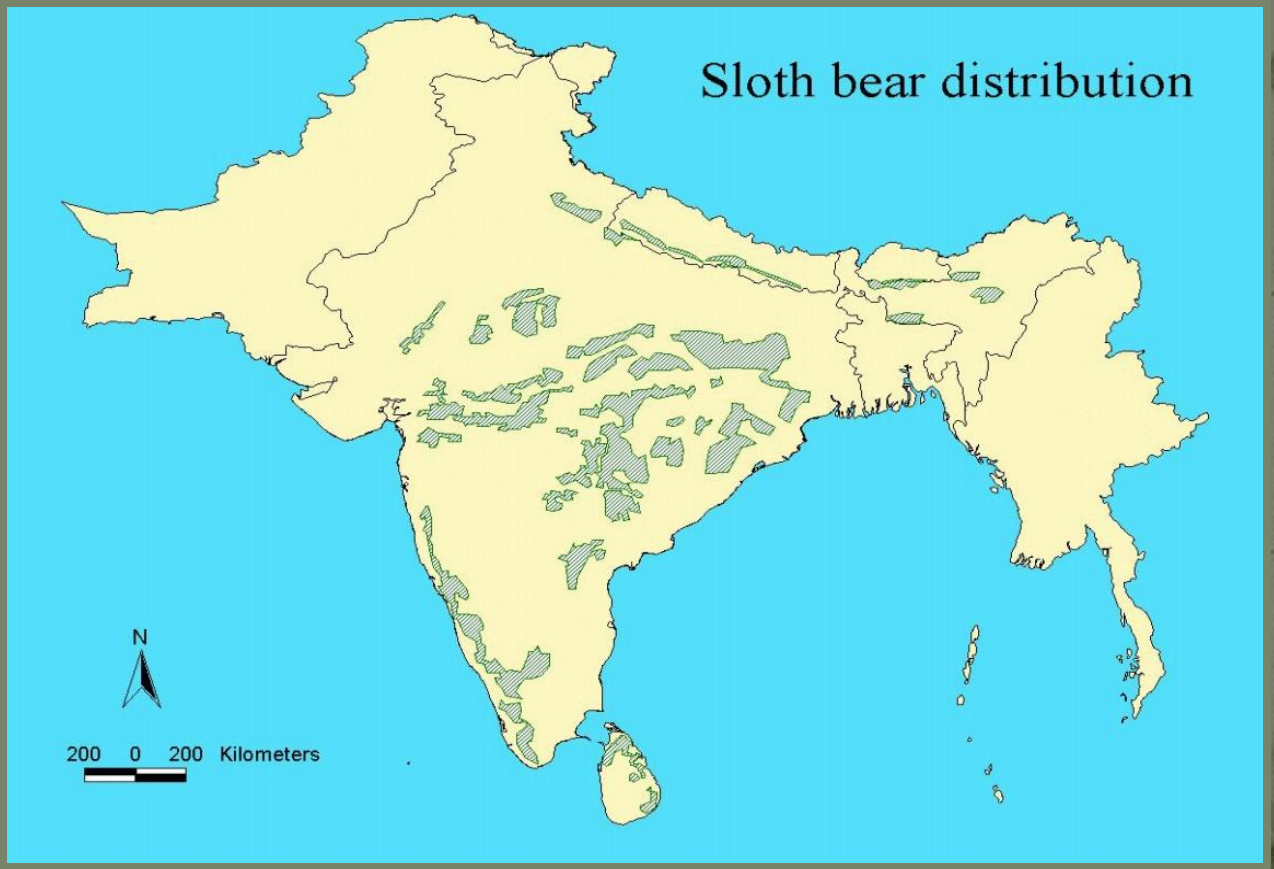
THE SRI LANKAN SLOTH BEAR; RECENT FINDINGS FROM WILPATTU

RANIL P. NANAYAKKARA & NILANTHA VISHVANATH
Co-founders BEAR (Biodiversity Education And Research)
Department of Zoology, University of Kelaniya
IUCN Sirenia Specialist Group Regional Member (Indian Ocean)

