

Summary Report: Wildlife Conservation Society

Project Title: Development of an Action Plan; Myanmar Tiger Conservation - II

Project #: 99 - 268 - 096

Grantee: Wildlife Conservation Society

Grant Period: November 1, 1999 to October 31, 2000

Report Period: November 1, 1999 to October 31, 2000

1. Background

Myanmar is the home of two tiger subspecies, i.e. Bengal tiger and the Indo-Chinese tiger. With its high percentage of forest cover and relatively low human population density, Myanmar is thought to possess the second largest population of tigers in Asia after India. However, the population count of both species was unknown and no systematic survey for tigers had ever been undertaken in the country until this study. Previously recorded numbers were based on scattered reports and information from local forest people and staff of the Forest Department, and extrapolated based on the amount of forest cover in the country. Although good forest cover is one of the important indicators for possible presence of tigers, tiger poaching and a lack of prey animals influence their populations.

Myanmar was presented an opportunity to find out more about their tiger populations when two experienced foresters were invited to attend the "Year of the Tiger Conference" in Dallas, Texas in February 1998. The outcome of attending the conference was that the three-year project, "Development of a National Tiger Action Plan for Myanmar," materialized and funding for the project was secured from the National Fish and Wildlife Foundation/Save the Tiger Fund. The WCS Myanmar Program duly submitted the project proposal to the Forest Department and the Ministry of Forestry. The Ministry, in turn, presented the project proposal to the Cabinet (the governing council of the Government) and it was approved on March 30, 1999 in meeting resolution No. 13/99.

This is the final report on the second year of the project.

2. Objectives

The objectives for the second year were:

- (a) To conduct tiger surveys in high priority areas to establish the relative abundance of tigers and their prey, as well as threats to tigers.
- (b) To develop a tiger information database, including current and historical data that will reflect future activities and policy decisions for tiger conservation.
- (c) Based on these data, overview, and recommendations, to develop a scientifically based National Tiger Action Plan for Myanmar (this objective is to take place mainly in year-three of the project).

3. Progress

(a) Work accomplished in the first year (March 1, 1999 to October 31, 1999)

In the first year of Tiger Survey Project, the actual fieldwork started May 15, 1999. Intensive surveys were completed in two areas, namely Alaungdaw Kathapa National Park and Htamanthi Wildlife Sanctuary. The first year surveys ended on October 31, 1999. Signs of tiger were found in both locations, and one tiger was recorded with camera traps in Htamanthi Wildlife Sanctuary. In Alaungdaw Kathapa many dholes and leopards, both tiger competitors, were found.

From camera trap photographs in these areas, 22 mammal species in Alaungdaw Kathapa National Park and 22 mammal species in Htamanthi Wildlife Sanctuary were recorded. These findings were reported in the year-one final report October 31, 1999.

(b) Work accomplished in the second year (November 1, 1999 to October 31, 2000)

In the beginning of the second year (November 1999 through February 2000), Mahamyaing Reserved Forest, Thaungdut Reserved Forest and Nankamu Reserved Forest were surveyed completely. A survey was also started in the Nantaleik Catchment Area (Saramati Taung) during this time period. During the second quarter (March through June 2000), the team completed the survey in the Nantaleik Catchment Area and proceeded to the Paunglaung Catchment Area.

In the third and last quarter (July to October, 2000) the team covered the Panlaung Pyadalin Cave Wildlife Sanctuary and Central Bago Yoma Areas. The team has been divided into two groups since the beginning of this quarter, as the individual team members are now conversant with the survey procedures. Dividing the team as such allows them to cover more priority areas within the limited timeframe of the project. Group 1, headed by Saw Htoo Tha Po, completed the survey in the Paunglaung Catchment Area, while Group 2, headed by U Myint Maung, covered the Panlaung Pyadalin Cave Wildlife Sanctuary.

After completing the survey and compiling the data, Group 2 proceeded to the northern Rakhine Yoma Area in the last week of October. Group 1 is currently in the Bago Yoma Area. The original intention was to carry out intensive surveys in three separate zones of Bago Yoma: North Bago Yoma, Central Bago Yoma and South Bago Yoma. However, during the interview surveys of Bago Yoma conducted by Group (1), it was determined that only one area in Central Bago Yoma should be intensively surveyed. Heavy disturbance from human encroachment, the degradation of tiger habitat, and the paucity of information on tigers made surveys in the other areas unnecessary.

As of the end of October, Group (1) had almost completed the cluster of surveys in the Central Bago Yoma Area; the cameras will have to be retrieved in mid-November. After meeting with Dr. Alan Rabinowitz and Dr. Tony Lynam, and reviewing the past activities, it was decided that Group 1 would proceed to the southern Rakhine Yoma Elephant Range during the last week of November 2000.

