Wildlife Distribution AND HUNTING
South Garo Hills

Slow loris, South Garo Hills. Pic: M D Madhusudan

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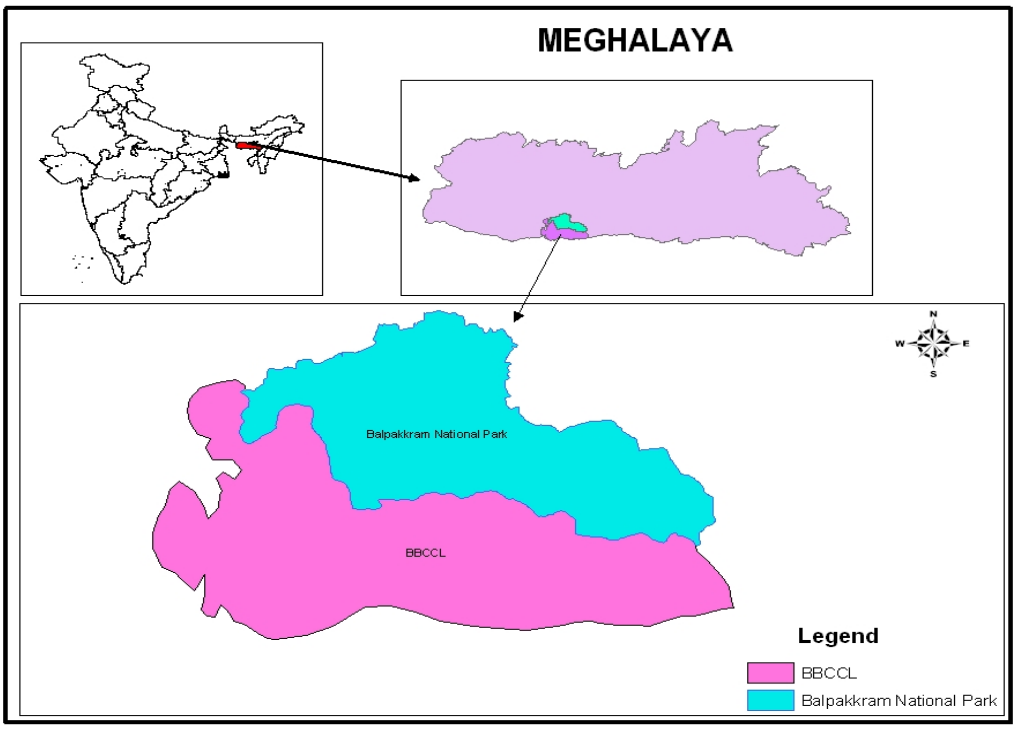
Contents

SECTION 1
STUDY AREA

The state of Meghalaya, lies between 25^0 North and 26^0 10' North latitude and $89^0$45' East and $92^0$45' East longitude and covers an area of 22,429 km^2. Meghalaya is home to a unique array of vegetation, ranging from tropical and sub-tropical to temperate or near temperate. This is due to the diverse topography, varied and abundant rainfall and differential climatic and edaphic conditions in the state. The forests are particularly well endowed with orchids and numerous species of medicinal plants.

Meghalaya has one of the largest and densest Asian Elephant (*Elephas maximus*) populations in India. Other large animals of significance include Wild Buffalo (*Bubalis bubalis)*, Gaur (*Bos gaurus)*, Serow (*Capricornis sumatraensis)*, Goral (*Nemorhaedus goral)*, Sloth Bear (*Melursus ursinus*), Tiger (*Panthera tigris)*, Gibbon (*Hylobates hoolock*) and lesser cats.

Within Meghalaya, the Garo Hills region situated in the western part of the state neighbouring Bangladesh, is particularly rich in natural values. Barring very small plots of government owned lands that have been designated as Reserve Forests; the rest of the landscape in the Garo Hills is a conglomeration of Akings. The Balpakram National Park, 220 sq.km in area, is the only substantial protected area in the Garo Hills. Garo Hills are home to one of the 7 populations of Asian Elephant (*Elephas maximus*) greater than 1,000.



Map Depicting Location of the Target Landscape.

Samrakshan Trust is involved in a long term intervention in a Conservation High Priority region of within the Garo Hills towards maintaining habitat integrity. This region is a patch of about 300 sq.km having the Balpakram National Park to its north and Bangladesh to its south. To its West and East lie the Simsang river and West Khasi Hills respectively. This is possibly the largest tract of habitat in Meghalaya that has the best long-term possibility of conservation of wildlife in general and mega fauna such as Asian Elephants in particular. Land use changes have been relatively benign and no major infrastructure projects that could fracture the habitat are envisaged in the near future. The landscape is a complex mosaic of varying land use patterns that include primary forests, secondary forests, water bodies, habitations, monoculture plantations, shifting cultivation plots at varying stages and paddy fields.

This part of the South Garo Hills district consists of 33 Akings. According to the land tenure system prevalent in the Garo Hills, each clan (locally called Mahari*)* has tenural rights to a plot of land called an Aking. An Aking can roughly be understood to mean a “kingdom”. According to Garo customary law, each clan owns an Aking, which is used by clan members for meeting their livelihood needs through cultivation and for habitation. Tenurial rights being vested with local

communities presents a unique opportunity to attempt community driven stewardship of wildlife occurring in their land.

The Landscape, South Garo Hills. Pic: M D Madhusudan

SECTION 2
SURVEY DESIGN AND METHODOLOGY

The Garo Hills region is bereft of structured wildlife research on species existing and their distributions. This is to the extent that the baseline information is absent in many cases. This survey has been conducted to overcome this lack of basic and primary information.