Introduction

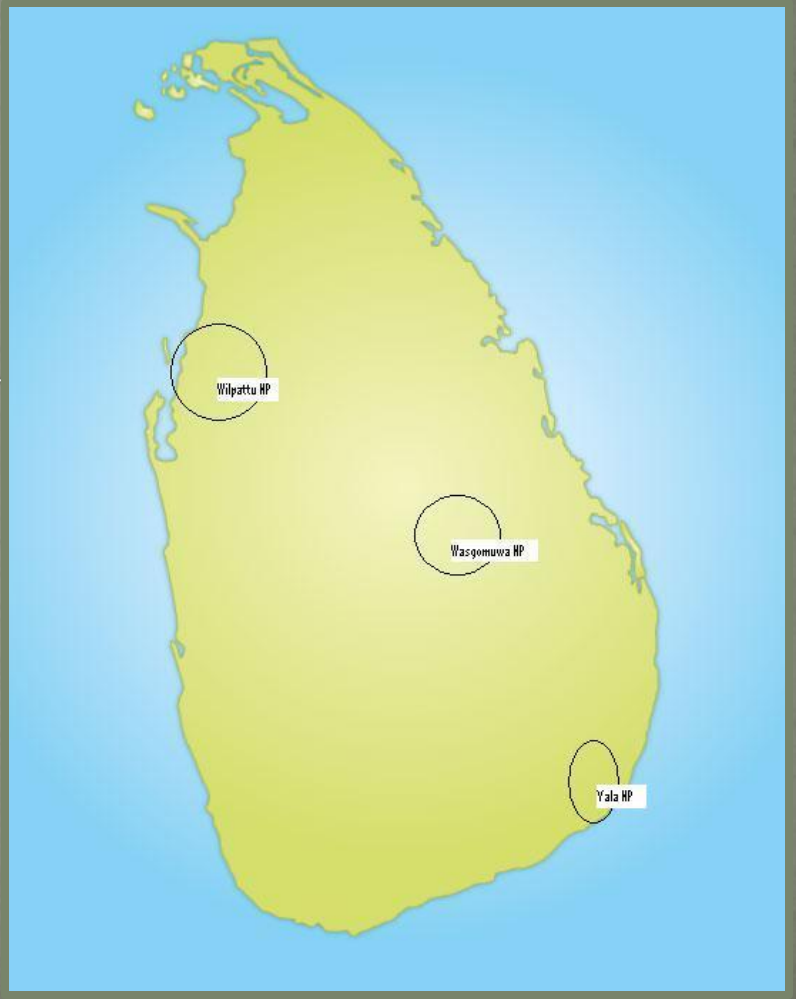
- a member of the family Ursidae
- lowland India, Bangladesh, Nepal, and Sri Lanka.
- two recognized sub species (*Melursus ursinus* & *Melursus ursinus inornatus*)



Previous Studies on the Sloth Bear in Sri Lanka

Eisenberg and Lockhart 1972.

Rathnayake, 2000-2001.



Need of the project

- As a species vulnerable to extinction(MoE, 2012 & IUCN, 2013), monitoring of number of sloth bears is urgently required .
- limitations of the existing methods, examining the potential use of other survey methodologies such as camera trapping, track census and spot light census.
- assessing population trends and in assessing and establishing whether current estimates of the sloth bear population are accurate