Since the project began in 1999, the team has conducted the surveys in nine (9) targeted sites:

Sr. No	Priority Sites	Period of Survey	
		Started	Started
1	Alaungdaw Kathapa National Park	15-5-99	9-8-99
2	Htamanthi Wildlife Sanctuary	28-8-99	2-11-99
3	Thaungdut Reserved Forest	13-11-99	27-11-99
4	Nankamu Reserved Forest	20-12-99	31-12-99
5	Mahamyaing Reserved Forest	2-8-99	12-1-2000
6	Nantaleik Catchment Area (Saramati Taung)	29-8-99	26-3-2000
7	Paunglaung Catchment Area	16-5-2000	21-7-2000
8	Panlaung Pyadalin Cave Wildlife Sanctuary	24-6-2000	30-9-2000
9	Central Bago Yoma	24-6-200	On-going

The areas that were completed by the end of October 2000 are shown in the attached Myanmar Tiger Survey Area Map.

4. Methodology

As outlined in the original census approach (developed with the help of Drs. Rabinowitz and Lynam) there are four main activities: interview surveys, track and sign studies, microhabitat evaluations, and camera trapping in sample plots and trails.

Due to time constraints, the paucity of tiger populations, and information gathered on habitat degradation, in April 2000 the priority sites were reduced from 24 to 17 areas in the whole country. The current priority sites are listed in [table \(1\)](#).

The sample plot sizes were also reduced from 40 to 20 km². This modification was made when Dr. Lynam reviewed the tiger survey activities with the team members in April 2000. In the previous surveys, when the team was working in one group and there were a sufficient number of cameras, the camera-setting period was between 900 and 1200 trap-nights. Now with the team divided into two groups, with 27 and 26 cameras respectively, the camera-setting period is now fixed at 30 days, equivalent to approximately 900 trap nights.

5. Survey Results

As of the end of October 2000, the team completed surveys in nine priority sites. The camera trap records revealed one tiger, and that was in Htamanthi Wildlife Sanctuary. Tiger prey species and its competitors (i.e., leopards and dholes) were recorded in these areas.

Not only were tiger prey species, such as muntjacs and wild boars, highly photographed, but they

were also the most common species recorded. Also recorded by the camera traps were animals that have been presumed to be very rare, such as golden cat, clouded leopard, yellow-throated martin, spotted linsang and red serow. These results can also be seen graphically in Figures 1 and 2 of the camera trap records and tracks and signs data. Never before have there been such systematic recordings made of the wildlife found in Myanmar's protected areas, and the findings indicate that the areas are very important for wildlife.

Camera trap surveys in the eight priority sites revealed 22 mammal species in Alaungdaw Kathapa National Park, 22 in Htamanthi Wildlife Sanctuary, 17 in Mahamyaing Reserved Forest, 15 in Nantaleik Catchment Area, 17 in Paunglaung Catchment Area and 10 in Panlaung Pyadalin Cave Wildlife Sanctuary (refer to [Table 2](#)). Summarised data from interviews, track and sign, and camera trapping are presented in [Table 3](#).

6. Administrative Activities

(a) Tiger Team Members:

Due to the rotational secondment procedure of the Forest Department, three out of five Tiger Team members seconded in the first year were transferred back to the Forest Department. The present team members, including one WCS co-leader and Forest Department staff seconded up to the end of April 2001, are:

- (1) U Saw Htoo Tha Po, WCS, Co-leader.
- (2) U Myint Maung, Range Officer, Forest Department, Co-leader.
- (3) U Tin Mya Soe, Range Officer, Forest Department, member.
- (4) U Thein Lwin, Range Officer, Forest Department, member.
- (5) U Khin Maung Htay, Ranger, Forest Department, member.
- (6) U Tun Tun Lwin, Forester, Forest Department, member.

As the project will not terminate until the end of October 2001 and the current team is only seconded through April 2001, an extension of an additional six months for the staff of Forest Department will have to be negotiated with the Director General. Keeping the team assembled as is will allow for the project to be carried out more smoothly.

(b) Monitoring of survey activities:

Although the WCS Myanmar Program Coordinator and the Director of Nature and Wildlife Conservation Division of the Forest Department are responsible for the administration of the team and logistics of survey activities, guidance in technical aspects and monitoring are the responsibility of Drs. Rabinowitz and Lynam. They will both be in Yangon in the first week of November to work with the Tiger Team ([see attached report](#)).

(c) Reports of survey activities to the Ministry of Forestry

The WCS Myanmar Program submits reports on the tiger survey activities to the WCS-New York

office on a quarterly basis. The Program also submits progress reports in Myanmar to the Ministry of Forestry regarding its financial standings and survey activities. This is because the tiger survey project has been integrated into the Forest Department and was approved by the Cabinet of the Government.

The Myanmar Program also reported their findings to the Minister of Forestry on July 28, 2000. The Minister presented the documents to the highest authority of the Government in September 2000 and the importance of the project has been duly enhanced and recognized by the Government.

7. Future activities:

(a) Continuation of surveys in the remaining priority areas:

After completing Panlaung Pyadalin Cave Wildlife Sanctuary, Group 2 returned to Yangon in the first week of October and then proceeded to northern Rakhine Yoma where they are currently working.

Meanwhile, Group 1, after setting up the cameras in the Central Bago Yoma, came back to Yangon in the last week of October to meet with Drs. Rabinowitz and Lynam to review the areas remaining to be surveyed. The Group will retrieve the cameras in Central Bago Yoma starting the first week in November. After validating and summarising the data from the Central Bago Yoma, the Group will proceed to the southern Rakhine Yoma Elephant Range to conduct more surveys. Work accomplished in the past two years and the workplan for year-three are shown in Table 4.

