

MAFF/MoE/WCS/WWF

**CAMBODIAN TIGER
CONSERVATION PROJECT**

Funded by:

Save the Tiger Fund

**A special project of the National Fish and Wildlife
Foundation in partnership with the
ExxonMobil Corporation**

Reporting by:

**Wildlife Conservation Society (WCS)
Cambodia Program**

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Executive Summary

- *WCS and WWF, in cooperation with the Ministries of Agriculture, Forestry and Fisheries (MAFF) and the Environment (MoE), began implementing conservation activities for the Tiger Panthera tigris in Cambodia in 1999.*
- *Supported by, among others, Save The Tiger Fund, activities began with a needs assessment. Lack of technical and physical capacity of government staff and an almost complete lack of quality field data were identified as the main areas to focus efforts.*
- *To date, the project has held three formal training courses within Cambodia and helped send three Government staff members to two international training courses. Over 40 MoE and MAFF staff from both the National and Provincial level have received training, along with staff from five Protected Areas.*
- *The first Khmer language training manual for field surveys and wildlife management has been produced. The comprehensive 90-page book is now freely available to all Government and NGO staff.*
- *Nine surveys were undertaken throughout Cambodia, covering an area of approximately 13,000 km² and employing over 30 people and 70 camera-traps, accumulating more than 11,000 camera-trap nights. Although Tigers were confirmed on six of the nine surveys, all areas contain depressed populations, some of which are unlikely to be viable in the long-term.*
- *After the first year of survey work, the critical status of Tigers throughout the country became clear. In response, the focus of attention on writing a Countrywide Action Plan for Tigers was shifted towards developing immediate conservation strategies for those areas considered to still maintain conservable populations.*
- *The result is that on-the-ground conservation strategies were initiated in four key sites (Northern Plains, Virachey NP, Phnom Prich Wildlife Sanctuary and Samling forestry concession, Mondulkiri Province) with national level efforts being backed by the project. Site-based activities include law enforcement, hunting patrols, awareness and education programs and monitoring of Tigers, their prey, and human activities.*
- *The project has provided support to the development of a new Wildlife Law which is currently at the final stage of approval, providing a legal framework to strengthen all wildlife conservation activities. Furthermore, WCS has been working with the World Bank and the Department of Forestry and Wildlife (DFW) to develop a more rigorous Biodiversity Guidelines for Concession Management.*
- *Support from SAVE THE TIGER FUND has been used to lever further investment into conservation in Cambodia. The results of surveys funded by SAVE THE TIGER FUND have justified applications for major projects to the World Bank and UNDP/GEF for three key areas. Two of these – for the Northern Plains and Samling Mondulkiri – have already been approved.*

- *A cooperative analysis of all Tiger data is currently under way. All data from MAFF, MoE, WCS, WWF, CI and FFI are being collated and analyzed and will be published as a co-authored paper by those involved.*

CONTENTS

Page	Contents
1	Executive Summary
2	Contents
3	List of Acronyms
4	Introduction and Project Objectives
5	Figure 1. Map of Cambodia indicating location of survey sites
6	Capacity Building/Training
7	Capacity Building/Training Continued
8	Capacity Building/Training Continued
9	Capacity Building/Training Continued
10	Surveys
11	Table 1. Summary survey information and Surveys Continued
12	Table 2. Summary of camera-trap and foot survey data
13	Table 2. Continued + Figure 2. Initial Regression Analysis
14	Figure 3. Comparative Survey Data
15	Survey Results
16	Figure 4. Overview of Tiger and Prey Records: Northern Cambodia
17	Figure 5. Overview of Tiger and Prey Records: Eastern Cambodia
18	Figure 6. Overview of Tiger and Prey Records: Bokor/Kirirom NP's
19	Figure 7. Overview of Tiger and Prey Records: Southern Monduliri
20	Figure 8. Overview of Tiger and Prey Records: Chhep
21	Conservation Activities
22	Conservation Activities Continued
23	Other related conservation activities/outputs of note
24	References
	Appendices
I	Staff Members of Project
II	A report from the GIS Training in Bogor, Indonesia
III	Confirmed records of wild-living Tigers in Cambodia
IV	List of Accompanying Reports and Resources
V	Tiger Pictures Taken by DFW/DNCP/WCS Teams

ACRONYMS

CALM	Conserving Areas through Landscape Management
CAT	Cat Action Treasury
CI	Conservation International
CITES	Convention on the International Trade in Endangered Species
CTIA	Cambodian Timber Industry Association
DNCP	Department of Nature Conservation and Protection
DFW	Department of Forestry and Wildlife
FFI	Fauna & Flora International
GEF	Global Environment Facility
GIS	Geographic Information Systems
IUCN	International Union for Conservation of Nature and Natural Resources
MAFF	Ministry of Agriculture, Forestry and Fisheries
MoE	Ministry of Environment
MLMUPC	Ministry of Land Management, Urban Planning and Construction
NFWF	National Fish and Wildlife Foundation
NGO	Non-Governmental Organisation
NP	National Park
NTAP	National Tiger Action Plan
NTFP	Non-timber Forest Product
PAO	Protected Area Office
PFWD	Provincial Forest and Wildlife Department
WPO	Wildlife Protection Office
WCS	Wildlife Conservation Society
WS	Wildlife Sanctuary
WWF	World Wide Fund for Nature/World Wildlife Fund
UNDP	United Nations Development Programme

INTRODUCTION

This report is intended to report on the activities of the WCS/WWF/MoE/MAFF Tiger conservation project which is part-funded by the SAVE THE TIGER FUND. A background to the project, a justification of methods and activities, and proposal for future activities, are detailed in the original project proposal, to which this report refers.

Within this report, additional documents, materials and photographs that are submitted together as part of the overall SAVE THE TIGER FUND reporting requirements are referred to. A complete list of these submissions can be found in APPENDIX IV. All documents have also been provided on a CD-ROM as either an ADOBE ACROBAT, MICROSOFT WORD or QUARK EXPRESS file, depending on the nature of the original document. All photographs are in JPEG format.

Although SAVE THE TIGER FUND funding was provided after the initiation of the project, all activities are summarized here.

The original proposal submitted to the SAVE THE TIGER FUND stated six specific objectives. All of the objectives have been reported on in this document.

OBJECTIVES (FOR ALL THREE YEARS OF THE PROJECT):

1. *To establish a team that will be responsible for spearheading research and conducting tiger surveys within Cambodia. Following the creation and implementation of the NTAP, the team will continue to monitor tiger and prey populations and evaluate the effectiveness of the NTAP.*
2. *To conduct training workshops to provide team members and protected area and forestry staff with the necessary background and tools to assess the status of tigers and their prey.*
3. *To map and set priorities for surveying tigers in existing forest areas both inside and outside protected areas.*
4. *To conduct tiger surveys in high priority areas that will establish the relative abundance of tigers and their prey, as well as the threats to tigers.*
5. *To develop a tiger information database including current & historical data on which future activities and decisions on tiger conservation can be based.*
6. *To hold official workshops with the government, to analyze current and historical data in order to draft, produce and implement a National Tiger Action Plan for Cambodia.*

September 1999

For the first 12 months of the project, activities focused on two main areas: *Capacity Building* and *Surveys*. While the overall aim was to gather sufficient information to develop an Action Plan for the conservation of the Tiger in Cambodia, training was seen as the essential first step.

The map overleaf indicates the sites of influence of the project. TABLE 1. summarises the information for the sites.

CAPACITY BUILDING

As late as 1999, the ability of MoE or MAFF staff to undertake a field survey of mammals or who understood the basics of large mammal conservation, was limited to a few individuals. During the planning stages of the project with both Ministries it was decided that intensive training courses followed-up with opportunities to practice techniques should be offered to a large number of people, not just a select few. In addition to both Ministries formally requesting training for many of their staff, a number of other advantages of holding this kind of training were apparent:

1. Those participants who showed particular commitment or aptitude could be hired as long-term project staff members;
2. The technical and physical capacity of both the relevant government departments (Department of Nature Conservation and Protection (DNCP) in MoE and Department of Forestry and Wildlife (DFW) in MAFF) could be assessed more accurately so that future project demands don't draw too heavily from the offices, putting increased pressure on those staff remaining;
3. Departmental staff from the provinces could be invited to assess local capacity and identify potentially effective staff members;
4. Areas of particular weakness can be identified and incorporated into future training courses.