The survey was designed to obtain data, from the target landscape, that would enable Samrakshan Trust to develop a clear understanding of

1. Relative abundance of large mammals.
2. Threats affecting their distribution.
3. Conflict the species have with coexisting human beings.

The enhanced understanding pertaining to the wildlife in the landscape would form a platform for developing programmes within Samrakshan Trust's existing intervention towards effective mitigation of threats to wildlife species in the landscape.

While "outsiders" have not gathered information pertaining to the target area the Garo community has shared the landscape with the wildlife for generations and is a storehouse of knowledge on the subject. This survey was designed to procure the existing information in a structured manner from the Garo community.

The survey was designed under Dr. M D Madhusudan's guidance during his visit to Garo Hills in April 2005.

A list (Annexure A) was prepared of the wildlife species occurring in the landscape. This list was arrived at after extensive discussions with elders & hunters in the Akings and at Baghmara (headquarters of South Garo Hills district). The list contains names, English and local, of 'Large Mammals' occurring in the landscape. These have been defined as mammals weighing greater than 1 kg. For the purpose of the survey "Wildlife Species" refers to this list of 56 large mammals.

The respondents were asked

1. To identify the species that they had seen during the past 5 years. (A field guide for mammals was used to help the respondents identify the species.)
2. Species that according to them had risen in numbers during past 5 years and reasons for the rise.
3. Species that according to them had declined in numbers during past 5 years and reasons for the decline.
4. Threats faced by Wildlife Species in their akings.
5. Problems caused by Species and the community's responses towards these species.

For all these questions the respondents were asked to consider the geographical boundaries of their akings as the effective area i.e. they had to mention the species that they had seen in their aking only. The survey thus depicts the scenario in community owned lands only.

334 questionnaires were administered to respondents in 33 Akings (Annexure B) across the landscape during the 9 month period from May 2005 to January 2006. Questionnaires were administered in each of these Akings to respondents based in these Akings.

Nova Sangma with a respondent and MD Madhusudan, South Garo Hill

Pic: Pavithra Sankaran

SECTION 3
SPECIES ABUNDANCE

A. Sightings.

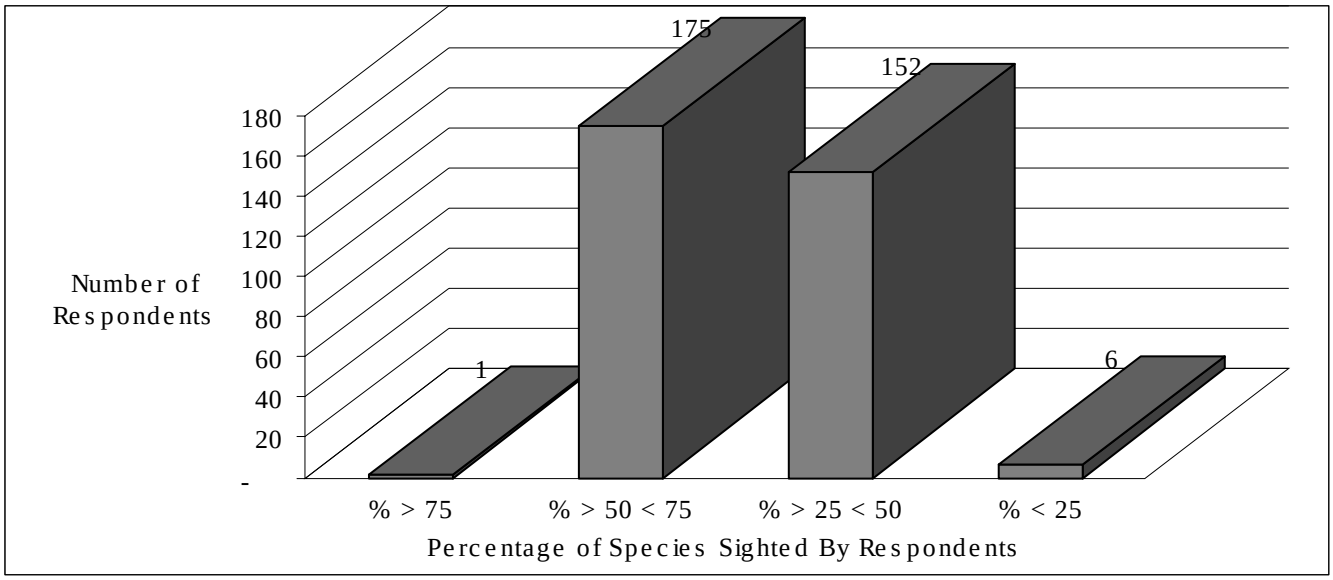
Sightings refer to the species that the respondents confirmed having seen at any point of time during the last 5 years. Table 1 shows that Macaque Rhesus is the most sighted species.

Table 1 – Species sighted most and least (in order).

3 most sighted species	3 least sighted species
1. Rhesus Macaque 2. Indian Porcupine 3. Wild Pig	1. Sun Bear 2. Large Toothed Ferret Badger 3. Golden Cat

The respondents on an average reported sighting 29 out of the 56 species. The maximum and minimum numbers of species sighted by respondents were 43 and 8 respectively. As seen from figure 1 most of the respondents, 327 from total 334, saw between 25% and 75% species; while the balance 7 respondents saw either less than 25% or more than 75% species.