(b) Presentation of findings and discussion with Forestry Officials:

In the last week of December, the whole team will meet with Forestry Officials in Yangon to present the findings of the surveys completed this year. During the meeting, the team members will have the opportunity to highlight their findings on the actual status of tiger habitats and the state of their declining populations, and will receive feed-back from Forestry Officials concerning surveys in the remaining priority areas.

8. Constraints, issues, and suggested measures

Systematic country-wide surveys of tigers using camera traps is a modern approach and it is the first time an approach of this kind has been used in Myanmar. Executing the project with success requires several things, such as financial support, trained and dedicated persons, timely planning with efficient logistics, and back up with systematic data storage. Some of the constraints and issues the WCS Myanmar Program have faced in executing this project are outlined below:

(a) Change of staff:

The rotational secondment policy of the Forest Department requires that the staff assigned to the Tiger Team be reassigned at the end of a year's time. Although transferred staff members are duly

substituted, this reassignment does affect the flow of the team. For the third and final year of the project, it must be negotiated with the Department that no more changes be made in the personnel. This will ensure a smoother end to the project.

(b) Project period:

Due to the initial time required for project preparations and approval, a period of six months elapsed before actual fieldwork started. Although team members are endeavouring to complete the targeted sites according to schedule, they feel pressed for time for several reasons: 1) the process of acquiring permits to work in the protected areas has been more time-consuming than originally expected; 2) the difficulty of accessing remote locations to conduct the surveys was underestimated from the beginning; and 3) most of the team members have been struck with malaria, thereby affecting the speed of their work. Out of nine persons seconded from the Forest Department, five have already contracted malaria. Given these constraints, it is believed that the project period should be extended by six months.

(c) Continuation of monitoring projects:

The current project calls for one-time surveys of tigers in targeted areas throughout the country. Follow-up monitoring programs should be arranged in some sites where the initial surveys indicated tigers are most likely to persist. For example, with the cooperation of Global Survival Network (GSN), continued monitoring for tigers in Alaungdaw Kathapa National Park and its buffer zone has been arranged. Further monitoring in Htamanthi Wildlife Sanctuary by the park staff has been proposed by Dr. Lynam. Funding for this activity has been sought from the Aus-Aid Program from Australia. There are other sites where monitoring programs would also be prudent. Also, given the findings to date, it would be wise to address the issue of hunting and poaching by monitoring their impact on wildlife, particularly tigers.

(d) Ranger training:

With the cooperation of FRED A (the only national NGO in the forestry sector in Myanmar), trainers from WCS Thailand, WCS Myanmar, and Wild-Aid Asia will take part in the ranger training in Alaungdaw Kathapa National Park in March 2001, which will be financially supported by Wild-Aid Asia. The trainees will be from Alaungdaw Kathapa National Park and Htamanthi Wildlife Sanctuary, where the virtual absence of tigers is believed to be the result of selective poaching. Co-ordinating training as such is not only beneficial for the staff of both parks in strengthening their protection ability, but also will enhance the cooperative spirit and integrated approach of the NGOs in the context of conservation. Further co-operative international training efforts should be undertaken.

9. Conclusions:

With close supervision from the WCS Myanmar Program and the Forest Department, the tiger team members have been conducting the survey activities since fieldwork began in May 1999. Given the number of constraints the team has encountered working in Myanmar, (e.g., malaria,

hurried schedule of surveys, personnel rotations) we are very pleased with the positive results of the team's efforts so far. It should be recognised that the young staff of the Forest Department and WCS are shouldering a great deal of responsibility.

It is important to note that the low tiger densities that have been encountered to date do not necessarily suggest that tigers in Myanmar are virtually non-existent. The low densities point to the fact that longer-term, more intensive monitoring in specific sites must be conducted; ranger training in monitoring and anti-poaching techniques is essential; and investigations into the true impact hunting/poaching is having on tigers must be undertaken.

ATTACHMENTS

1. [Myanmar Tiger Survey Area Map](#)
2. [Table 1. Revised Priority Sites](#)
3. [Table 2](#)
4. [Table 3](#)
5. Table 4
6. [Figure 1. Camera Trap Records](#)
7. [Figure 2. Track and Sign Data](#)
8. [Myanmar Tiger Program - Second Interim Review Report, November 2000](#)
9. Photos
 - [Photo 1](#)
 - [Photo 2](#)
 - [Photo 3](#)
 - [Photo 4](#)
 - [Photo 5](#)
 - [Photo 6](#)
 - [Photo 7](#)
 - [Photo 8](#)
 - [Photo 9](#)
 - [Photo 10](#)
 - [Photo 11](#)

Priority areas of tiger survey in Myanmar. Table (1)

Block	Priority	Areas reference's number on map	Area
A	1.	1	Alaungdaw Kathapa National Park*
A	2.	2	Tamanthi Wildlife Sanctuary*
A	3.	3	Thaungdut Reserved Forest (Kabaw Valley)*
A	4.	4	Mahamyaing Reserved Forest*
A	5.	5	Nankamu Reserved Forest*
D	6.	6	Nantaleik catchment Area (Saramati Taung)*
C	7.	13	Paunglaung catchment area*
C	8.	14	Panlaung Pyadalin Cave Wildlife Sanctuary*
F	9.	12	Central Bago Yoma**
I	10.	11	Southern Rakhine Yoma Elephant Range
I	11.	9	Northern Rakhine Yoma , Paletwa area : Kaladan river catchment area)**
E	12.	8	Sumprabum Area
E	13.	17	South of Kaunglanphu Area
D	14.	17	Hukaung Valley area
G	15.	10	Momeik-Mabain Reserved Forest
B	16.	15	Myinmoletkat Taung
B	17.	16	Mintha/ Thagyet/ Tanintharyi/ Pakchan Reserved Forest

Note: * Areas where survey already completed.