Thus, the Bokor National Park training course was designed and offered to national and provincial staff from both Ministries. The course - a tiger survey and conservation techniques training workshop - was held from January 10th to 26th. This brought together eighteen central and provincial Cambodian government staff from the central offices of Protected Area Office (PAO) MoE, Wildlife Protection Office (WPO) MAFF, Provincial Forestry & Wildlife Departments (PFWD) in Battambang, Monduliri, Siem Riep, and from four protected areas; Bokor, Virachey and Kirirom NPs and Snoul Wildlife Sanctuary. The course was coordinated by Dr Tony Lynam (WCS Thailand), and in country by Joe Walston (WCS Cambodia), and WCS counterparts Men Soriyun (WPO - MAFF) and Net Neath (PAO - MoE), with assistance from Tongbai Chareodong (WCS Thailand) and Seng Teak (WWF Cambodia). It involved a week of classroom based instruction followed by a week field survey. The participants from both central and provincial level generally performed well. However, the backgrounds, educational levels and experiences of the trainees ranged widely, making it a difficult task to bring the group to the same level of understanding and competence with the subject material taught.

Following the training course all participants undertook the first ever field survey of Tigers and other mammals of Bokor NP and had the chance to put theory into practice. This was then followed by further surveys (see next section) where many, but not all, participants worked with WCS and WWF in other parts of the country, notably Kirirom and Virachey National Parks and southern Monduliri Province. Here they began to practice other components of conservation management including project planning, budgeting, staffing, data analysis, report writing and the development of conservation activities. This process recognized the need for more targeted training in report writing and data analysis, so a workshop specifically for these areas was organized by WCS in Phnom Penh, to include all participants of the original training in Bokor who had continued work on other projects.

The workshop, from 29th May – 1st June 2000, also included other members of projects who were not originally involved but who would clearly benefit from the training. Thirteen participants attended, including staff from both Ministries, central and provincial offices, and staff of four protected areas – Kirirom, Virachey and Bokor National Parks, and Snoul Wildlife Sanctuary. The workshop was again led by Dr Tony Lynam, assisted by Joe Walston, Men Soriyun, Net Neath, and Seng Teak and Andy Maxwell (WWF). The objectives of this workshop were:

- to review available information on tiger status and distribution in Cambodia
- conduct the first analyses of data from field surveys
- write reports on the field surveys
- map and set priorities for surveying tigers inside and outside protected areas
- discuss the technical and logistical challenges associated with the field programs
- develop a database management system for storing all relevant field data
- follow-up actions required to address threats to tigers
- coordination among tiger projects.

During the first part of the workshop the participants and workshop leaders discussed as a group the types of information that was gained from the field surveys, how this information can be summarized and represented, and how results can be presented in reports. In the second part of the workshop, the participants broke into smaller groups to prepare reports on the four tiger field surveys mounted during the previous year. The purpose of this report was to summarize the major topics covered during the workshop, and the overall findings from the first set of field surveys, which were presented in the group reports. For details on the content, participation and outcome of the work, see the attached reports (Lynam *et al.* 2000a and b).

Over the subsequent two years, these staff members were developing their skills and receiving further training whilst carrying out the activities of the project. The progress has been exceptional and the evidence is most apparent in the current capacity of government staff working in the project. From the initial basic training in map reading, data collecting and recording skills, the staff quickly progressed to a stage where training became diversified and specifically designed to meet the talents of the individuals. Consequently, people grew into positions for which their skills were most appropriate and which matched their personal ambitions. Thus, research-oriented staff received training on field work and gained more survey experience, whilst others keen to extend their data analysis and GIS skills worked more closely with specialists in Phnom Penh. Once roles became more clearly defined, specialist training was provided. Below are some examples of how WCS and WWF have extended the training supported by the SAVE THE TIGER FUND:

Men Soriyun (Wildlife Protection Office, MAFF). The most experienced of the Bokor NP training participants and now manager of the Southern Mondulkiri Biodiversity Conservation Project. Soriyun needed to extend his knowledge of survey techniques and gain more experience of how to use data to develop appropriate conservation strategies. To this end, Soriyun was invited to Sumatra to spend three weeks working with the WCS Indonesia Program team on their Tiger project and to learn more about how other teams tackle conservation issues. Soriyun worked with local project staff and with senior WCS researchers to see how methods used in Indonesia may be adapted to conditions in Cambodia. He also spent time with the USFWS-funded Asian Elephant project there and gained valuable training that is now being put to good use in Cambodia. Soriyun is now teaching many of the skills he learnt in his new role as a senior trainer of other staff members at a national and local level. This move from foreign-based training courses to national-lead training courses is a major output of the project.

Net Neath (Protected Area Office, MoE). After completing a Masters degree in the U.S.A., Neath joined WCS as their data manager and training specialist. Neath showed exceptional talents and interest in issues related to data collection, analysis and representation and was especially suited to a role working with GIS. However, in order to develop the GIS capacity of the project, he required further training. To this end, WCS sent Neath on a GIS course in Java, given by Eric Sanderson for regional WCS staff members. This was followed by further one-on-one training by Mike Hedemark, director of the WCS Laos Program, who helped Neath with database design and management.

Although Neath is a full-time counterpart to WCS, his skills are now helping his department in their other projects as well as other NGOs and other Ministries. Recently Neath helped train members of the WPO Cambodian Community-based Tiger Conservation Project in basic GIS skills and also lead further training of Bokor NP staff for WildAid. These are just two examples of how the project is helping other conservation efforts throughout Cambodia.

This component of the project is on-going, with training needs being identified at regular intervals, both for individuals and for groups. The design of the project so that it involves *both* Ministries responsible for wildlife conservation means that developing courses or workshops specific to a number of sites (inside and outside Protected Areas) or to a broad range of people can be done relatively easily. For example, it has allowed for training to be lead by staff from either Ministry, for MoE staff to work in forest concessions and MAFF staff to work in Protected Areas, and for workshops to be held under the banner of both Ministries. As the results of the surveys have shown, working with both Ministries is essential if Tiger conservation is going to be effective in Cambodia.

WCS, through the support from the SAVE THE TIGER FUND, has also been assisting other Tiger conservation activities of the Government. In 2000 the Ministry of Environment approached WCS for support in developing a proposal for a survey for Tigers and other large mammals in Lomphat Wildlife Sanctuary. WCS provided SAVE THE TIGER FUND-funded camera-traps as well as the salaries for project executants to enable the Ministry to undertake the work. Furthermore, the analysis and report writing was facilitated and assisted by WCS staff, and is provided in Folder 'Lomphat'.

In total, over 43 Government staff have received direct training from WCS in a variety of areas including data analysis, GIS use, field craft, survey techniques, monitoring protocol, wildlife ecology. Many of these staff currently work full-time within their Government offices or with other conservation NGOs.

Importantly, the WCS commitment to training is continuing beyond the lifespan of the project, with many of the best trained Government staff now leading on the training. An example of the progress made in this field has been the DFW magazine '*Forestry and Wildlife*' whereby eight of the last 12 published papers have been written by staff trained by WCS. Furthermore, for the first time for wildlife in Cambodia, Government staff have begun to publish in international journals as primary authors. Men Soriyun's '*The Status of Wild Cattle in Cambodia*' is a good example that has been acclaimed within the DFW and upheld as a model for other DFW staff. As the capacity of the WCS Cambodian staff increases, so has the demand for this expertise. Over the last 12 months, Government staff working with WCS have been requested to teach at a number of training courses and workshops:

<i>Staff Name</i>	<i>Training Course</i>
1. Net Neath	CAT Community-based Tiger Conservation GIS Workshop
2. Net Neath	WildAid Bokor N.P. 1 st Ranger Training Workshop
3. An Dara	WildAid Bokor N.P. 2 nd Ranger Training Workshop
4. Men Soriyun	CAT Community-based Tiger Conservation Camera-trap and survey training course, Koh Nhek District, Mondulkiri

Another major achievement of the training has been the promotion of staff within their own Ministries. The best example to date has been Men Soriyun from the Wildlife Protection Office of the DFW, who has received intensive training with WCS for the past three years. Soriyun, after being a counterpart to foreign-led surveys, is now the Government Project Manager of one of the DFW's largest wildlife conservation projects in the country, overseeing a staff of 32 operating a wide range of activities.

As the capacity of Government staff has increased, so have the training needs. Similarly, as activities have become more centred at two main sites, the research and conservation skills have needed to become more refined. While early work required broad skills and basic survey skills, staff now need training on more complex issues of developing monitoring programs, strategising, and long-term management planning. In order to meet this need, WCS asked Dr. Ullas Karanth to visit the Southern Mondulkiri Conservation Project in order to provide more specialist input and to train in some specific areas. Dr. Karanth's input was invaluable, not only in a technical sense as he helped guide the Tiger and prey monitoring design, but in increasing motivation and focus on the essential elements of a successful site-based conservation program. Dr. Karanth also ended his visit by speaking to assembled members of Government conservation staff at the DFW offices, as well as staff of other NGOs. The talk on Tiger conservation and what role research plays in conservation, was well received and gave a concerted boost to those working in the field who were shown, for the first time, how large mammal conservation *can* work in Asia.