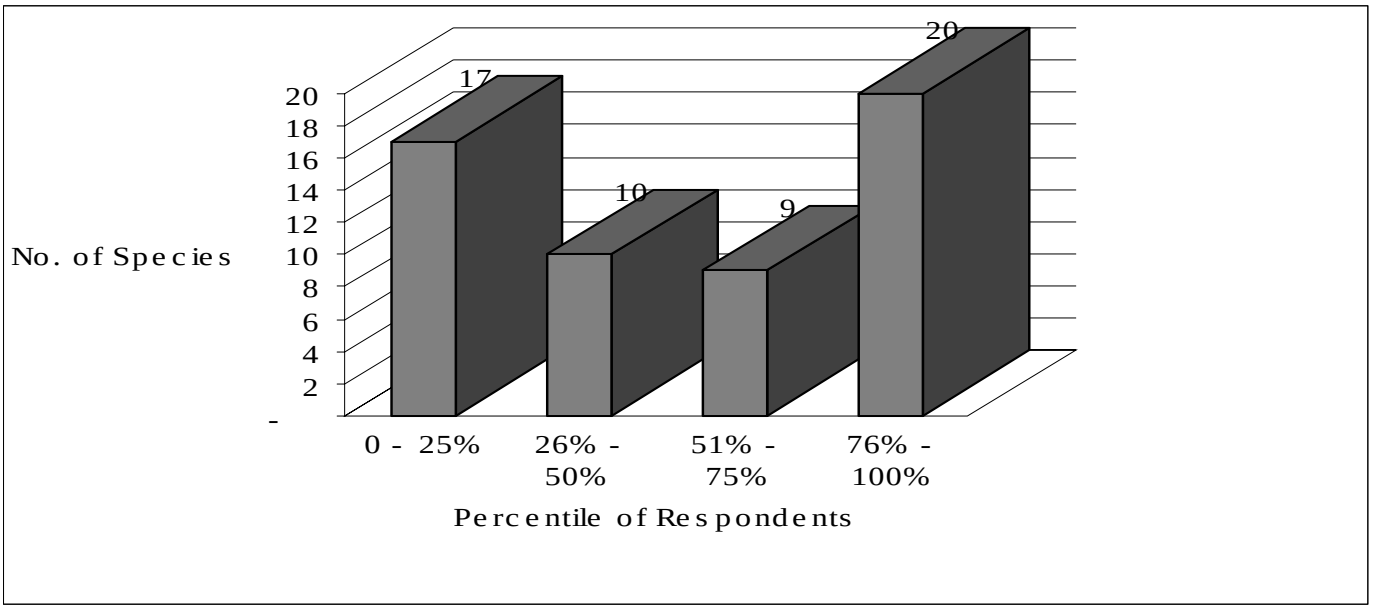
Figure 1 – Sightings of species according to number of respondents.



B. Respondents.

Respondents refer to the people who answered the questionnaires. These include both individuals and groups. These comprised of village headmen, members of community institutions, teacher and others. As seen from figure 2 20 species were seen by greater than 75% respondents while 17 species were seen by less than 25% respondents. While remaining 19 species were seen by 26% to 75% of the respondents.

Figure 2 – Number of species sighted by respondents.



C. Respondent hunters.

Of the total 334 respondents to whom the questionnaire was administered 27 were hunters. These respondents would have a very high level of knowledge on species' presence abundance. As seen from table 2 none of the 27 hunters reported having seeing either Particoloured Flying Squirrel or Sun Bear.

Table 2 – Unanimous views on sighting of species by respondent hunters.

Species sighted by all	Species sighted by none
1. Wild Pig 2. Muntjac 3. Rhesus Macaque 4. Capped Langur 5. Indian Porcupine	1. Particoloured Flying Squirrel 2. Sun Bear

Section 4
Species' Populations – Trends over Time

A. Species with numbers on rise and decline.

Respondents mentioned separately the species they perceived were rising in numbers and the species, numbers of which they perceived were declining. 26 species out of the total 56 species surveyed are reported to be rising in numbers while 27 species are reported to be on a decline. As seen in table 3 the 3 species whose numbers rose the most are the same 3 that were reported as being sighted the most.

Table 3 – Species rise and decline in numbers of species' (in order).

Rise in numbers	Decline in numbers
1. Rhesus Macaque 2. Wild Pig 3. Indian Porcupine	1. Sambar 2. Wild Water Buffalo 3. Asiatic Black Bear

B. Rise in species' population.

The respondents have stated 14 reasons that they perceive lead to rise in species' numbers. As seen from table 4 availability of food has been bifurcated into food available due to practice of shifting cultivation, growth of soft grasses, presence of orchards, paddy cultivation and presence of domestic animals.