**** Areas where survey is underway**

Summary of Wildlife Species in six priority sites recorded by camera traps.

Table (2).

Sr. no.	Location	No. of trap nights	No. of camera traps	Tiger	Leopard	Clouded Leopard	Golden Cat	Marbled Cat	Leopard Cat	Asian Dhole	Malayan Sunbear	Himalayan Blackbear	Yellow-throated mart	Small Indian Civet	Large Indian Civet	Common Palm Civet	Binturong	Spotted Linsang	Masked Palm Civet	Mongoose	Elephant	Wildboar	Hog Badger	Common Muntjac	Sambar	Gaur	Banteng	Serow	Malayan Porcupine	Brush-tailed Porcupine	Pig-tailed Macaque	Long-tailed Macaque	Rhesus Macaque	Phayer's langur	Other Small Mammal	Avifauna	Reptile	Unidentified				
1	Alaungdaw Kathapa National Park	1502	40		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓			✓		✓		
2	Htamanthi Wildlife Sanctuary	2019	41	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓		✓	✓	✓			✓		✓	✓			✓		✓	
3	Mahamyaing Reserved Forest	542	18			✓	✓		✓	✓	✓		✓	✓	✓							✓		✓	✓		✓	✓	✓	✓	✓			✓		✓	✓			✓		✓
4	Nantaleik Catchment Area	547	30		✓	✓	✓	✓	✓				✓		✓	✓		✓				✓	✓	✓			✓	✓				✓				✓	✓			✓		✓
5	Paunglaung Catchment Area	1292	35		✓	✓			✓		✓	✓	✓		✓		✓					✓	✓	✓	✓	✓	✓	✓	✓					✓		✓	✓			✓		✓
6	Panlaung Pyadalin Cave WS	838	30		✓				✓	✓			✓			✓				✓		✓	✓	✓						✓				✓		✓	✓			✓		✓

Summary of data from Interviews, Tracks and Signs and Camera trapping in six priority sites.

Ta

Sr. no.	Site Name	start date	end date	Methods used								Result					
				Interview survey		Track & Sign survey		Camera Trapping				No. of species from Track & Sign	No. of species from Camera Trap	Camera Trapping		Track & Sign	
				No. of people	No. of village E camp	No. of hour walk		No. of trap in plot	No. of trap in trail	Total traps	Total no. of Trapnight			Total animal traffic	Total human traffic	Total animal traffic	Total human traffic
						Plot	Trail										
1	Alaungdaw Kathapa N.P	15.5.99	9.8.99	276	62	44	59	30	15	45	1502	16	22	17.15	1.84	5.15	0.35
2	Tamanthi W.S	28.8.99	2.11.99	106	23	66	54	27	18	45	2019	17	22	21.12	0.13	2.08	0.11
3	Thaungdut R.F	13.11.99	27.11.99	-	-	-	46	-	-	-	-	12	-	-	-	8.54	0.61
4	Mahamyaing R.F	2.8.99	12.1.2000	19	10	-	60	-	18	18	542	16	17	20.93	3.89	5.37	0.18
5	Nankamu R.F	20.12.99	31.12.99	10	3	-	31	-	-	-	-	15	-	-	-	9.19	0.12
6	Nantaleik (Saramati Area)	29.8.99	26.3.2000	-	-	60	65.5	22	10	32	547	14	15	19.53	0.7	5.86	0.39
7	Paunglaung Catchment area	16.5.2000	21.7.2000	113	34	51.5	109.5	13	22	35	1292	17	17	30.92	2.4	3.34	0.24
8	Panlaung Pyadalin Cave Wildlife Sanctuary	24.6.2000	30.9.2000	103	37	17.5	59	13	17	30	838	17	10	15.87	16.08	2.2	0.86
9	Central Bago Yoma	24.6.2000		127	36												
Total				754	205	239	484	105	100	205	6740	124	103	125.5	25.04	41.73	2.86

ble (3).