Training Reports

Two reports document the early training activities of the project:

Lynam, T., Walston, J. and Poole, C. 2000. *Tiger Conservation and Survey Training Bokor National Park, Cambodia*. WCS Cambodia Program.

Lynam, T., Walston, J. and Poole, C. 2000. *Tiger Conservation Training Workshop Report*. WCS Cambodia Program.

SURVEYS

Baseline surveys to identify the location of important Tiger areas and to prioritize conservation efforts were the second major component of the project. Surveys of large parts of the country were undertaken using a variety of techniques, both direct and indirect. Figure 1. illustrates those areas that were surveyed by the project.

A total in excess of 400 man months were spent working in the forests of Cambodia by trained specialists. This can be doubled when accounting for the local guides and hunters who have also worked with the survey teams. These represent the most extensive and intensive surveys to be undertaken for any taxa in Cambodia, covering an area (to varying degrees of intensity) of approximately 13,000 km² and employing over 30 people and 70 camera-traps, accumulating more than 11,000 camera-trap nights. Reports on each survey were produced or are in preparation, with all Executive Summaries and Recommendations being written in Khmer. Furthermore, project staff have submitted their own personal reports to their Ministries after each survey [a list of reports are included at the end of this section].

In areas that were identified as being important for Tiger conservation, community surveys were initiated to understand in more detail local hunting trends, subsistence requirements, land-use and tenure issues and the utilization of forest resources. Currently, community-based work is continuing in Mondulkiri (WWF in Phnom Prich WS and DFW/WCS in Samling concession) and Preah Vihear (DFW/WCS in Chhep District). This work will form the basis of developing conservation strategies that are both culturally appropriate and which meet the needs of these communities.

The survey work has also received the attention of central Government. In May 202, His Excellency Chan Sarun, the Minister of Agriculture, Forestry and Fisheries (MAFF), Ty Sokhun, the Director of Forestry and Wildlife (DFW) and four other senior members of MAFF visited the project site in Mondulkiri and endorsed the work of the DFW and WCS. This high-level support also extended to the survey work undertaken, a point underlined by the Minister in his speech at the time where he expressly praised the camera-trap work that helped identify the Samling area as an important site for wildlife and called on the DFW and WCS to continue this work throughout Cambodia.

Five surveys were centered on Protected Areas, with WWF extending their surveys of Virachey NP to include adjacent forests. A further two surveys were almost entirely outside PAs, in forest concessions and unclassified land from where Tigers were reported or which were considered potentially important for Tigers and their prey. The ability of the project to survey any forested area in the country is entirely due to the project's cooperation with both Ministries and with private industry. Results of this cooperation are discussed in **Conservation Activities** and summarised within the attached Powerpoint entitled SAVE THE TIGER FUND.ppt. [converted to pdf for 5tigers.org]

TABLE 1. SUMMARY SURVEY INFORMATION

No.	Name	Province	Survey type	Time	NGO partner	Report
1	Bokor National Park	Kampot	Camera & foot survey	Jan/Feb 2000	WCS/ WWF	Net Neath <i>et al.</i> (2001a)
2	Kirirom National Park	Kompong Speu	Camera & foot survey	Mar/Apr 2000	WCS	Kong Kim Sreng <i>et al.</i> (2001)
3	Virachey National Park	Rattanakiri	Camera & foot survey	2000/2001	WWF	Seng Teak (2002)
4	Samling forestry concession	Mondulkiri	Camera & foot survey	Mar/April 2000	WCS	Walston <i>et al.</i> (2001)
5	Kulen Promtep Wildlife Sanctuary	Preah Vihear	Camera & foot survey	Dec 2000	WCS	Formed basis of UND/GEF application.
6	Chhep District	Preah Vihear	Camera & foot survey	Feb 2001	WCS	Formed basis of UND/GEF application
7	Koh Nhek District	Mondulkiri	Camera-trap only	April 2001	CAT/ WCS	CAT activity supported by WCS
8	Lomphat Wildlife Sanctuary	Ratanakiri	Camera & foot survey	April 2001	MoE	Net Neath <i>et al.</i> (2001b)
9	Phnom Prich Wildlife Sanctuary	Mondulkiri	Foot survey	May 2000	WWF	Timmins and Ou Ratanak (2002)

- For results and details of each of the surveys, see the associated report;
- Complete reports are available electronically in PDF format on the CD-ROM provided with this report;
- For further copies, information or unpublished data, contact Men Soriyun at DFW Cambodia or Andy Maxwell at WWF Cambodia.

Further, more focused, surveys are on-going in two main areas: Mondulkiri Province and the Northern Plains. WWF has been extending work into adjacent areas and into northern and central Mondulkiri. DFW and WCS continue to monitor southern Mondulkiri and have developed a detailed monitoring program which is currently defining follow-up conservation activities (see **Conservation Activities**) within the forest concession. In the Northern Plains, WCS with MAFF is extending survey coverage to the east of Kulen Promtep WS and through to Stung Treng Province under a new UNDP/GEF initiative that aims to prioritize sites throughout the Northern Plains and to develop conservation strategies.

For most areas the project has taken the two-stage approach of beginning with surveys that are geographically extensive and non-formal (i.e. not using transects or random camera-placements) to get broad baseline data on the presence/probable absence of Tigers and their prey species. This provides data that allows further, more intensive surveys, to be located in areas where Tigers were identified and which warrants a more labor intensive but more thorough investigation. In this way resources can be more efficiently used and coverage can be greater.

The survey results have been summarized within individual reports by the relevant support agency (WWF/WCS). However, in agreement with other conservation NGO's who have undertaken Tiger-related surveys, WCS is taking the lead on a nationwide review of Tiger and Tiger prey data. Although this process is on-going, summaries of the results from the WCS/WWF surveys are included overleaf:

TABLE 2 SUMMARY OF CAMERA-TRAP AND FOOT SURVEY DATA

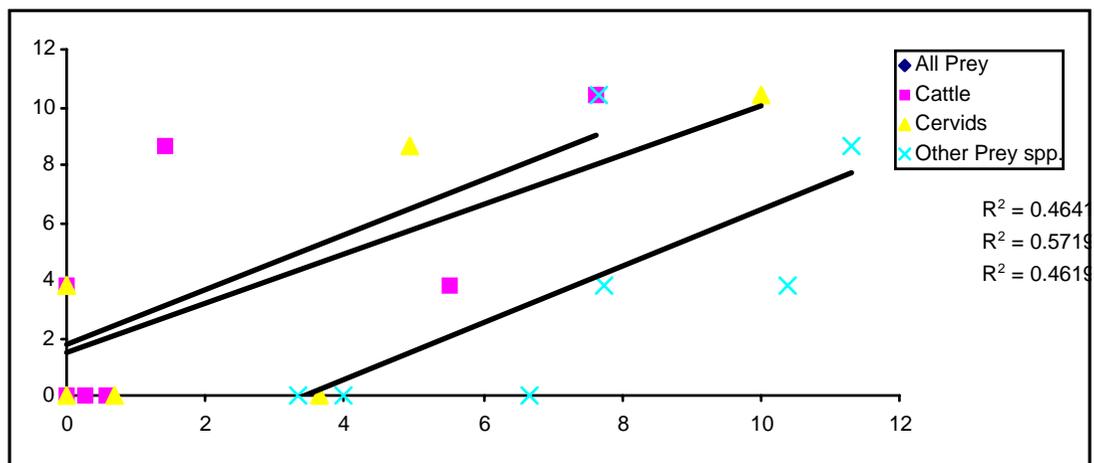
Cameras	Survey Effort		Tiger		Cattle		cat/ trail	cat/ salt	Cervid	cervid /trail	cervid /salt	Other Prey	Tiger/Trapnight		
	Trapnight	TrapN/ Trail	TrapN/ Salt	Pic	Indiv								/100TrapN	TrapN/ Tiger	/100 TrapN Trail
Virachey National Park, 1999-2001	3940			3	1	4			58			207	0.08	0.00	0.00
Bokor National Park, 2000	1242	925	77	0	0	0	0	0	0	0	0	96	0.00	0.00	0.00
Kirirom National Park, 2000	599	490	73	0	0	0	0	0	0	0	0	20	0.00	0.00	0.00
SL Concession, Mondulkiri 2000-01	1963	1331	619	6	3	147	19	128	193	70	123	148	0.31	221.83	0.45
Kulen Promtep Wildlife Sanctuary, 2001	707	226	481	1	1	10	3	7	35	1	34	80	0.14	226.00	0.44
Chhep District, Preah Vihear, 2001	1027			0	0	6			7			41	0.00	0.00	0.00
Chaom Ksan, Preah Vihear, 2001	796			0	0	2			29			53	0.00	0.00	0.00
Koh Nhek, 2001	248	178	71	0	0	32	8	24	0	0	0	13	0.00	0.00	0.00
Lomphat WS, 2001	490	140	105	0	0	27	8	2	0	0	0	51	0.00	0.00	0.00
Total	10976			10	5	228	38	161	322	71	157	709	0.09		

