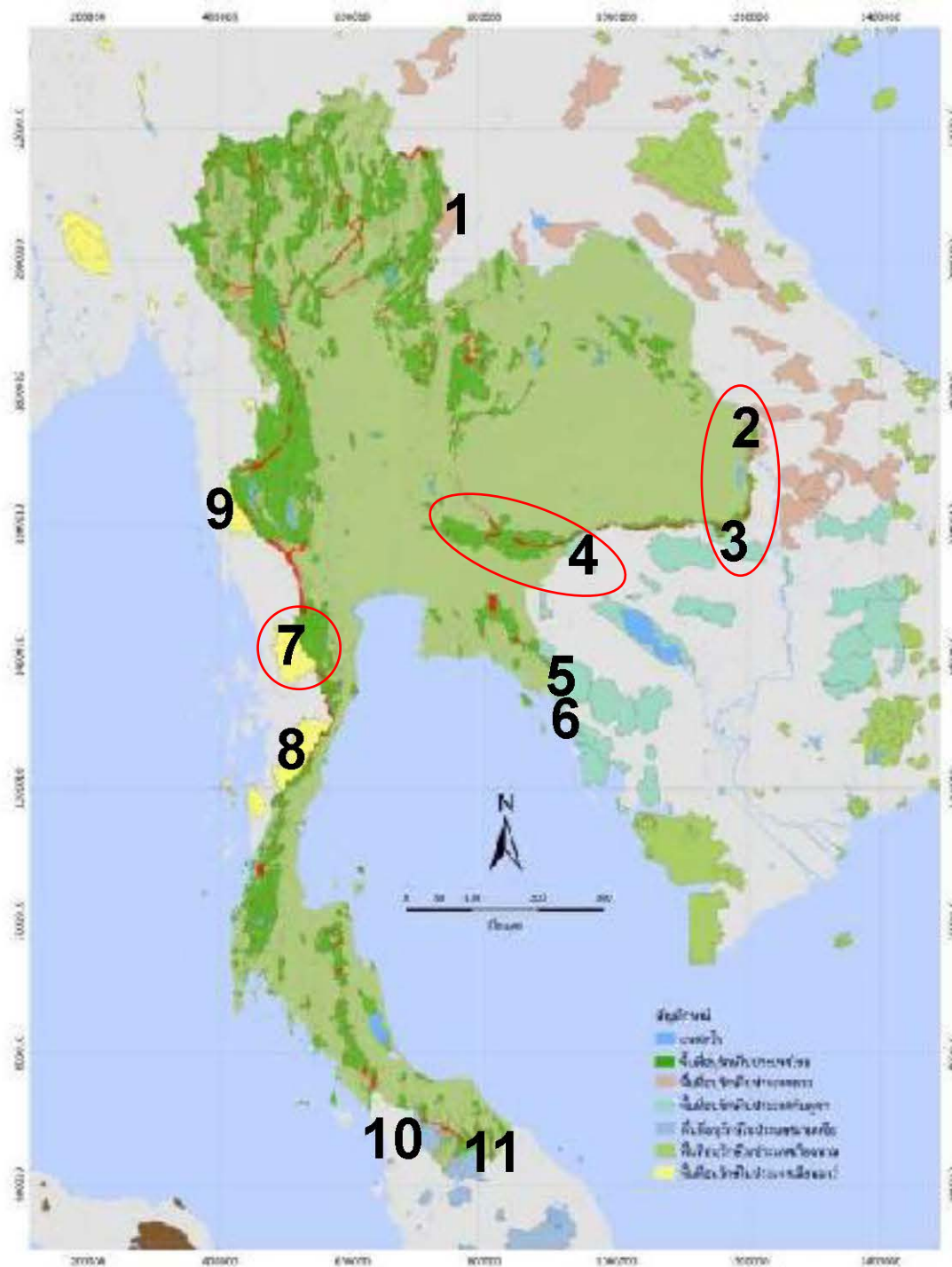
INTERNATIONAL TROPICAL TIMBER ORGANIZATION



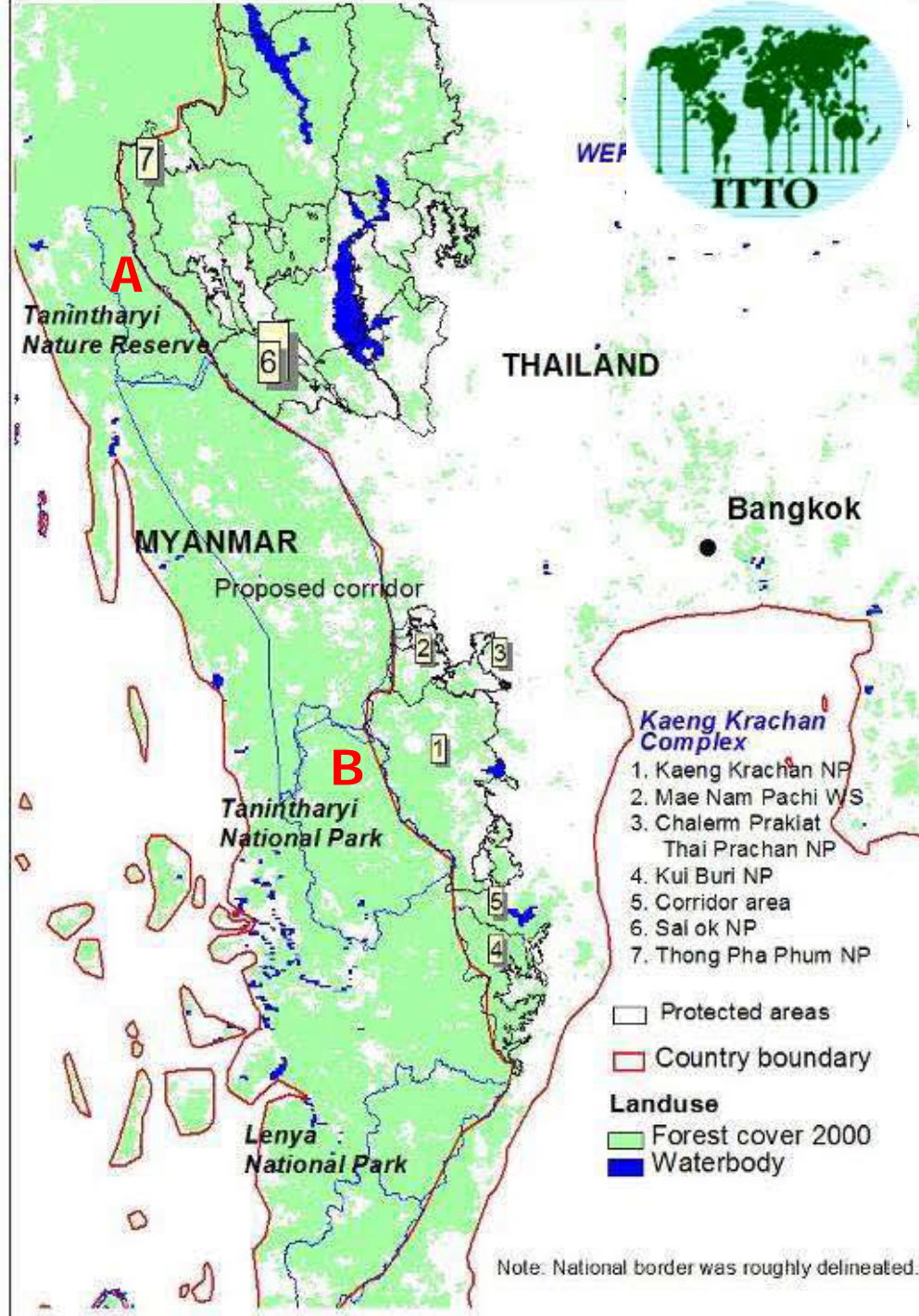
1. **Introduction** - initiative and the importance of trans-boundary conservation.
2. **LULC modeling** (Yongyut)
3. **Distribution of key species** (Yongyut)
4. **Wildlife corridor/conflict** (Naris/Thanet)
5. Ecology of **migratory species?**
6. **Offset forest use** with small business development-**ICDP**
7. **Future needs** for TBCAs
8. **Summary** (Thompson/Ma)

9. Lesson learn & Future for new TBCA

Transboundary PA of THAILAND and ASEAN



1. Nam Phoui National Biodiversity Conservation Area, Lao
2. Phou Xieng Thong National Biodiversity Conservation Area, Lao
3. Preah Vihear Protected Forest, Cambodia
4. Banteay Chhmar Protected Landscape, Cambodia
5. Samlaut Multiple Use Management Area, Cambodia
6. Phnom Samkos Wildlife Sanctuary
7. Tanintharyi National Park, Myanmar
8. Lenya National Park, Myanmar