Remark
Informal interview done in those sites
Informal interview done in those sites Informal interview done in those sites

EXECUTIVE SUMMARY

MYANMAR TIGER PROGRAM

SECOND INTERIM REVIEW - NOVEMBER 2000

A second review of the Myanmar National Tiger Survey project was made by Dr Tony Lynam, U Saw Tun Khaing, U Than Myint, members of the Tiger Team, Dr Joshua Ginsberg, Linda Krueger, and Dr Alan Rabinowitz during October 31st - November 5th. Progress on the field, logistical and budgetary aspects of the project was reviewed, especially action points noted during the first program review in May 2000. The major discussion points of this review were:

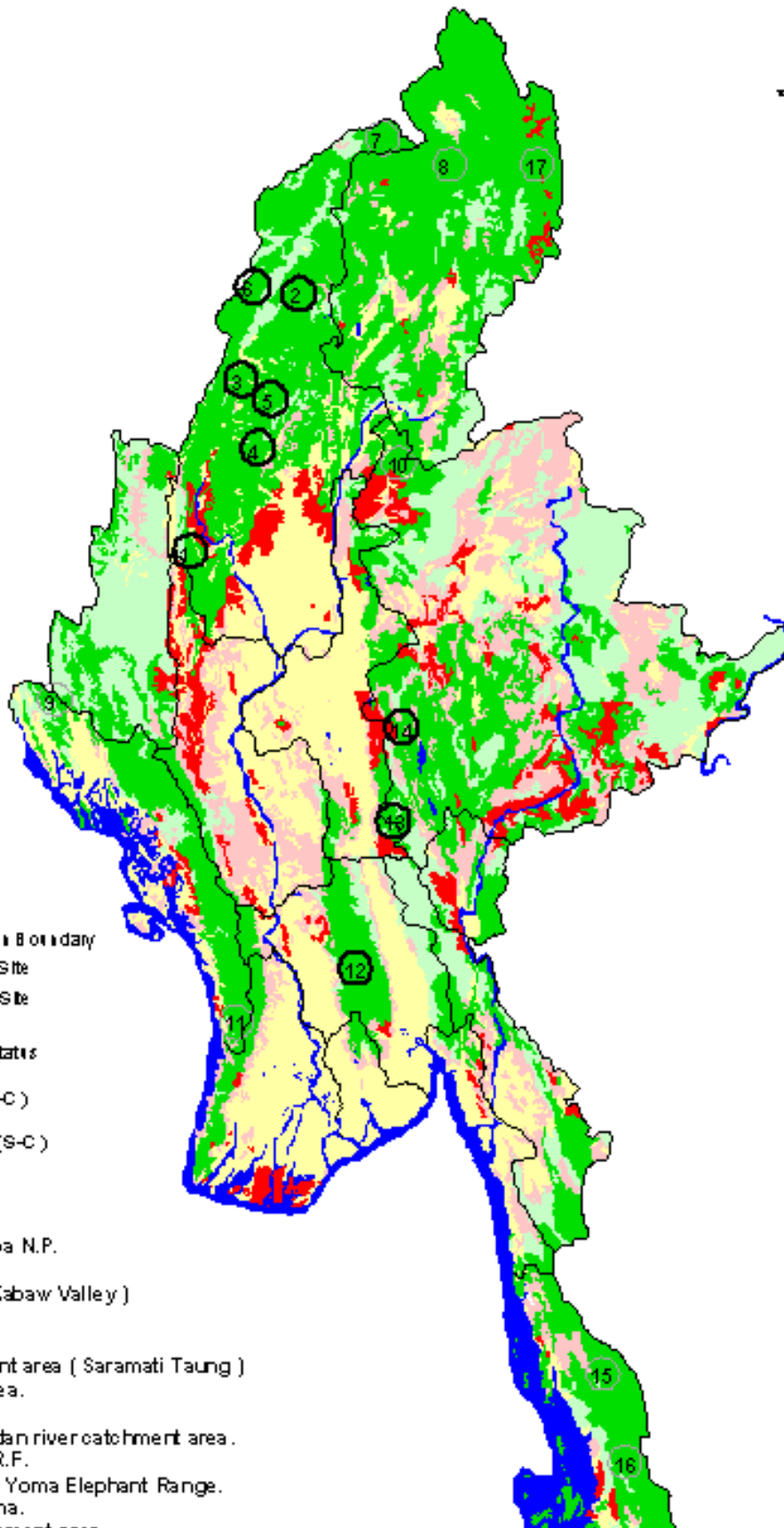
1. **A TERMS OF REFERENCE** for Lynam's involvement in the Myanmar Tiger Program has been agreed to by all concerned parties.
2. **COVERAGE OF TARGET SITES** - A total of nine sites have now been covered by the Tiger Team including new areas in central and western Myanmar. Despite reports from local people that tigers recently existed in these areas, no new evidence for tigers was found from direct field surveys in the core forests of these areas. These findings reinforce the disparity between people's conceptions of where tigers exist, and previous assumptions by biologists that Myanmar might support relatively healthy tiger populations, and the reality that tigers have been extirpated, or exist at low and possibly non-viable densities at the sites where the surveys were done.
3. **HTAMANTHI WILDLIFE SANCTUARY** remains the only area of nine where tigers are confirmed to persist. The viability of tiger populations in this reserve remains questionable because of planned petroleum exploration, and a hydroelectric project that would potentially inundate over one third of the reserve, including tracts of lowland riverine forest that are likely used by tigers as movement corridors. Consequently, before the program invests further resources in tiger focussed conservation actions, such as a tiger and prey monitoring program, the future of the reserve needs to be first established. WCS will seek updates on the situation from the Forestry Department.
4. **SURVEY EFFORTS** - Field surveys in this program are focussing on acquiring presence-absence information for tigers. A minimum sampling effort of 1,000 camera-trap nights is required to confidently reject the premise that tigers might be present even if they are not found during a survey. The survey team must strive to maintain this sampling effort at all sites. Splitting the survey team into two has halved the number of camera-traps available for use. This will require that each survey increase the sampling period from 30 days to 45 days per survey. If additional funding from NFWF becomes available for the purchase of more camera-traps, the field program can be revised accordingly.
5. **REMOTE AREAS IN THE TENASSERIMS** that are currently off limits for security reasons likely contain tigers and could well be priority sites for tiger conservation in the future. These areas should be documented by the Tiger Team, even if only to conduct interview surveys of people living in or near forest areas. The team should plan to send one or two team members in an advance group to conduct interview surveys, meet local officials and assess the possibility of