Signs	All/100 TrapN	Cattle/100TrapN			Cervid/ 100TrapN			Other/ 100TrapN	effort	Tiger	Cattle	Cervids			
		Overall	Trails	Salt	Overall	Trails	Salt					no	Sign/100Days	no	Sign/100Days
Virachey National Park, 1999-2001	6.83	0.10			1.47			5.25		6					
Bokor National Park, 2000	7.73	0.00	0.00	0.00	0.00	0.00	0.00	7.73	26	1	3.85	2	7.69	2	7.69
Kirirom National Park, 2000	3.34	0.00	0.00	0.00	0.00	0.00	0.00	3.34	47	0	0.00		0.00		0.00
SL Concession, Mondulkiri 2000-01	24.86	7.63	1.43	20.68	10.02	5.26	19.87	7.68	67	7	10.45	14	20.90	4	5.97
Kulen Promtep Wildlife Sanctuary, 2001	17.68	1.41	1.33	1.46	4.95	0.44	7.07	11.32	81	7	8.64	6	7.41	44	54.32
Chhep District, Preah Vihear, 2001	5.26	0.58			0.68			3.99	79	0	0.00	21	26.58	55	69.62
Chaom Ksan, Preah Vihear, 2001	10.55	0.25			3.64			6.66				1		1	
Koh Nhek, 2001	18.15	12.90	4.49	33.80	0.00	0.00	0.00	5.24							
Lomphat WS, 2001	15.92	5.51	5.71	1.90	0.00	0.00	0.00	10.41	26	1	3.85	4	15.38	2	7.69
Total					0.00			0.00							

TABLE 2 SUMMARY OF CAMERA-TRAP AND FOOT SURVEY DATA CONTINUED

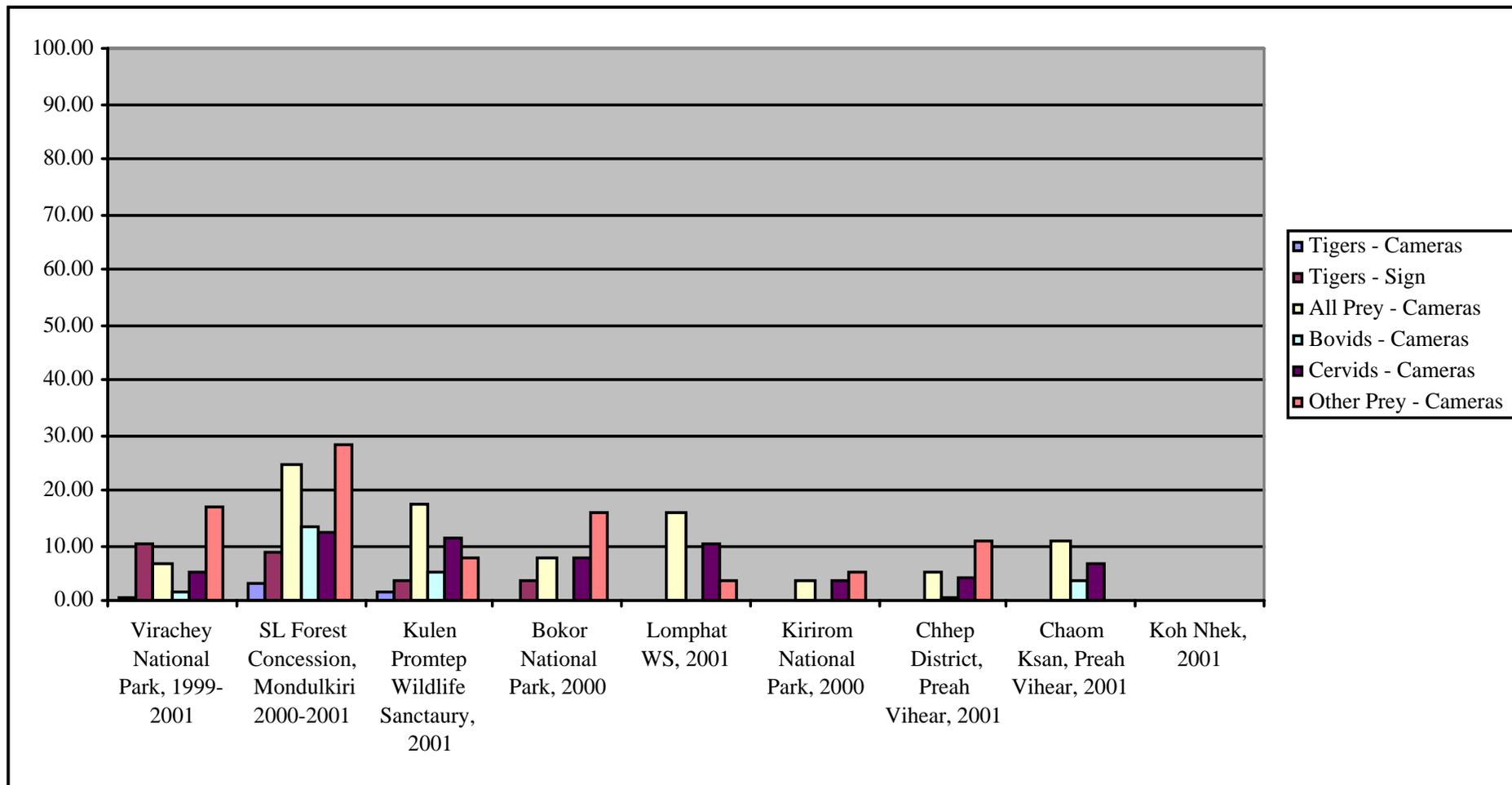
Survey Area	Tiger C/1000 TrapN	Tiger S/100 Days	Tiger Rank	C a m e r a s						
				All Prey	Cattle	Cervids	Other s	Sign	Sign Con	
Virachey National Park, 1999-2001	0.76			6.83	0.10	1.47	5.25	24.86	10.45	6.15
SL Concession, Mondulkiri 2000-2001	3.06	10.45		24.86	7.63	10.02	7.68	17.68	8.64	5.78
Kulen Promtep Wildlife Sanctuary, 2001	1.41	8.64		17.68	1.41	4.95	11.32	7.73	3.85	2.99
Bokor National Park, 2000	0.00	3.85		7.73	0.00	0.00	7.73	15.92	3.85	2.99
Lomphat WS, 2001	0.00	3.85		15.92	5.51	0.00	10.41	3.34	0.00	0.00
Kirirom National Park, 2000	0.00	0.00		3.34	0.00	0.00	3.34	5.26	0.00	0.00
Chhep District, Preah Vihear, 2001	0.00	0.00		5.26	0.58	0.68	3.99	10.55	0.00	0.00
Chaom Ksan, Preah Vihear, 2001	0.00	0.00		10.55	0.25	3.64	6.66			
Koh Nhek, 2001	0.00	0.00		18.15	12.90	0.00	5.24			

FIGURE 2. INITIAL REGRESSION ANALYSIS



Full data sets available upon request from WCS Cambodia Program

FIGURE 3. COMPARATIVE SURVEY DATA



Note: Koh Nhek Data is omitted here as sign data were not collected in a standardized format and final camera data has yet to be confirmed

SURVEY RESULTS

The data from the early surveys clearly indicated that Tigers were in far greater peril than previously thought in Cambodia. Where previously many Tigers had been reported, the surveys showed there were either very few, or in many cases, none at all. Incidents of misreporting, misidentifying sign, old data and mistranslation

Although not conclusive in themselves, the combination of intensive camera-trapping and standardized sign surveys did discover that many reports referred only to a single animal (often repeatedly reported) in an area. In fact, in only one place was evidence found of more than two Tigers. Conversely, records of Tiger killings between 2 and 5 years ago were commonplace. In these areas a lack of recent Tiger killings was attributed by local people to the loss of Tigers rather than an increase in enforcement or education.

It was clear that an immediate strategy to protect known pockets of forests with Tigers in was a high priority. In discussions with the Government it was decided that the establishment of areas for protection should take precedence over developing an Action Plan document. This change of focus was widely accepted, as a national analysis of Tiger data with recommendations for conservation had recently been completed by Sun Hean as part of his Masters course at the University of Minnesota.