RESEARCH AIMS AND OBJECTIVES

- **Goal**

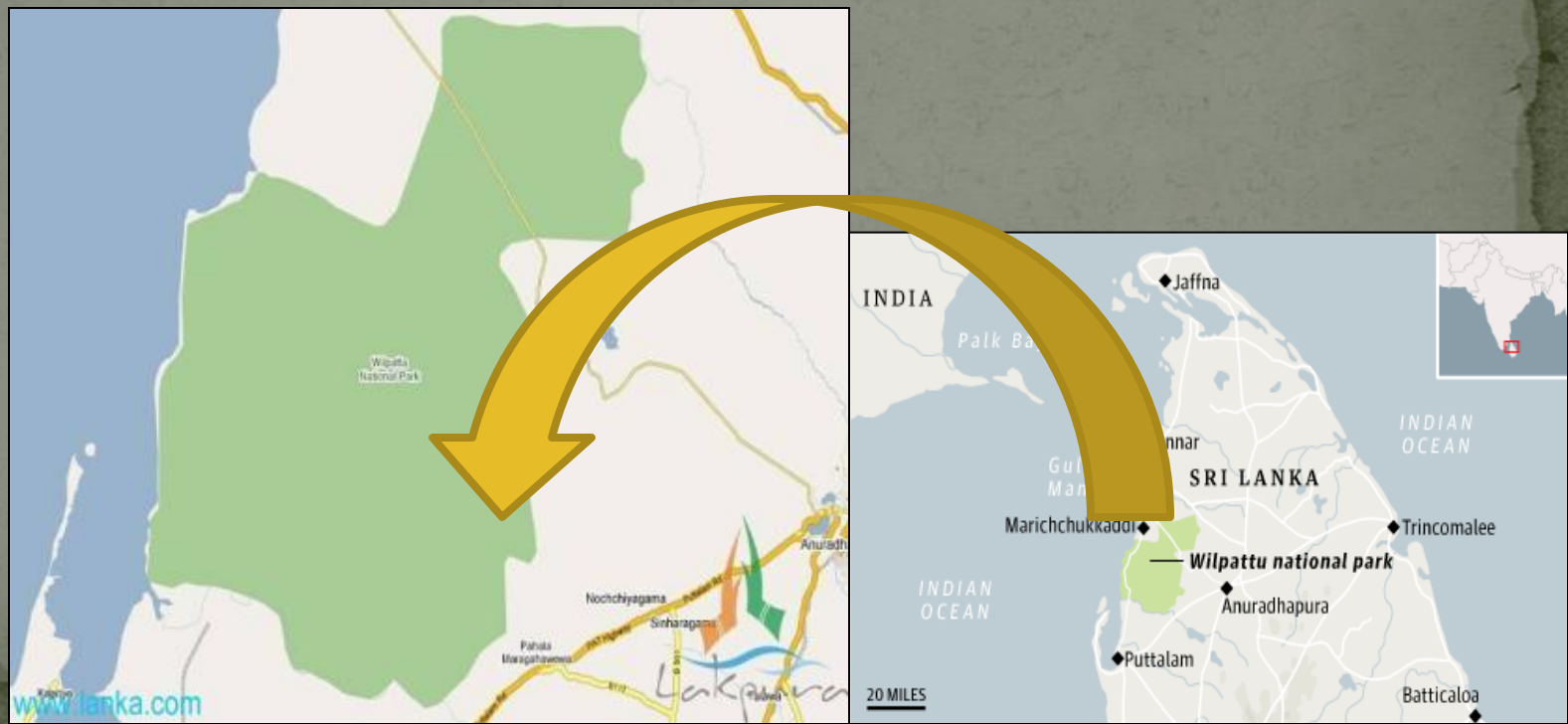
To map, evaluate the population density and composition of sloth bears in Willpattu National Park and to identify their habitat needs and preferences. The information/ knowledge gained through this study can then be applied island wide in the subsequent conservation strategies and efforts for the sloth bear.

- **Objectives**

The following objectives have been established for the present research study:

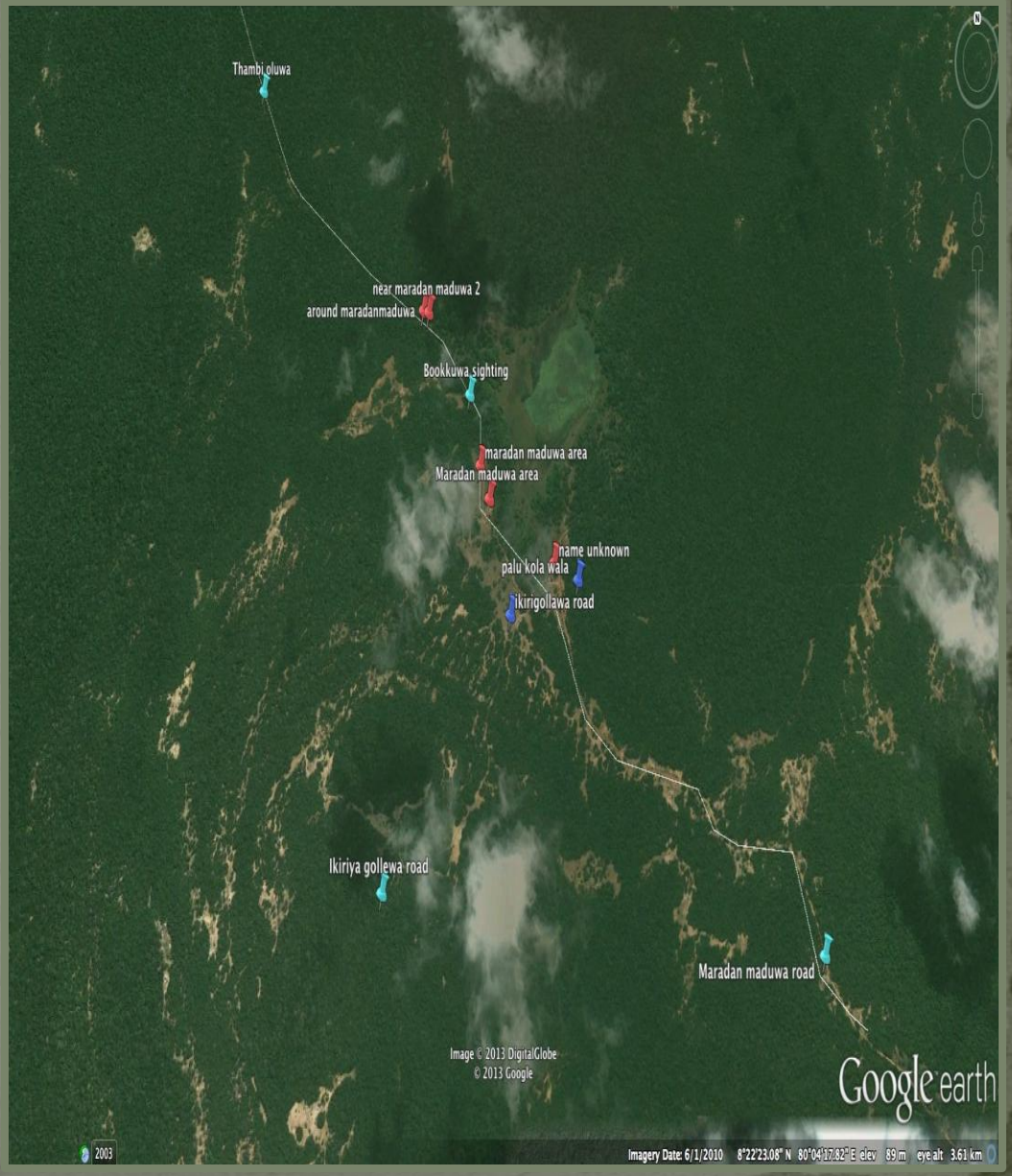
- To evaluate the population densities in Wilpattu National Park in different types of habitats.
- To identify their specific habitat needs and preferences.
- To collect scat sample to analyze their seasonal diet and possible DNA analysis

- Wilpattu National Park (Willu-pattu: Land of Lakes) is located in the Northwest coast lowland dry zone of Sri Lanka.
- The park is 131,693 hectares and ranges from 0 to 152 meters above sea level.
- Number of lakes or (willu) and tanks are found spread throughout Wilpattu.