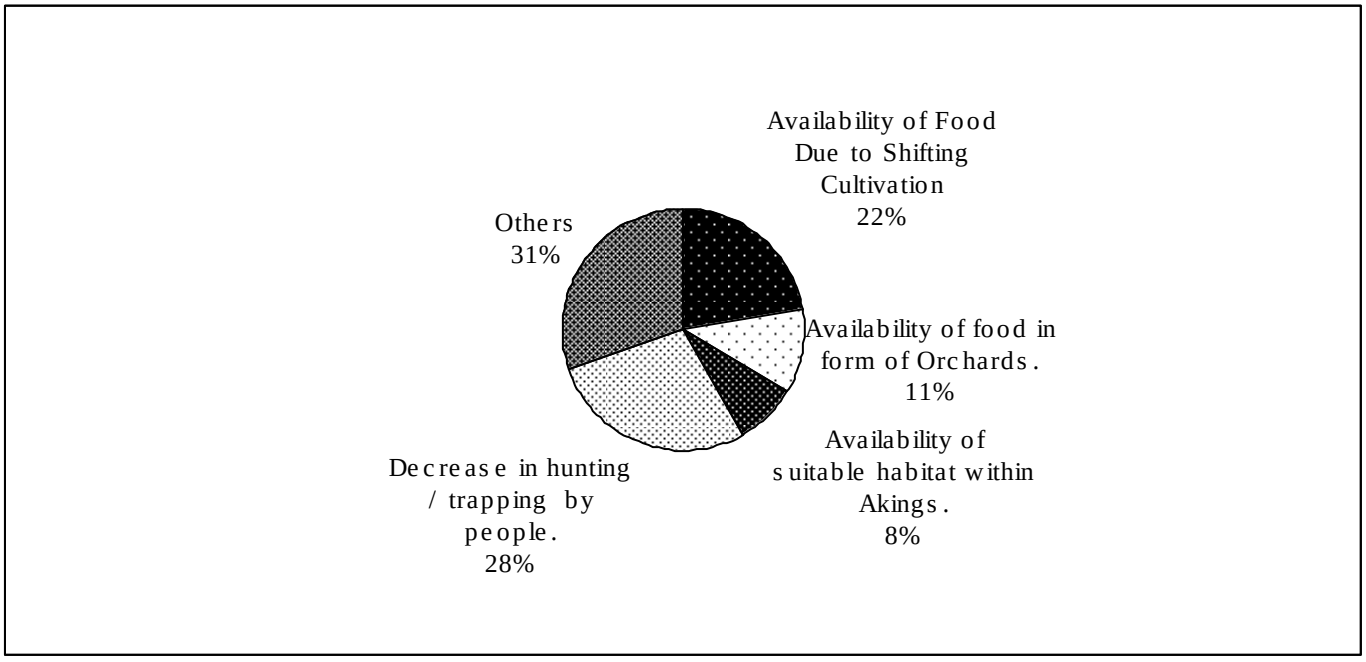
Table 4 – Reasons for rise in species' population.

Sr. No.	Description
1	Vegetation in the forest is not palatable.
2	Habitat Loss in other Akings.
3	Availability of food – Shifting Cultivation.
4	Availability of food – Soft Grasses.

5	Availability of food – Orchards.
6	Availability of food – Paddy.
7	Availability of food – Domesticated Animals.
8	Availability of Suitable Habitat Within Akings.
9	Decline in Hunting by Predators.
10	Decline in Hunting / Trapping by people.
11	Inability of people to Hunt / Trap specific species.
12	Flesh of Certain Animals not preferred as food.
13	Attack by people on Animals in other Akings.
14	Proximity to Protected Areas.

Figure 3 shows the weight assigned to each reason for rise in species' numbers. Decrease in hunting / trapping by people is the major reason for rise in species' numbers

Figure 3 – Weight assigned to reasons for rise in species' numbers.



Respondents have also assigned specific reasons towards rise in numbers of particular species. As seen in table 5 respondents have mentioned 5 reasons for rise in number of Asian Elephant. According to them the pachyderm relishes soft grasses, crops and subsequent growth due the shifting cultivation and also the orchards.

Stump Tailed Macaque, South Garo Hills Pic: M D Madhusudan

Table 5 – Species specific reason for rise in numbers.

Mammals / Reasons for rise in species	Asian Elephant	Wild Pig	Muntjac	Serow	Rhesus Macaque	Capped Langur	Red Giant Flying Squirrel	Indian Porcupine	Jackal	Clouded Leopard
Habitat Loss in other akings										
Availability of Food – Shifting Cultivation										
Availability of Food – Soft Grasses										
Availability of Food – orchards										
Availability of										

Food – Domesticated Animals										
Availability of Suitable habit - at in Akings										
Decline in Hunting By Predators										
Decline in Hunting / Trapping										
Inability of people to Hunt / Trap										
Meat of Certain Species is not preferred by most people										

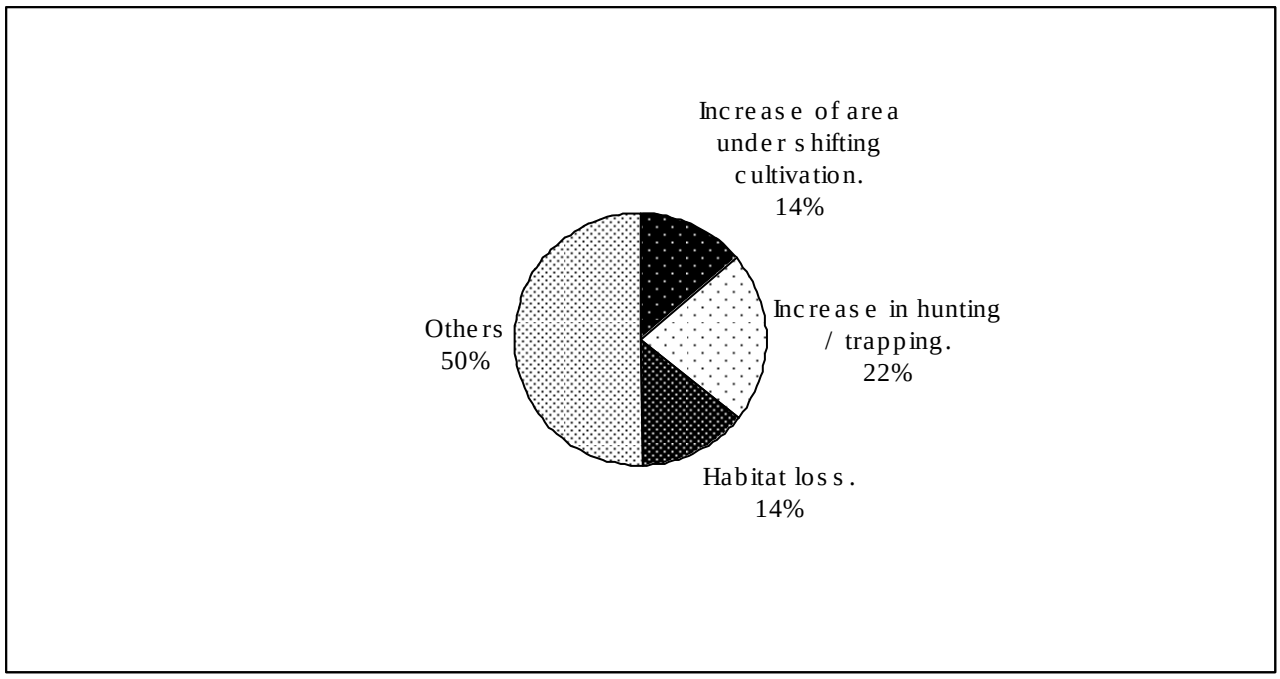
C. Decline in Species' population.