Survey Reports

Four reports document the survey activities of the project so far, one of which is still in preparation. The survey of Lomphat was an MoE initiative supported by WCS and WWF through the use of technical support and camera-traps supplied by the SAVE THE TIGER FUND:

- Kong Kim Sreng, Tan Setha and Prum Sovanna. 2001. *A wildlife survey of Kirirom National Park, Cambodia*. WCS/MoE/MAFF
- Net Neath, Tan Setha and Lynam, T. 2001. *A wildlife survey of Bokor National Park, Cambodia*. WCS/MoE/MAFF
- Net Neath, Kong Kim Sreng and Ou Rattanak. 2001. *A Survey of Tigers and other Large Mammals of Lomphat Wildlife Sanctuary, Cambodia*. DNCP/MoE.
- Walston, J., Davidson, P. and Men Soriyun. 2001. *A wildlife survey of southern Mondulkiri Province, Cambodia*. WCS/MAFF/MoE

The following Figures summarise data recorded for each of the project areas. Complete data sets available upon request:

- Figure 4. Overview of Tiger and Prey Records: Northern Cambodia**
- Figure 5. Overview of Tiger and Prey Records: Eastern Cambodia**
- Figure 6. Overview of Tiger and Prey Records: Bokor/Kirirom NP's**
- Figure 7. Overview of Tiger and Prey Records: Southern Mondulkiri**
- Figure 8. Overview of Tiger and Prey Records: Chhep (Preah Vihear)**

CONSERVATION ACTIVITIES

One of the project's objectives was to develop a tiger information database into which current and historical data could be entered, and on which future activities and conservation decisions can be based. To this end, WCS has developed such a database and a series of protocols and metadata requirements that not only covers Tigers and their prey, but allows for entry of all terrestrial wildlife information, including birds, small mammals, reptiles and amphibians. The MICROSOFT ACCESS database now has coding for all potential species, is standardised with GIS projections used in Cambodia, and now includes more than 6,000 entries. All data are checked, standardised and managed by an information specialist and are linked to the WCS GIS capacity. In order to standardise data to be entered and to ensure quality standards, specific data sheets have been developed in Khmer language for data sets relating to wildlife, human activities, vegetation, interviews, geographical and physical features such as roads, human habitations and agriculture. Training in the use and completion of these data sheets has been an on-going activity throughout the project.

The database, datasheets and GIS capacity are not mutually exclusive products and cannot easily function alone. Similarly, without careful, constant management the value of the system as a whole is greatly reduced. Therefore, in order to expand the value of the database to Government bodies and NGO's, while maintaining its integrity and congruity, the database is made freely available to those who request all or parts of it. While data entry is strictly controlled, submission of data is encouraged and facilitated by the provision of datasheets and training, and the entire data sets are then made available. This 'limited entry/open access' database now combines the work of DFW, DNCP, WCS, WWF, CAT and CI to cooperatively produce a Biodiversity Database for Cambodia, based at WCS but owned by all.

Efforts were made to design and initiate conservation activities during the middle of 2000. While prescribing conservation interventions during the projects inception was considered imprudent, the project and the Cambodia Programs of WCS and WWF by then had the technical capacity and relationship with the government to allow identified threats to be tackled immediately. One of the first sites to receive attention was the Samling forest concession in Mondulkiri Province.

The DFW/WCS survey of the east of the concession in 2000 took four photographs of Tigers and many of prey species, namely Banteng *Bos javanicus*, Gaur *Bos gaurus*, Red Muntjac *Muntiacus muntjac* and Sambar *Cervus unicolor*, some of them conservation priorities in their own right. The area is an exceptional area for large mammal conservation in Cambodia and has high potential for wildlife conservation if hunting is reduced and logging continues to be selective, as it currently is. At the same time as the survey, two Tigers were killed in the concession and sold in trade. WCS immediately approached Samling and the Department of Forestry to discuss ways in which Tigers -and thus a host of other species in the concession- could be conserved. As a result of these discussions Samling have agreed to ban the hunting, transportation and consumption of wildlife and their derivatives by their staff and have agreed to import domestic beef to supplement existing provisions. Furthermore, Samling are including hunting as an illegal activity to be monitored by their patrol staff and are reporting incidents to local DFW staff. With WCS support and Samling support, DFW are also stepping-up controls by manning a Samling checkpoint on the main road through the area, to begin to crackdown on wildlife trade, guns and other hunting apparel. Through the original work funded by the SAVE THE TIGER FUND and the US Fish & Wildlife Service, the World Bank has provided financial support to the southern Mondulkiri area and further efforts are being planned with other donors and Government bodies which influence conservation. For example, the Ministry of Land Management, Urban Planning and Construction (MLMUP) is responsible for implementing the new Land Law throughout the country. Thus, MLMUP is a key agency influencing conservation management and a body that WCS is keen to include in its project planning and execution.

The DFW, WCS and the World Bank are now building on this start and working towards a landscape level conservation project for the Samling concession area. This landscape potentially

represents the single biggest opportunity for effective large mammal conservation in Cambodia. It also represents another truth about large mammals in Cambodia: which is that projects have to have the support of both Ministries, and in many cases private industries, for conservation efforts to be effective in the long-term.

Cooperation with the WPO/CAT Community-based Tiger Conservation Project has been operating at a number of levels. WCS continues to provide occasional training input when requested on both a formal and informal basis. A good example of this occurred in April 2001. The WPO/CAT hunter patrol teams had received reports and located possible tracks of Wild Water Buffalo in Koh Nhek District Monduliri. However, evidence was equivocal and the project did not have the capacity to gather confirmative data, so the team decided to approach WCS for immediate assistance. Within one week, eight WCS camera-traps were taken to Koh Nhek by a joint WCS/WPO/CAT team, where WCS trained the Tiger team in camera-trap use and placement and then set the camera-traps to attempt to photograph the buffalo. After 4 weeks, the same team collected the cameras, completed the datasheets, and developed the films where upon they discovered that they had been successful in confirming the country's only remaining population of Wild Water Buffalo. The confirmation is highly significant for large mammal conservation in the region and was a perfect example of how cooperation between the two programs is working for conservation.

One of the most significant results of the surveys that began in 2000 has been the development of the Southern Monduliri Conservation Project within the Samling Forest Concession. This initiative was motivated by the discovery of Tiger population and a healthy prey base inside the concession, which itself offered opportunities for wildlife conservation. Through negotiations with the Malaysian concessionaire, the DFW/WCS project began to develop a strategy based on the areas existing status as a forest concession. As part of that process, an international workshop was organised in Phnom Penh which included representatives from the Cambodian and Sarawak Forestry Departments, and Samling International and WCS. The workshop, the first of its kind in Cambodia, helped both to draw on similar experiences of concession-based conservation in Sarawak as well as gathering increased support for the initiative from within the Cambodian Government. The presentations and the results of the working groups were collated and published in both Khmer and English and accompany this report.

Similarly, SAVE THE TIGER FUND activities have provided the basis for a proposal to UNDP/GEF for support for the Northern Plains [Name: CALM Cambodia; Code: CMB/02/G41/A/1G/99]. This project, which has now been approved, aims to locate and conserve key areas across this massive landscape, including areas in Kulen Promtep Wildlife Sanctuary where Tigers are still present.

OTHER RELATED CONSERVATION ACTIVITIES/OUTPUTS OF NOTE:

- WCS and WWF supported the DFW in drafting a new Wildlife Protection Law to replace the current laws, some of which are inappropriate and unenforceable. The Law is expected to be passed by Government in the near future.
- The Bokor Training Course has initiated further interest in the Park and has encouraged WildAid to become involved in Ranger Training and wildlife protection with technical support from WCS. WildAid is now following-up on the WCS report's recommendations and is establishing a conservation program for the Park.
- The project's work in Kirirom National Park has motivated similar follow-up activities in Kirirom National Park, this time by a local NGO, M'lup Baitong (Green Shade). WCS is supporting M'lup Baitong with a number of education initiatives and a number of Government staff working with WCS are now visiting the Park to give informal talks and guides to increase awareness of the Park's wildlife. WCS also provides education materials and information to support local NGO's such as M'lup Baitong and is working to build the capacity and influence of such groups.
- Both WCS and WWF contributed staff, camera-traps and technical advice to the MoE for their Tiger survey of Lomphat WS. These staff were trained in Bokor NP and now work as counterparts for WCS and WWF. The report, recently published by the MoE, details this collaboration.
- MAFF and MoE, supported by WCS, published the first Khmer language guide to the Mammals of Cambodia, written by staff of both Ministries and lead by Men Soriyun. The book contains the photograph of a Tiger from Mondulkiri and includes information from the project on the status of Tiger in Cambodia. The book is being distributed (free of charge) to government agencies, NGOs, and local communities in Tiger areas.
- WCS is supporting the production of a Khmer language guide to wildlife and their products for the new CITES office. The book helps customs officers, and government staff to identify CITES listed species and is especially useful in helping identify Tiger body parts such as bone, teeth, penis and claws.

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- WCS Cambodia. 2001. *Workshop on Biodiversity Conservation in Concession Forests in Cambodia, Phnom Penh, June 2001*. DFW/WCS/CTIA. [Khmer language version]

APPENDIX I

List of staff members of who have worked full- or part-time on the WCS/WWF Tiger project.