conducting field surveys. WCS - Thailand staff will attempt field surveys for tigers in areas adjacent to Myinmoletka and Pakchan in 2000. Evidence of tigers close to the border could imply the presence of tigers in these transboundary areas.

6. INTERVIEW SURVEYS must seek to identify hunters and other knowledgeable forest dwellers and to recruit selected individuals to the survey team. The team has been able to do this in recent surveys.
7. The Tiger Team leader, is working on a revised FIELD WORKPLAN. If additional funds become available for the purchase of additional camera-traps, the plan may be revised again. Tiger Team members MUST move away from handwriting workplans, reports and other administrative documents in favor of using the computer. They have completed training in its use and must now use their skills to be more efficient when working in the office. U Than Myint will supervise the team's use of the computer.
8. DATA MANAGEMENT has been improved with the purchase of a computer with CD write/read, and high storage and memory capabilities. U Myint Than, a Yangon based statistician, consulted with Lynam and has agreed to develop a simple database entry system for the project - AT NO COST TO THE PROJECT. He has offered to type existing data into the database for a fee and to instruct WCS - Myanmar staff in how to use the database. I recommend that we consider this, since we can later have our own staff, supervised by U Than Myint, enter data from future sites. U Myint Than will provide a cost estimate for the data entry. This will be the most time and possibly most cost efficient way of getting the data ready for analysis.
9. The Tiger Team will meet with the Forestry Department to discuss the program in December. WCS will ask the Forestry Department what they want to see in NATIONAL TIGER ACTION PLAN. Tiger Action Plans for other tiger range countries will be brought together by Lynam. Lynam will consult with U Saw Tun Khaing, Rabinowitz, Mahdu Rao and Josh Ginsberg to decide the direction for developing the plan.
10. DATA ANALYSIS AND PUBLICATIONS - Lynam consulted with Rabinowitz on developing important publications from the project.
11. SLIDE MATERIAL needs to be scanned and downloaded to CD-ROM to ensure against loss or damage from fungus and moisture. Either a slide scanner needs to be purchased for the project, or a slide scanner can be borrowed from the WCS -Thailand Program for scanning and backup of all slide material.
12. G.I.S. DATABASE - U Win Ko Ko - trained by WCS in a recent GIS course - started to develop a GIS database for project at the Myanmar Forestry Department. However, he has now left the Department for a job in the private sector and will not have time to work with the team. Lynam will arrange for existing database material at the Forestry Department to be made available to the team for use on its computer. ArcView products have been ordered for the project from New York. U Saw Tun Khaing has identified a person who may be recruited to help with managing the GIS at

WCS in the future.

**Myanmar Tiger Survey Areas
(May 1999 - October 2001)**



State and District Boundary

Planned Survey Site

Finished Survey Site

Land Use / Landcover Status

Closed Forest

Closed Forest (S-C)

Degraded Forest

Degraded Forest (S-C)

Other

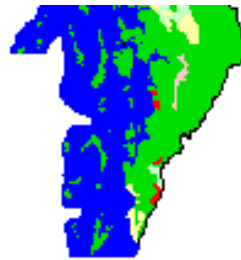
Water

1. Alaungdaw Kathapa N.P.
2. Tamanthi W.S.
3. Thaungdūt R.F. (Kabaw Valley)
4. Mahamyaing R.F.
5. Nankamu R.F.
6. Nantaleik catchment area (Saramati Taung)
7. Hukaung Valley area.
8. Sumprabum area.
9. Paletwa area Kaladan river catchment area.
10. Momeik- Mabain R.F.
11. Southern Rakhine Yoma Elephant Range.
12. Central Bago Yoma.
13. Paungmye catchment area.
14. ...
15. ...
16. ...
17. ...
18. ...
19. ...
20. ...

Tiger Survey Areas Map

13. Kaunggaung Salween area.
14. Panlaung Pyadalim Cave W.S.
15. Myinmolekat Taung.
16. Mintha/Thagyat/Tanintharyi/Pakchan R.F.
17. South of Kaunglanphu area.

100 0 100 200 Kilometers



Frequency of wildlife species captured by camera traps in six surveyed areas.