The respondents have stated 17 reasons that they perceive lead to decline in species' numbers. As seen from table 6 the respondents have stated increase in human population and increase of human activities causing disturbance to species' habitat as distinct reasons.

Table 6 – Reasons for decline in species' population.

Sr. No.	Description
1	Increase in Area under Shifting Cultivation.
2	Increase in area under Monoculture Plantations.
3	Increase in hunting / trapping.
4	Increase of human activities.
5	Increase of human population.
6	Forest Fires.
7	Decline in Area under Primary Forest.
8	Decline in Number of Salt Licks and Water Bodies.
9	Loss of Big Trees / Shade.
10	Logging.
11	Construction of New Roads.
12	Habitat Loss.
13	Scaring the Mammals.
14	Diseases.
15	Killed by Predators.
16	Lack of Sufficient Food.

Figure 4 – Weight assigned to reasons for decrease in species' numbers.



Pie chart in figure 4 shows the proportion of the reasons for decline in species' numbers in terms of number of respondents stating each reason.

Respondents have also assigned specific reasons towards decline in numbers of particular species. Table 7 shows Wild Water Buffalo, Sambar and Muntjac as the 3 species whose numbers have declined due to increase in hunting / trapping. Habitat loss is the major reason resulting in decline in numbers.

Table 7 – Species specific reason for decline in numbers.

Mammal Reasons for decline in species	Asian Elephant	Wild Pig	Wild Water Buffalo	Gaur	Sambar	Muntjac	Capped Langur	Hoolock Gibbon	Tiger	Asiatic Black Bear	Common Otter	Black Naped Hare
Increase of Area Under monoculture Plantation												
Increase in Hunting /Trapping												
Increase in Human Activities												
Increase in Human Population												
Forest Fires												
Habitat Loss												

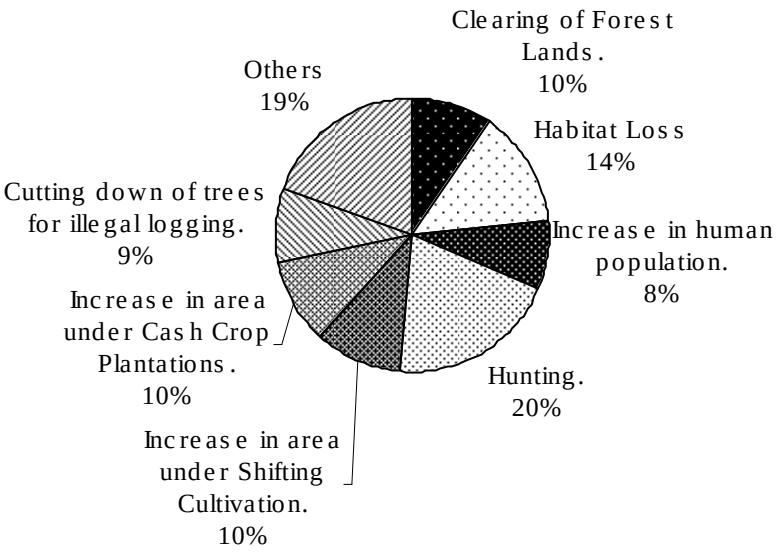
Diseases												
Hunted by predators												
Lack of Sufficient Food.												

SECTION 5
THREATS TO WILDLIFE SPECIES

Table 8: Threats to Wildlife.

SR. NO.	DESCRIPTION
1	Clearing of Forest Lands.
2	Habitat Loss.
3	Rise in Human Population.
4	Unavailability of Food.
5	Unavailability of Water.
6	Hunting.
7	Trapping.
8	Increase in Area Under Shifting Cultivation.
9	Increase in Area Under Cash Crop Plantations.
10	Increase in Number and Shifting of Residences.
11	Forest Fires.
12	Disturbance Cause by Humans.
13	Cutting Trees - Illegal Logging.
14	Cutting Trees – Other Reasons.
15	Akings Getting Electrified.
16	Development Activities.
17	Migration by Wildlife.

The respondents gave a total of 17 threats to wildlife, as above. The importance ascribed to each of the threats in terms of number of respondents stating each reason is stated in form of a chart below. Figure: 6


Clearing of Forest Lands. 10%
Habitat Loss 14%
Increase in human population. 8%
Hunting. 20%
Increase in area under Shifting Cultivation. 10%
Increase in area under Cash Crop Plantations. 10%
Cutting down of trees for illegal logging. 9%
Others 19%

Section 6
Market Influence on Hunting

Hunting constitutes the biggest threat to wildlife as depicted in figure 4. Hunting is culturally sanctioned and most of it goes towards the table. However the responses point to a more than negligible existence of market based hunting in the landscape.

As seen in figure 7 the issues relating to market based hunting have surfaced from respondents hailing only from few Akings they do indicate significant intrusion of market forces in the landscape for wildlife derivatives. Table 9 highlights the vulnerability of the Asian Elephant with its meat being dried and sold in the markets within Garo Hills while tusks are reportedly being sold in Assam and even across the border in Bangladesh.