WCS Cambodia Program

- Joe Walston, Project Coordinator

WWF Cambodia Program

- Andy Maxwell, Technical Advisor
- Seng Teak, Program Manager
- Rob Timmins, Consultant Conservation Biologist

Ministry of Environment

- | | Counterpart agency |
|--|---------------------------|
| • Net Neath, Data Manager and Senior Trainer | WCS |
| • Kong Kim Sreng, Field Officer | WCS |
| • An Dara, Field Officer | WCS |
| • Ou Ratanak, Field Officer | WWF |
| • Chak Sokavicheaboth | WWF |
| • Hout Piseth, Community Specialist | WCS |

Ministry of Agriculture, Forestry and Fisheries

- | | Counterpart agency |
|---|---------------------------|
| • Men Soriyun, Project Manager (SMBCP) | WCS |
| • Prum Sovanna, Field Officer | WCS |
| • Chuon Sereyvath, Provincial Project Officer | WCS |

Approximately 15 local staff are employed from local communities in or around the project sites.

APPENDIX II

A REPORT FROM THE GIS TRAINING IN BOGOR, INDONESIA

Net Neath

Department of Nature Conservation and Protection, MoE

March 2000

I left from Phnom Penh in February 6 in morning and arrived at Bogor, Indonesia at the same day at 6 pm. I stayed at Mirah hotel. The class took from February 7-18. The class hour is from 9 am to 4:15pm. The course was provided by WCS and taught by Dr Eric Sanderson from the WCS Living Landscapes Program. My place was funded by the WCS Cambodia Program.

The course was taught general basics of GIS. There were two sessions and assignments:

1. Theories which were covered in the morning. The topics were GIS basic concepts, data sources, spatial analysis and mega data, and presentation of geographic data.
2. Lab sessions that allowed all participants to practice general basic operations such as join tables, query, projections, using existing data, data integration and analysis and digitizing. A case study was an analysis of road density in protected areas in Uganda. The data sources were data layers of protected areas, rivers, country boundaries, park boundaries, roads, and areas of the parks of Uganda.
3. The assignments were assign-reading papers: The Geographic Information System for Storage and Analysis of Biodiversity Data by August *et al.*, Estimating Forest Elephant Numbers with Dung Counts and a Geographic Information System by Barnes *et al.*, Designing the core Zone in a Biosphere Reserve based on suitable habitats: Youngcheng Biosphere Reserve and the Red Crowned Crane by Wenjun *et al.* and An Ecology-Based Method for Defining Priorities for Large Mammal Conservation: Tiger as Case Study by Wikramanyake *et al.*

Besides every participant must presence their projects at the end of the course. In my case, my project was Setting Priority Sites for Tiger Survey in Forest Areas of Cambodia and the future planning would be Setting Priority Sites for Tiger Conservation in Cambodia.

The data sources that I used in my project, the setting priority sites for tiger survey in forest areas in Cambodia were Cambodian Tiger data from New York, USA (1999), the World art atlas from ESRI (1999), USA and the data from survey in January, 2000 in Bokor National park. The data layers that I used to create the GIS map were Cambodian- boundary, Rabinowitz_data, D- and-H cambo_data, lakes_rivers, rvres_lines, ic_tcu, Popdensity, road_rr shape file and bnp.txt file to combine with data from Rabinowitz and Duckworth and Hedges in order to obtain Cambodian tiger sighting data.

Since the data prepared by WCS, NY were for Indochina as a whole so I need Cambodian data layers only for my project. In order to get Cambodian data layers I clipped all data layers with Cambodian boundary that is I clipped Rabinowitz_data, D- and- H cambo_data, lakes_rivers, rvres_lines, ic_tcu, Popdensity, road_rr shapefiles. And the next step I intersected rivers data

layer with tcu data layers so all rivers fell within tcu and allowed me to calculate river density in different tcu polygons. Then I can look numbers of tiger sighting data as I merged them before in different river densities in tcu polygons.

The second step was to create internal buffers. This allowed me to look at numbers of tiger sightings at each 5 km away from the edges of the tcu that is away from human settlement. The last step was to intersected river density within tcu and internal buffers with human population density data layers in order to look at numbers of tiger sightings at different human population densities. The results showed that the highest river density was in Roniem Daun Sam (8.1 mJkm²) and the medium was in the southwest of Cambodia, from Bokor national park up to Kravanh mountain range (4.5 mJkm²) and the lowest was in the north and the northeast of Cambodia (3.6 mJkm²). But tiger sightings occurred more in the north and the northeast than other parts (Tiger Sightings at Different River Densities). Numbers of tiger sighting increase at 10 km away from the edges of TCU (Distribution of Tiger Sightings within Each 5 Km from the Edges of TCU). The number of tiger sighting is high at low human population density (Tiger Sightings in Human Density).

Tiger Sightings at Different River Densities indicates that number of tiger sighting increases as river density decreases this does not mean that there is not relationship between water sources and the presence of tigers but it may be because of low numbers of tiger sightings and some parts in the south has not been intensively investigated. The chart of distribution of tiger sightings at 5 km away from the edges of the TCU indicates that the number of tiger sighting decrease as we go further to 50 km away from the edge of TCU. This is not a surprise because not many people have been to the core areas and thus tiger sightings had not been reported. This phenomenon happens to human population density as well and the explanation is also similar.

Since I had a limited data about human settlement, information about poaching activities, encroachment and so I took river, buffering, tuc, human population density in my analysis. I came up with the proposed site for tiger survey as indicated on map, The Proposed Site for Tiger Survey.

My initial conclusions are the following:

1st Priority: Southern Mondulkiri, the Cardamom Mountain range, the area between Mondul Kiri and Ratanak Kiri, and the area between Boeng Per and Kulen Prom Tep

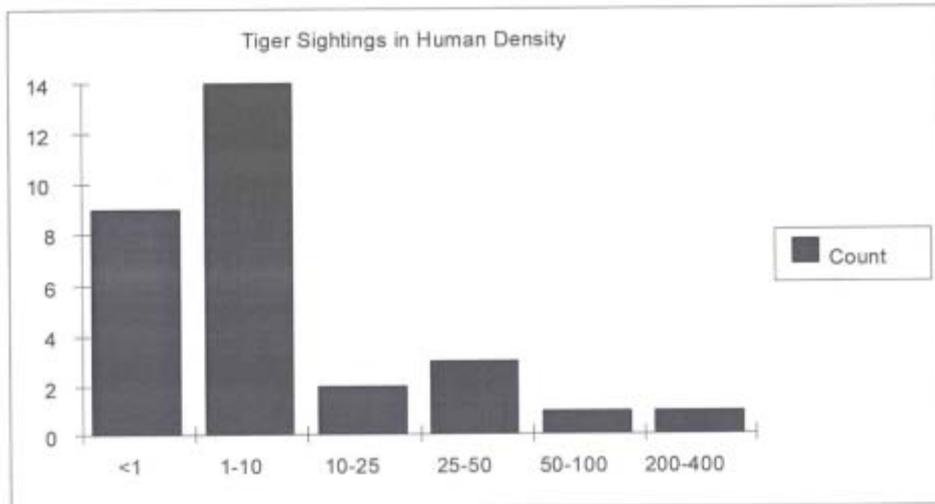
2nd Priority: Most of the north and northeast and some parts in south.

3rd Priority: Whole in Kompong Speu, Bokor and Kirirom, Phnom Aural National Parks. Refer to the map, Proposed Survey Site.

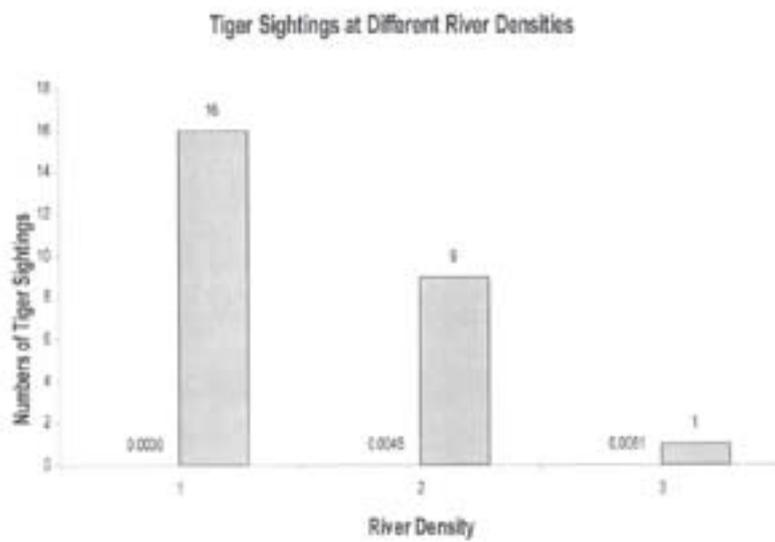
The survey should conduct at least 10 away from human settlements and other major populated areas. However this is not the final recommendation other factors should be combined such as security of the area, human pressure, protection levels and so on.