9. Tanintharyi Nature Reserve
10. Ulu Muda Wildlife Reserve, Malaysia
11. Belum Wildlife Reserve, Malaysia



Tanintharyi (Tenasserim) TBCA

Myanmar – Tanintharyi Hills

- Tanintharyi NP (proposed) - **A**
 - Tanintharyi NR - **B**
- (3,910 km²)

Thailand – Kaeng Krachan Complex

- Mae Nam Pachi WS (2)
 - Chalem Prakiat NP (3)
 - Kaeng Krachan NP (1)
 - Kui Buri NP (4)
- (4,704 km²)

Total ~ 8,614 km²

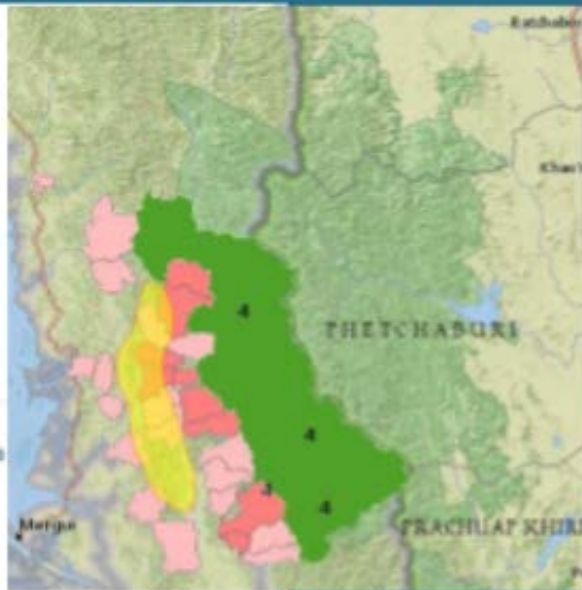
Management Plan for Tanintharyi National Park of Myanmar for 5 years (2017-2022)

> Proposed National Parks

< Village boundaries in or near the Tanintharyi and Lemya Proposed National Parks 1:50,000 2014 (FFI)

Displaying: FFI priority

- FFI forestry support priority village
- Other mapped village



By
Department of Forest Biology,
Faculty of Forestry,
Kasetsart University, 2016

- Tanintharyi NP & Kaeng Krachan Protected forest complex
- Dong Phrayayen –Khao Yai & Bantaey Chhmar

Thank you for your attentions