- preliminary survey

- As per the results of the preliminary survey Maradanmaduwa in Wilpattu National park was chosen.
- The following techniques were administrated to get a consensus of the population density of sloth bears in the Wilpattu NP
  - Spot light census
  - track census
  - camera trapping



Silent drive spot light census

- 10km stretch of road from Palu kola wewa to walaswala was demarcated as a permanent line transect.
- A four wheel drive pickup was used, while maintaining a speed of 20kmph, between 19:00 hrs – 22:00 hrs.
- 50 watt filtered handheld lamps were used to spot the animals.
- Every 500 m the visibility was measured to calculate the average visibility of the area.

Total survey area = Length of the transect x Average visibility

$$\text{Population density} = \frac{\text{Average number of individuals per visit}}{\text{Total survey area}}$$

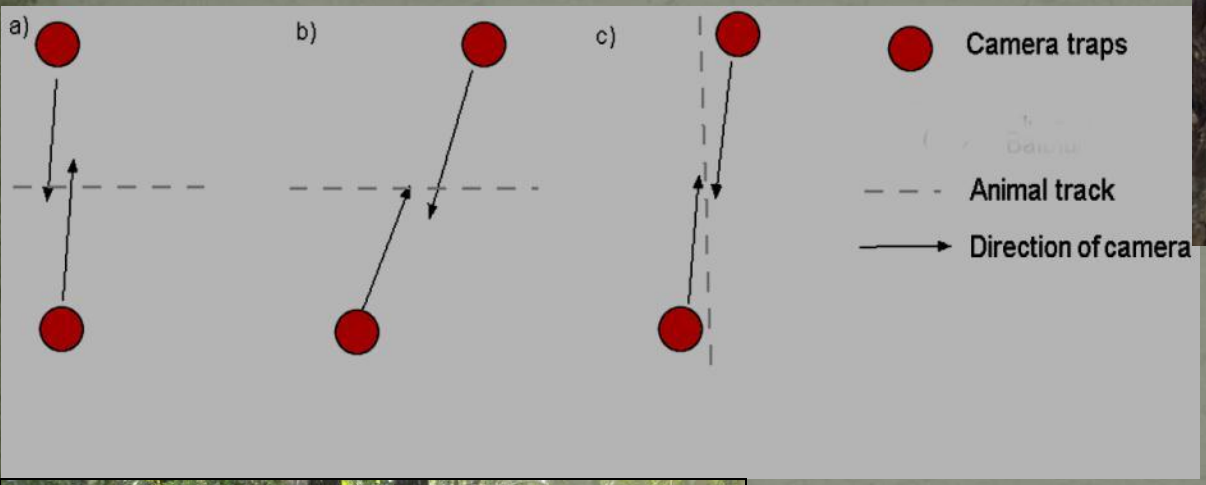
Silent drive spot light census

Track census

- Three 200m x 4m transects were created in three different locations with suitable sandy substrates within the study area.
- Track crossings were counted along this transect over a period of 9 days, which was broken down into 3 days per month
- Before dusk each line transects was cleared using branches, which effectively obliterated tracks
- The transects were monitored on foot the following morning at 6:00 hrs before vehicles entered the park.
- Calipers were used to measure the width and length of the bear tracks, to eliminate subsequent crossings of the same individual animal. This technique ensured a precise12-hour period for track accumulation.

Track census

Camera trapping




MOULTRIE
CAMERA 3
23 JUN 2014 09:29 pm


MOULTRIE
CAMERA 3
22 JUN 2014 02:54 am


MOULTRIE
CAMERA 1
20 JUN 2014 10:06 pm

- Scat samples (bear droppings) were collected monthly to analyse the seasonal dietary habits/composition of sloth bears.