Suggestion for the future plan for tiger conservation in Cambodia Once we have data about tiger distribution, prey base in prioritized areas, levels of protection, human pressure, protection level in the future, security, accessibility and recommendation from conservational scientists then the suitable sites for tiger conservation should be proposed.

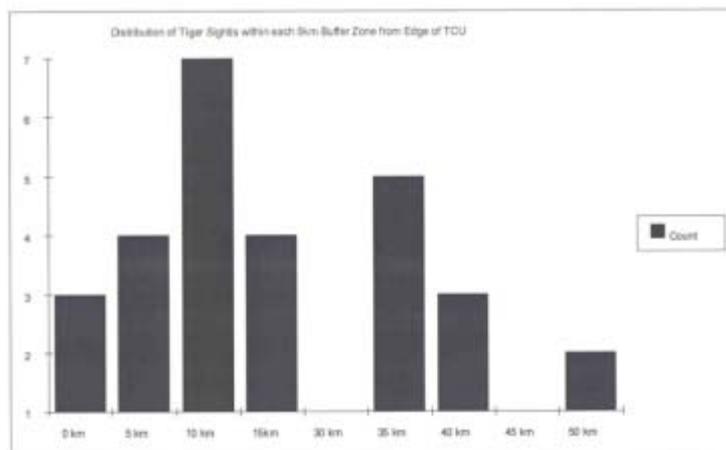
Preliminary Analysis Training: These allowed me to select data sets to use in my analysis:
Graph 1



Graph 2

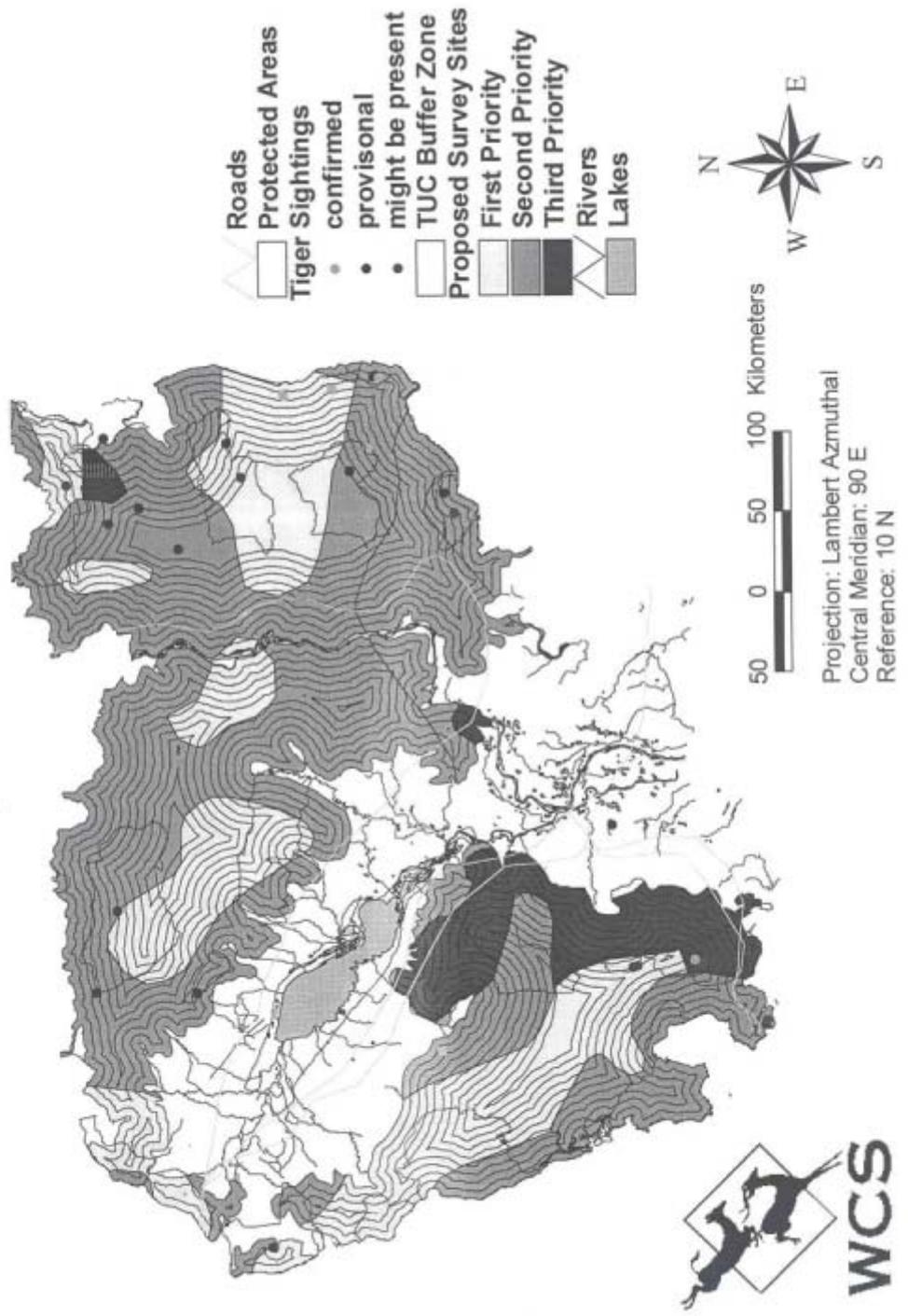


Graph 3



Map of final training analysis and suggestions for further survey sites:

Proposed Survey Sites



APPENDIX III CONFIRMED RECORDS OF WILD-LIVING TIGERS IN CAMBODIA (1999-2002)

The following table is exported from the MICROSOFT ACCESS Database and includes only those records for which sufficient supporting evidence was provided. Data provided by DNCP/DFW/WWF/CI and WCS.

SpCode	ScName	Location	Obs Type	DateRecorded	Total	Habitat Code	Data Source ID	Obs. Initial	UTM East	UTM North	Province
pan tig	Panthera tigris	Ban Lung and Tonle San,RT	T	18/05-03/06/96	1	SEF	MDRT	ADLV	659276	1503833	RATANAKIRI
pan tig	Panthera tigris	Phnum Nam Lyr, Mondulkiri	Pro	20/03-11/04/96	1	EF, SEF	MDRT	ADLV	770512	1376283	MONDULKIRI
pan tig	Panthera tigris	Srepok area,RT	T	25/04-16/05/96	1	MDF	MDRT	ADLV	767545	1416328	MONDULKIRI
pan tig	Panthera tigris	Sre Moi Roy, BNP	T	14/01/00	1	Gr	NCBNP	NNT	391700	1178950	KOMPOT
pan tig	Panthera tigris	Ochey, VNP	T	10/02/00	1	SEF, EF	HOVNP	ALM	667504	1593530	RATANAKIRI
pan tig	Panthera tigris	Ochey, VNP	T	12/02/00	1	SEF, EF	HOVNP	ALM	665271	1581305	RATANAKIRI
pan tig	Panthera tigris	Ta Veng,VNP	T	06/12/99	1	SEF	HOVNP	ALM	743901	1580801	RATANAKIRI
pan tig	Panthera tigris	Ta Veng,VNP	T	11/02/00	1	SEF	HOVNP	ALM	723779	1581561	RATANAKIRI
pan tig	Panthera tigris	O'Kaseap, BNP	T	23/01/00	1	EF	NCBNP	NNT	393263	1205959	KOMPOT
pan tig	Panthera tigris	coupe 3, Mondulkiri	T	25/04/00	1	SEF	SLMD	WDM	723337	1356927	MONDULKIRI
pan tig	Panthera tigris	coupe 3, Mondulkiri	T	25/04/00	1	SEF	SLMD	WDM	723133	1356931	MONDULKIRI
pan tig	Panthera tigris	coupe 3, Mondulkiri	T	25/04/00	1	SEF	SLMD	WDM	709064	1342341	MONDULKIRI
pan tig	Panthera tigris	coupe 2A, Mondulkiri	T	05/04/00	1	SEF	SLMD	WDM	726007	1350922	MONDULKIRI
pan tig	Panthera tigris	coupe 2A, Mondulkiri	T	05/04/00	1	SEF	SLMD	WDM	728107	1354563	MONDULKIRI
pan tig	Panthera tigris	SL1.10, Mondulkiri	P	15/05/00	1	SEF	SLMD	WDM	725039	1352696	MONDULKIRI
pan tig	Panthera tigris	SL1.13, Mondulkiri	P	15/05/00	1	SEF	SLMD	WDM	729066	1355027	MONDULKIRI
pan tig	Panthera tigris	SL1.4, Mondulkiri	P	13/05/00	2	SEF	SLMD	WDM	725943	1350763	MONDULKIRI
pan tig	Panthera tigris	O' Sam Leang, Lomphat WS	F	02/05/01	1	DDF	SLWS	NKO	691681	1462127	RATANAKIRI
pan tig	Panthera tigris	SL coupe 2A, Mondulkiri	T	14/02/01	1	EF	SLMD2	MSKKS	728983	1352746	MONDULKIRI
pan tig	Panthera tigris	SL coupe 8, Mondulkiri	F	20/03/01		DF	SLMD2	MSKKS	694564	1368250	MONDULKIRI
pan tig	Panthera tigris	SLM15, trail in Mondulkiri	P	18/03-22/04/01	1	SEF	SLMD2	MSKKS	724533	1347115	MONDULKIRI