Figure 7 – Proportion of akings within the Landscape reporting market based hunting.

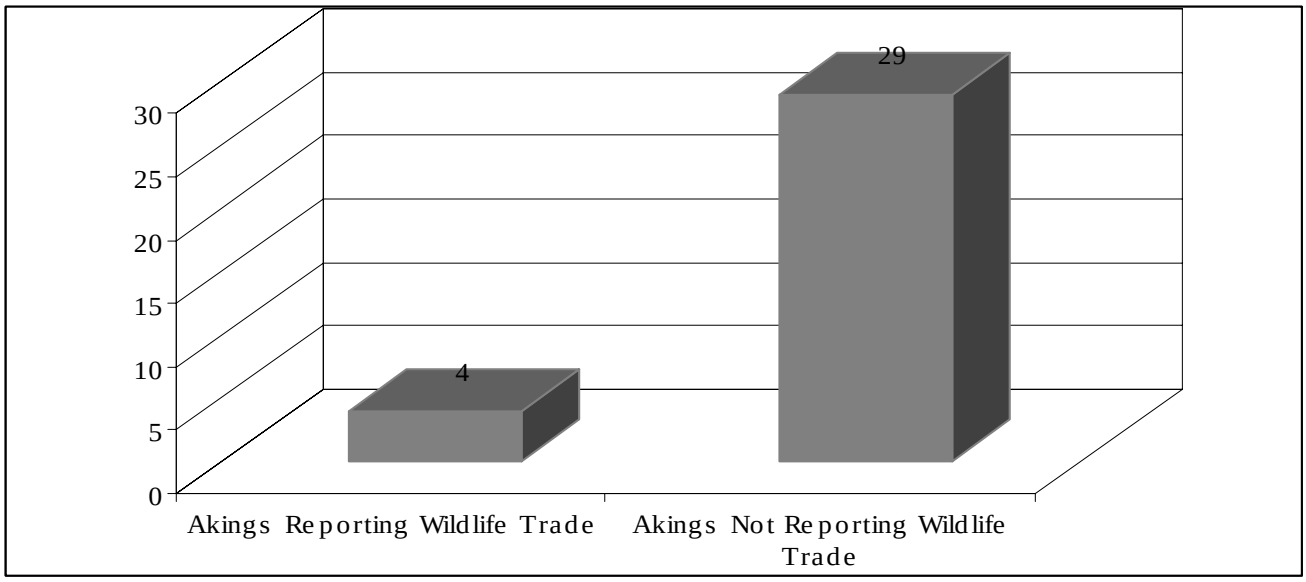


Table 9 – Species affected by Wildlife Trade and the Derivatives in Demand

Derivatives sold / Species affected	Meat	Skin	Others
Asian Elephant			
Wild Pig			

Wild Water Buffalo			
Sambar			
Muntjac			
Asiatic Black Bear			
Tiger			
Common Leopard			
Leopard Cat			
Common Otter			

SECTION 7
SPECIES CAUSING DAMAGE

Respondents stated 14 species each; causing damage to livestock and crops. As seen in table 10 Wild Pig and Grey Mongoose are the only two species that cause damage to both livestock and crops.

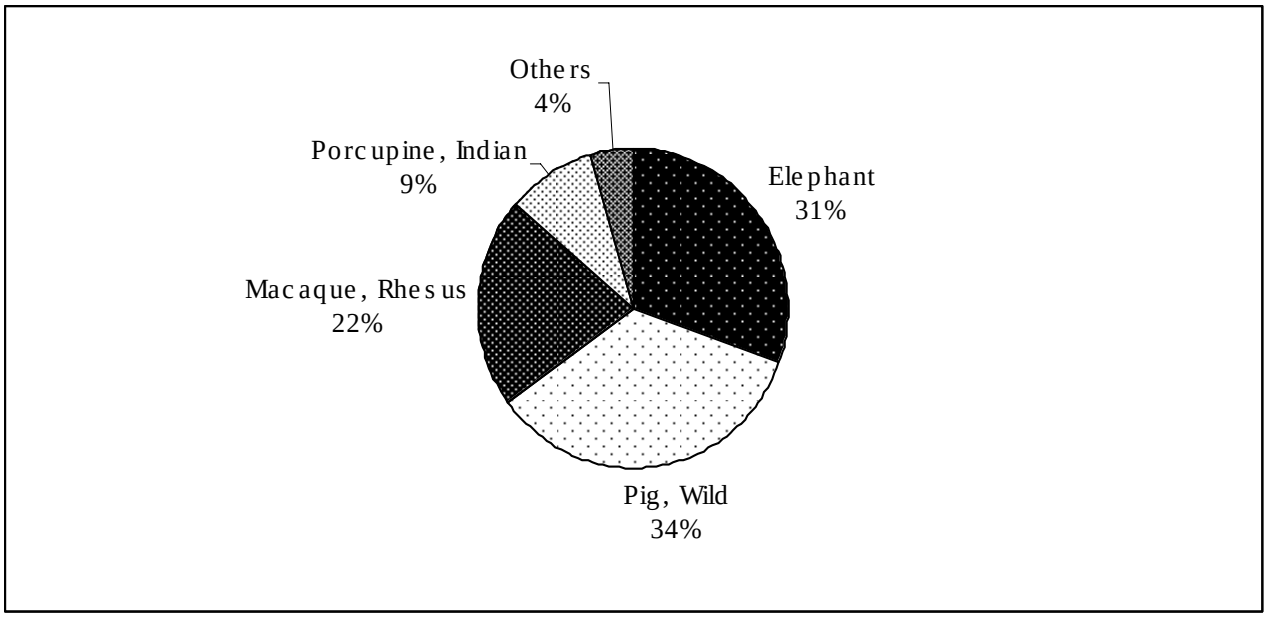
Table 10 Table depicting Species Causing Damage to Livestock Crops