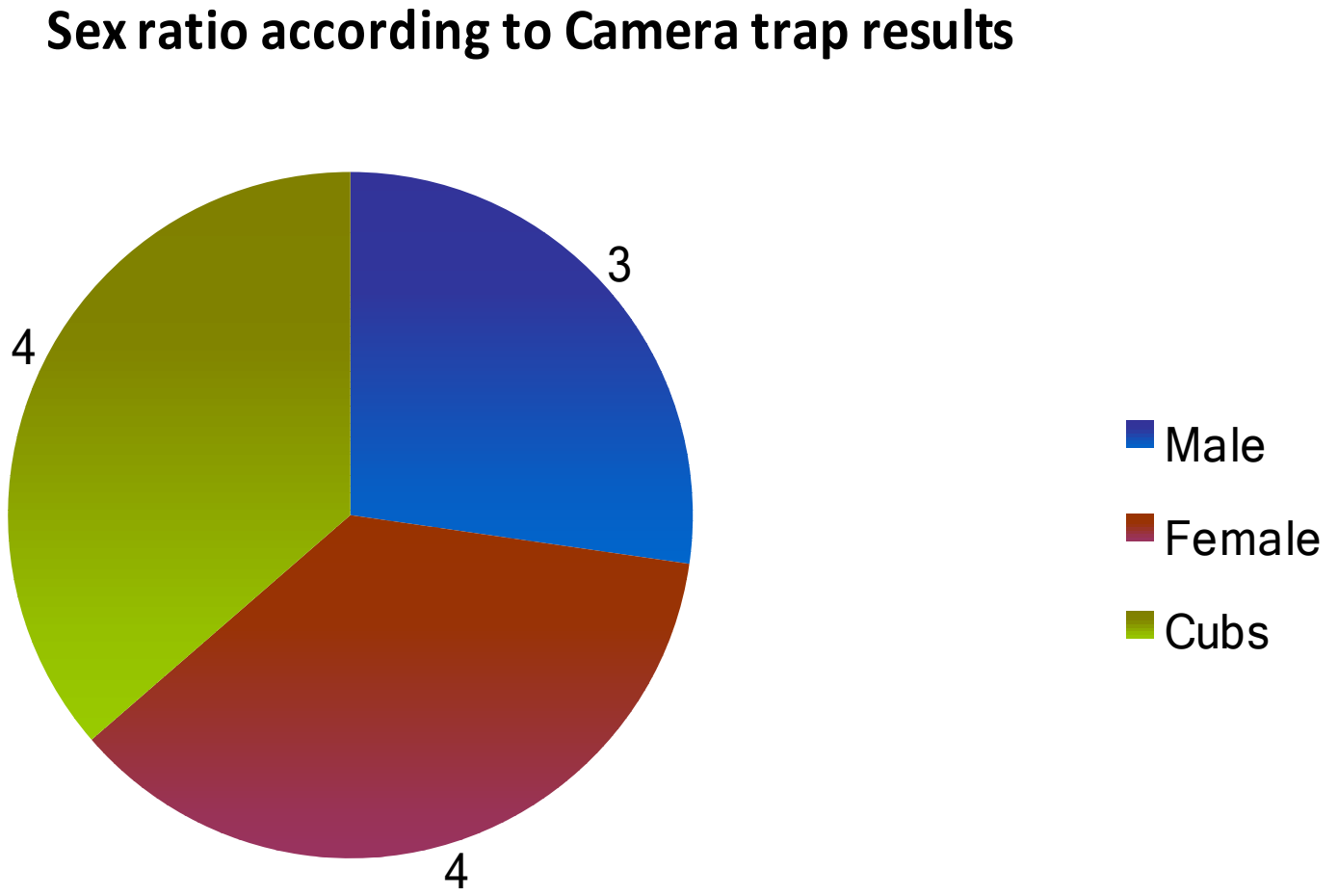
Vegetation analysis

- Three 10x10m plots covering major vegetation types (primary forest, shrub lands and grasslands) were studied within the study area.
- All plants that are having DBH over 5 cm were identified, the height and DBH (Diameter at breast height) were measured.
- 3mx15m line transect across the plot was used to develop the tree profile.

RESULTS AND DISCUSSION

- During the study period a total of 116 confirmed records of sloth bear were found, 11 camera trap records, 15 spot light records, 66 track records and other 22 visual encounters during the study.

- Camera trapping yielded a total of 11 records, in 16 trapping positions in 94 trapping days. Out of the 11 records 1was in a muddy waterhole, 1 was in a pool situated over rocks, a female and two cubs along the “Pitiya”/open area near Maradan maduwa and remaining were on the main roads.