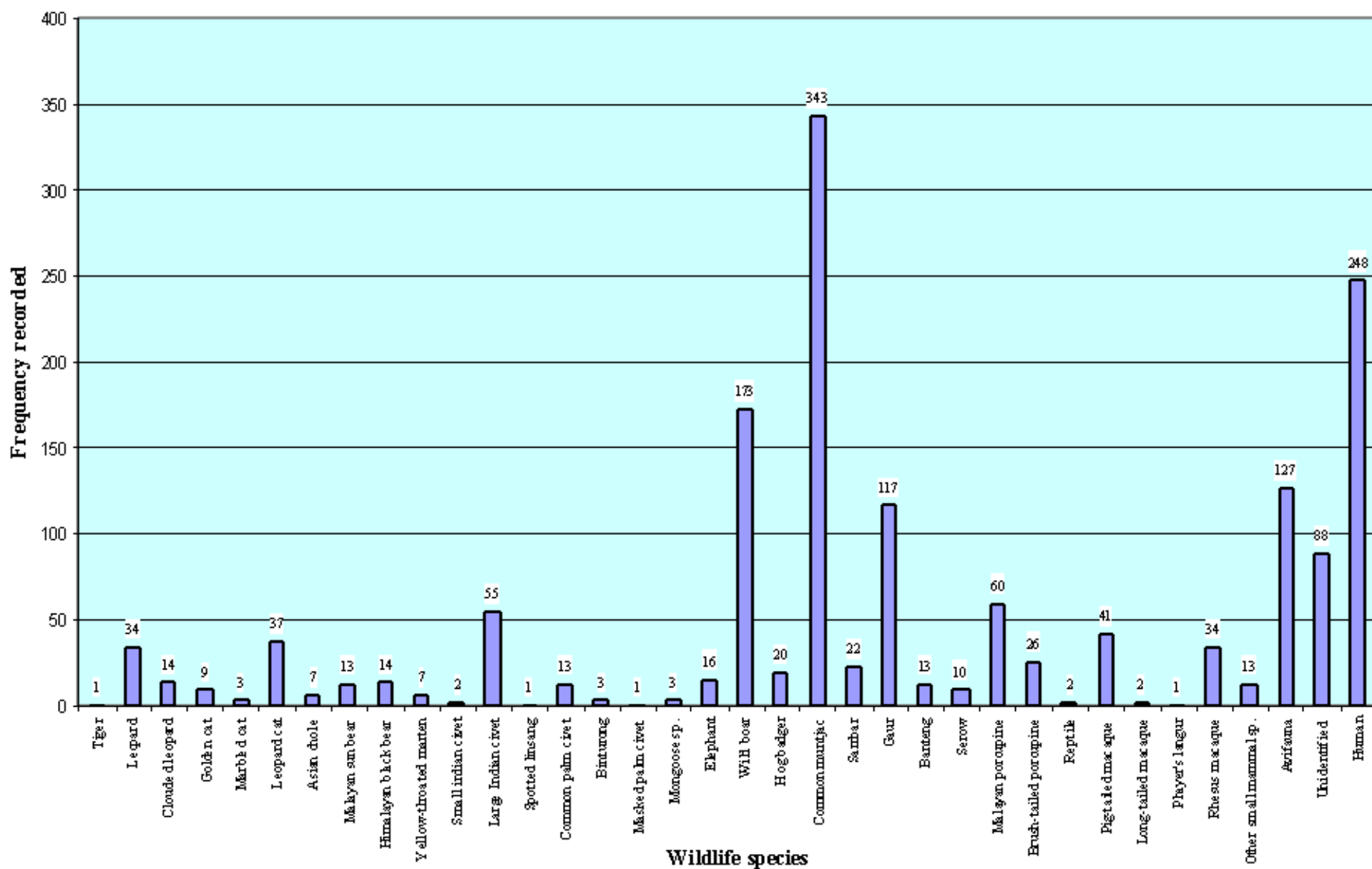
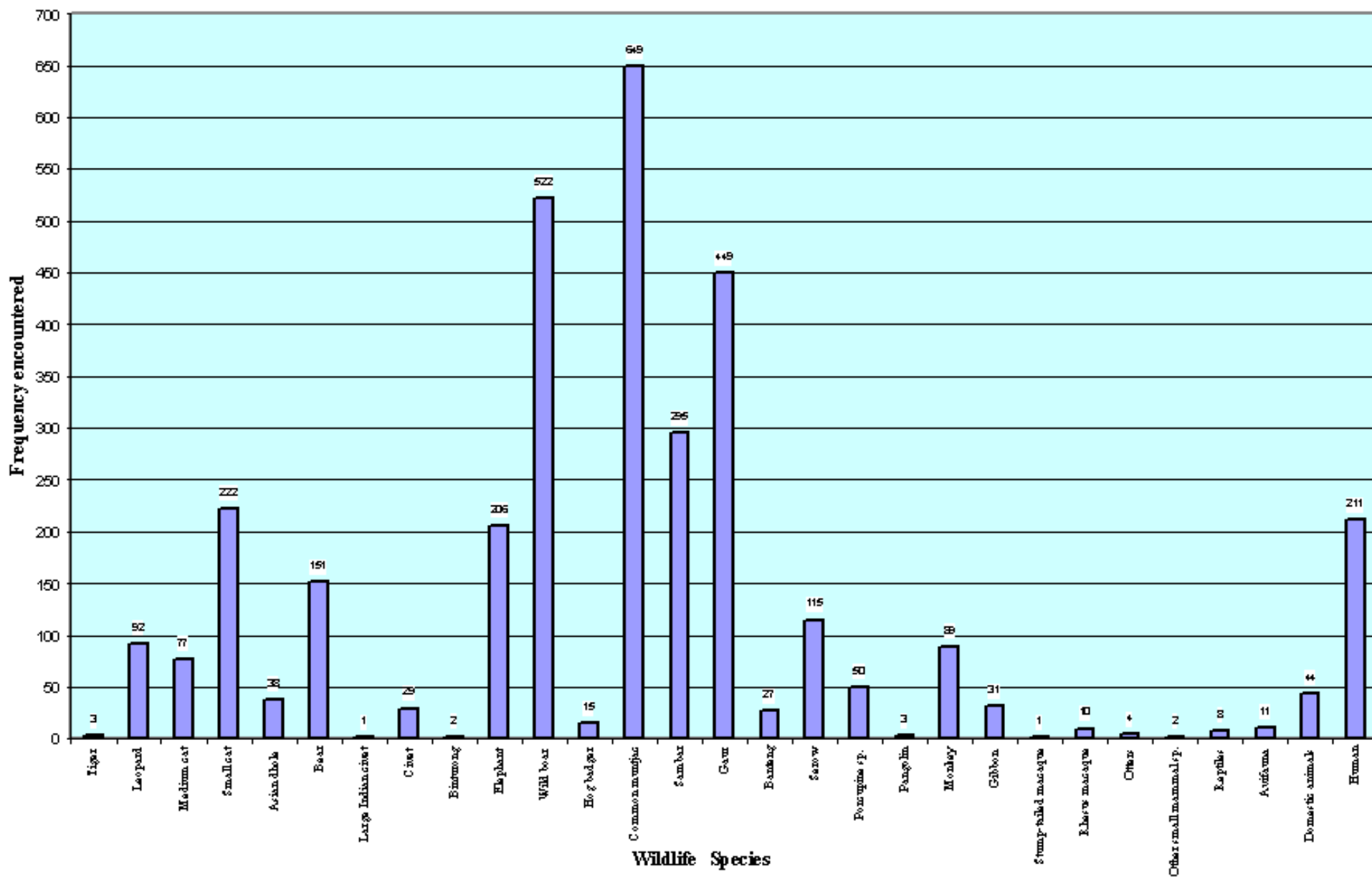