Damage to livestock	Damage to crops
1. Wild Pig	1. Asian Elephant
2. Jackal	2. Wild Pig
3. Wild Dog	3. Sambar
4. Tiger	4. Muntjac
5. Common Leopard	5. Serow
6. Clouded Leopard	6. Pig Tailed Macaque
7. Jungle Cat	7. Assamese Macaque
8. Marbled Cat	8. Rhesus Macaque
9. Leopard Cat	9. Red Giant Flying Squirrel
10. Grey Mongoose	10. Malayan Giant Squirrel
11. Common Palm Civet	11. Indian Porcupine
12. Large Indian Civet	12. Asiatic Black Bear
13. Small Indian Civet	13. Grey Mongoose
14. Spotted Linsang	14. Black Naped Hare

Asian Elephant, South Garo Hills Pic: M D Madhusudan

Extent of damage caused by different species to crops. As seen in figure 8 cumulative damage caused to crops by Asian Elephant, Rhesus Macaque and Wild Pig is in excess of 85%. Also, the four species causing maximum damage to crops are the same as the species whose numbers have risen the most.

Figure 8 - proportion of damage caused by various species to Crops.



SECTION 8
ADVERSE IMPACTS OF WILDLIFE SPECIES ON HUMANS

The respondents listed a total of 23 ways in which they respond to species causing damage .

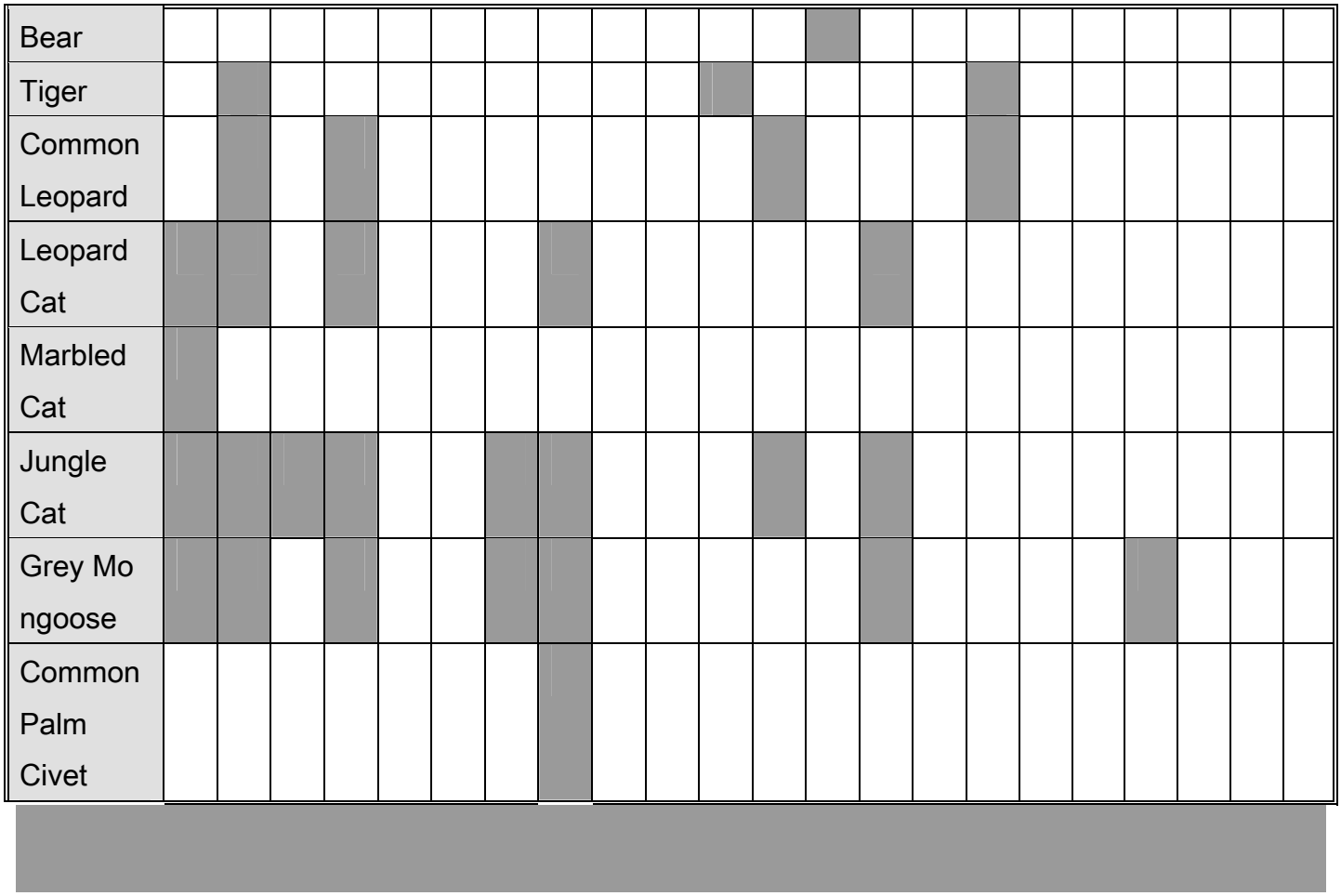
Table 11 – Responses of people towards species causing damage.