pan tig	Panthera tigris	SLM9, road in Mondulkiri	P	14/02-17/03/01	1	SEF	SLMD2	MSKKS	728968	1352650	MONDULKIRI
pan tig	Panthera tigris	NW Rolum Cheung Spean, KPWS	T	06/12/00	1	DDF	KPWS	KKS	436203	1544422	PREAH VIHEAR
pan tig	Panthera tigris	Stoeng Sen, KPWS	H	10/12/00	1	SEF	KPWS	PS	465201	1544290	PREAH VIHEAR
pan tig	Panthera tigris	Phnum Pul, KPWS	S	10/12/00	1	DDF	KPWS	MS	434805	1551638	PREAH VIHEAR
pan tig	Panthera tigris	Keng Kong Stream, KPWS	T	15/01/01	1	MDF	KPWS	SP	418008	1568000	PREAH VIHEAR
pan tig	Panthera tigris	O' Memay, KPWS	T	18/12/00	1	SEF	KPWS	MS	442118	1567892	PREAH VIHEAR
pan tig	Panthera tigris	PVH-T13, Near a pond, KPWS	P	18/12/00-14/01/01	1	PND, SEF	KPWS	MS	443208	1567825	PREAH VIHEAR
pan tig	Panthera tigris	KPWS	T	19/12/00	1	SEF	KPWS	MS	442895	1567827	PREAH VIHEAR
pan tig	Panthera tigris	KPWS	T	19/12/00	1	SEF	KPWS	MS	443616	1569252	PREAH VIHEAR
pan tig	Panthera tigris	KPWS	T	20/12/00	1	SEF	KPWS	MS	440377	1568319	PREAH VIHEAR
pan tig	Panthera tigris	Prey Kokmorn area, Oddar Meanchey	I	21/08/01	2	DF	ICF OM	PB	314403	1564501	ODOUR MEANCHEY
pan tig	Panthera tigris	TS9, VNP	P	03/05-21/06/01	1	B, RF	O Krung	Seng Teak	743194	1584409	RATANAKIRI
pan tig	Panthera tigris	TS15, VNP	P	04/05-23/06/01	1	SEF, B	O Krung	Seng Teak	743280	1581385	RATANAKIRI
pan tig	Panthera tigris	TS12, VNP	P	04/05-23/06/01	1	SEF, B	O Krung	Seng Teak	743280	1581385	RATANAKIRI

APPENDIX IV LIST OF ACCOMPANYING REPORTS AND RESOURCES

CD-ROM: SAVE THE TIGER FUND WCS CAMBODIA PROJECT

NAME	FILE TYPE	ANNOTATIONS	SIZE
WCS Cam Report.pdf	Adobe Acrobat PDF	Copy of this report on MAFF/MoE/WCS/WWF <i>Cambodian Tiger Conservation Project</i> . Hard copies of this report accompany the CD-ROM	5.4 MB
WCS Cam Report.doc	MS Word	Full Word version of the above including maps	8 MB
WCS Cam Report Text.doc	MS Word	Same as above, though without GIS Maps embedded	300 kb
Final Report Maps (Folder)	Multiple	Copies of the Maps in PDF, MS Word and JPEG format.s	13.1 MB
KHMER FONTS FOLDER		Multiple Khmer fonts for use in reading the Khmer language files attached	1 MB
MONDULKIRI FOLDER			
SL Biodiversity English	MS PowerPoint	English language version of presentation made to Government and donors on the Samling concession project in Southern Mondulkiri	34 MB
SL Biodiversity Khmer	MS PowerPoint	Khmer language version of the above.	34 MB
Mondulkiri Brief	MS PowerPoint	Seven presentation boards which summarise the DFW and WCS work in Mondulkiri. Boards accompanied lecture in May 2002 to His Excellency Chan Sarun, Minister of MAFF.	10 MB
Mondulkiri Report	Adobe Acrobat PDF	Final published report of " <i>A wildlife and habitat survey of Southern Mondulkiri Cambodia</i> ", the first survey of the area in 2000. Hard copies accompany this CD-ROM	1 MB
TRAINING FOLDER			
Wildlife Training Manual	Adobe Acrobat PDF	The complete Khmer language translation of the Alan Rabinowitz Wildlife Training Manual. Due to its size (over 300 pages) a hard copy does not accompany this CD-ROM, though can be provided on request.	10 MB
GIS Training Presentation	MS PowerPoint	Accompanies APPENDIX II. Training presentation in basic GIS skills by Net Neath which focussed on identifying possible Tiger sites for future surveys, undertaken in 2000.	421 kb
1st Training Report	Adobe Acrobat PDF	Final published report on the " <i>Tiger Conservation and Survey Training Bokor National Park, Cambodia</i> " January 2000 by Lynam, Walston and Poole.	270 kb
2nd Training Report	Adobe Acrobat PDF	Final published report on the follow-up to the above: " <i>Tiger Conservation Training Workshop Report</i> " May 29th – June 1st 2000 Lynam, Walston and Poole.	2 MB
BOKOR FOLDER			

Survey Report	Adobe Acrobat PDF	Final published report of "A wildlife survey of Bokor National Park Cambodia" May 2001 by Net Neath. Hard copies accompany this CD-ROM	1.5 MB
Bokor Appendices	Adobe Acrobat PDF	Appendices to the above report	14 kb
LOMPHAT FOLDER			
Lomphat Report	Adobe Acrobat PDF	Final published report of "A Tiger survey of Lomphat Wildlife Sanctuary Cambodia" August 2001 by Net Neath, Kong Kim Sreng and Ou Rattanak. Hard copies accompany this CD-ROM	257 kb
Lomphat Pictures	Adobe Acrobat PDF	Photographs from the project	500 kb
Lomphat Maps	Adobe Acrobat PDF	Three GIS Maps of the Lomphat area indicating project activities	6 MB
PHOTOS FOLDER	JPEG Images	Photographs from camera-trap surveys as well as other project activities. Includes all Tiger photographs and most significant photo records of prey.	420 MB
WORKSHOPS + PRESENTATION			
Concession Workshop English	Quark Express .QXD	English language print-ready version of the "Workshop on Biodiversity Conservation in Concession Forests in Cambodia" 2001.	10 MB
Concession Workshop Khmer	Quark Express .QXD	Khmer language version of the above	10 MB
SAVE THE TIGER FUND.ppt	MS PowerPoint	English language presentation made to SAVE THE TIGER FUND and Government in 2001	64 MB

ACCOMPANYING PRINTED REPORTS:

1. Lynam, T., Walston, J. and Poole, C. 2000. *Tiger Conservation and Survey Training, Bokor National Park, Cambodia*. WCS Cambodia Program.
2. Lynam, T., Walston, J. and Poole, C. 2000. *Tiger Conservation Training Workshop Report*. WCS Cambodia Program.
3. Kong Kim Sreng, Tan Setha and Prum Sovanna. 2001. *A wildlife survey of Kirirom National Park, Cambodia*. WCS/MoE/MAFF
4. Net Neath, Tan Setha and Lynam, T. 2001. *A wildlife survey of Bokor National Park, Cambodia*. WCS/MoE/MAFF
5. Net Neath, Kong Kim Sreng and Ou Rattanak. 2001. *A Tiger Survey of Lomphat Wildlife Sanctuary, Cambodia*. DNCP/MoE.
6. Walston, J., Davidson, P. and Men Soriyun. 2001. *A wildlife survey of southern Mondulkiri Province, Cambodia*. WCS/MAFF/MoE
7. Seng Teak 2002. *Tiger and other large mammal surveys Virachey National Park* WWF Cambodia Program.
8. WCS Cambodia. 2001. *Workshop on Biodiversity Conservation in Concession Forests in Cambodia, Phnom Penh, June 2001*. DFW/WCS/CTIA. [English version]
9. WCS Cambodia. 2001. *Workshop on Biodiversity Conservation in Concession Forests in Cambodia, Phnom Penh, June 2001*. DFW/WCS/CTIA. [Khmer version]

APPENDIX IV TIGER PICTURES TAKEN BY DFW/DNCP/WCS TEAMS



**ALL PICTURES HERE ARE STORED
AT HIGH-RESOLUTION ON THE
ACCOMPANYING CD-ROM**