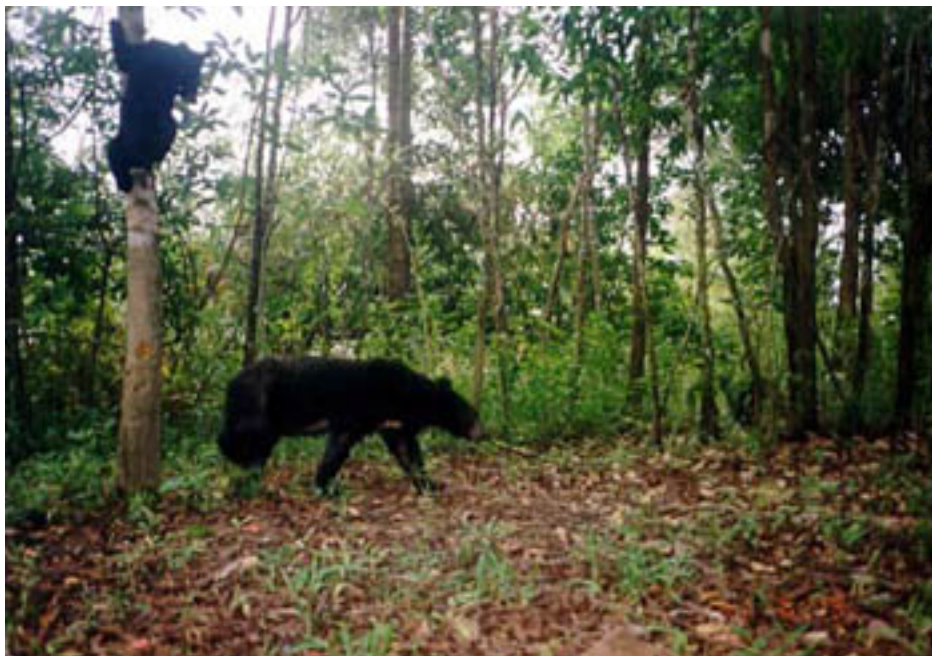
Figure 2

Frequency of wildlife species encountered in Track and Sign survey in eight areas.





Leopard, Ka-zaw range, Paunglaung catchment area.



Himalayan Black Bear, Paunglaung catchment area.



Gaur, Paunglaung catchment area.



Leopard Cat, Paunglaung catchment area.



Tiger survey team crossing Paunglaung river by bamboo raft.



Large Indian Civet, Paunglaung catchment area.



Wild Boar, Paunglaung catchment area.



Leopard, Taung-kauk-gyi range, Paunglaung catchment area.



Leopard, Panlaung Pyadalin Cave Wildlife Sanctuary.



Barking Deer, Panlaung Pyadalin Cave Wildlife Sanctuary.