Responses Code	Response
R1	Using Catapults.
R2	Shouting.
R3	Using Domestic Dogs.
R4	Throwing Stones.
R5	Using Torch Lights.
R6	Using Spears & Knives.
R7	Using Crackers.
R8	Setting String / Rope Traps.
R9	Setting Metal Traps.
R10	Setting Fishing Nets.
R11	Setting Scare Crows.
R12	Burning Fires on paths.
R13	Bamboo Fencing.
R14	Guarding.
R15	Shooting with Guns.
R16	Smoking Holes and Burrows with fire.
R17	Fire Torches.
R18	Throwing Stick Arrows.
R19	Blocking paths with Big Trees.
R20	Making large sounds.
R21	Laying Trenches / Pits on paths.
R22	Laying Electric Wires on paths.
R23	Laying Bamboo Spikes on paths.

Respondents have also assigned specific responses certain species. As seen in table 12 the respondents have only 1 response towards Indian Pangaolin, Asiatic Black Bear and Common Palm Civet while towards Asian Elephant they have as many as 14 responses.

Table 12 – Species specific responses. Responses given in the table correspond to the detailed codes mentioned in table 11.

Responses / Species	R1	R2	R3	R4	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23
Asian Elephant	■	■		■		■		■			■	■	■	■		■		■	■	■	■	
Wild Pig	■	■		■	■		■	■	■	■		■	■	■			■	■	■	■		■
Sambar									■			■										
Muntjac							■	■	■	■		■										■
Serow							■					■										■
Pig Tailed Macaque				■	■		■															
Rhesus Macaque	■	■		■	■	■	■	■					■	■					■			
Indian Porcupine		■					■	■	■	■			■	■	■			■	■	■		
Jackal	■	■	■	■								■		■								
Indian Pangolin									■													
Asiatic Black													■									


Bear
Tiger
Common Leopard
Leopard Cat
Marbled Cat
Jungle Cat
Grey Mongoose
Common Palm Civet

A. List of Large mammals.

Table 13 placed below depicts the list of 56 large mammals considered in the survey. The corresponding local names where they have been identified are mentioned. For certain species more than one local name has been identified.

Table 13 -

SR.	COMMON NAME	LOCAL NAMES
1	Asian Elephant	Mongma
2	Wild Pig	Wak burung
3	Wild Buffalo	Matma burung
4	Gaur	Matchu burung / Mati / Matching
5	Sambar	Matchok / Matchok mesam
6	Muntjac	Maraka / Balgitchak
7	Serow	Matrong / Matgisim
8	Himalayan Goral	Chon.gipa matrong
9	Stump Tailed Macaque	A.brini makkre / Ki.me dongja
10	Pig Tailed Macaque	A.brini makkre / Makkre ki.me gri
11	Assamese Macaque	
12	Rhesus Macaque	Makkre chisam
13	Capped Langur	Ranggol
14	Hoolock Gibbon	Huru / Huro
15	Slow Loris	Gilwe
16	Red Giant Flying squirrel	Bakwan / Matwan / Matwan do.osarang
17	Particoloured Flying Squirrel	Matjol / Matwan
18	Malayan Giant Squirrel	Matkarat
19	Hoary Bellied Squirrel	
20	Pallas Red Bellied Squirrel	Matgitchak
21	Indian Porcupine	Okupu / Matmachi / Pebok

22	Himalayan Crestless Porcupine	Okubu / Ki.me nogri
23	Brush Tailed Porcupine	
24	Jackal	Peru
25	Dhole	Sejal / Se.el
26	Chinese Pangolin	Kawate / Gotai
27	Indian Pangolin	Kawate
28	Asiatic Black Bear	Mapil wak
29	Sloth Bear	Mapil sarang / Mapil
30	Sun Bear	
SR.	COMMON NAME	LOCAL NAMES
31	Tiger	Matcha nawang / Matcha
32	Common Leopard	Matcha peng / Matcha chirua
33	Clouded Leopard	Matcha chidual / Matcha do.tok
34	Golden Cat	
35	Fishing Cat	
36	Marble Cat	Matcha apru / Matcha bolga
37	Leopard Cat	Matcha helguk / Matcha helabak
38	Jungle Cat	Bijare
39	Crab Eating Mongoose	Ang.ke rijong
40	Grey Mongoose	Chuna
41	Binturong	Matchibil
42	Himalayan Palm Civet	Jonga / Matchru
43	Common Palm Civet	Menggo apru / Baira asru
44	Large Indian Civet	Matchuri gisim / Matchru gipak
45	Small Indian Civet	
46	Spotted Linsang	
47	Smooth Indian Otter	Matram / Matdam
48	Common Otter	
49	Small Clawed Otter	
50	Himalayan Marten	Matpra
51	Hog Badger	Waksel / Wakwek

52	Large Toothed Ferret Badger	
53	Small Toothed Ferret Badger	
54	Black Naped Hare	Sapau / Susreng
55	Northern Tree Shrew	Mengchut / Mengkotchi
56	Red Panda	Matcha pantao

B. List of Akings

Table 14 placed below depicts the list of 33 akings that constitute the target landscape.

Table 14 -

Sr. No.	Aking name
1	Siju
2	Rewak
3	Balkal
4	Hangsapal
5	Rongrengpal
6	Gongrot
7	Halwa Atong
8	Alokpang
9	Ampangre
10	Halwa Ambeng
11	Halwa Bilda
12	Dambuk Atong
13	Kunchung
14	Phanda
15	Dambuk Adingre
16	BOLBOKGRE
17	Dambuk Aga
18	Bolchugre
19	Dambuk Jongkol
20	Dambuk Apal
21	Dobakhol
22	Gaobari
23	Nengsra
24	Gulpani Songmong
25	Thaidang
26	Sijubari Chimitap
27	Rongminchiring
28	Chenggni
29	Inolgre
30	Nadangkol
31	Bonbera
32	Pindengru
33	Rangtangsora