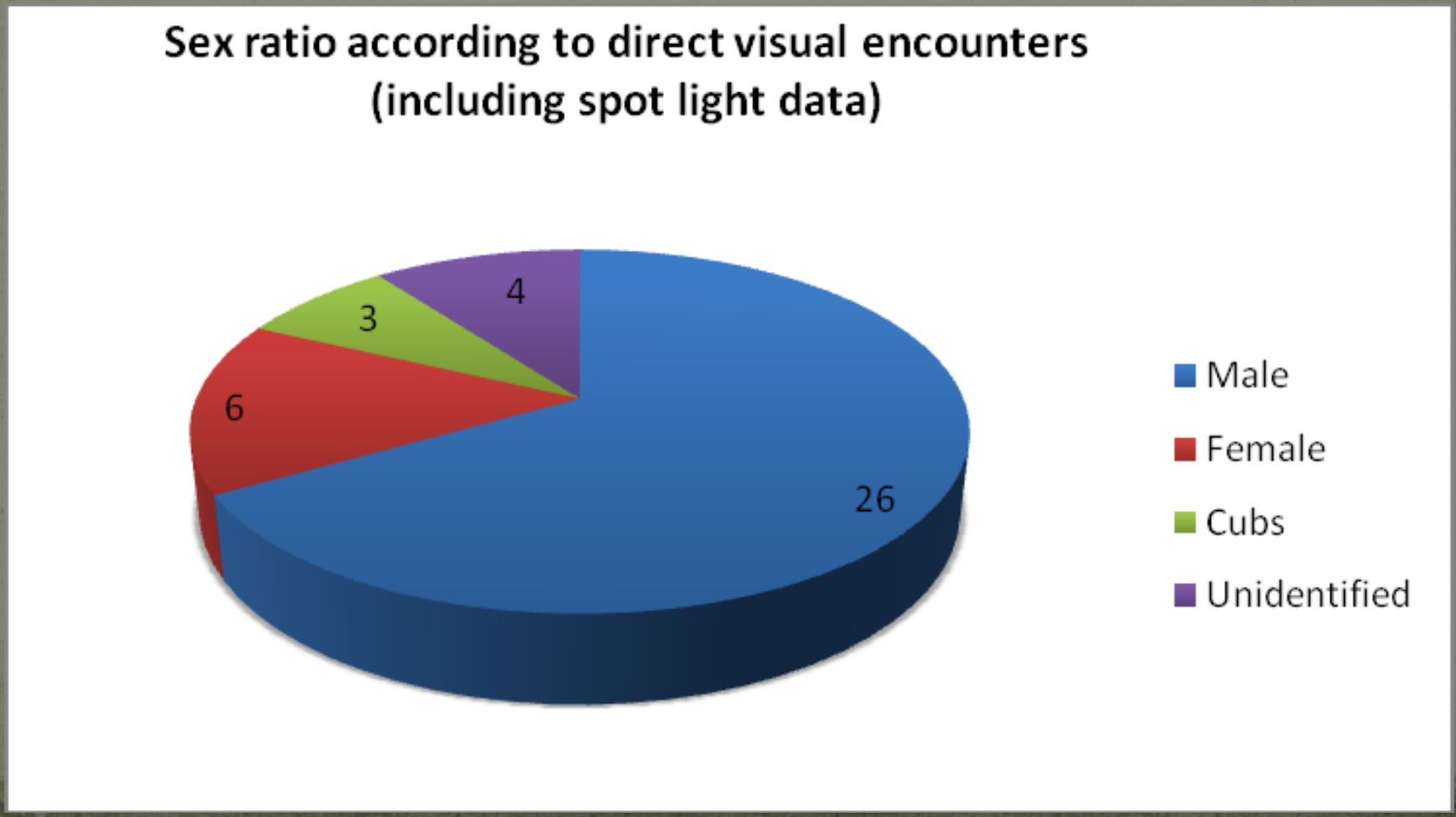


- Sex ratio of camera trap records was found to be 3 males, 4 females and 4 cubs.

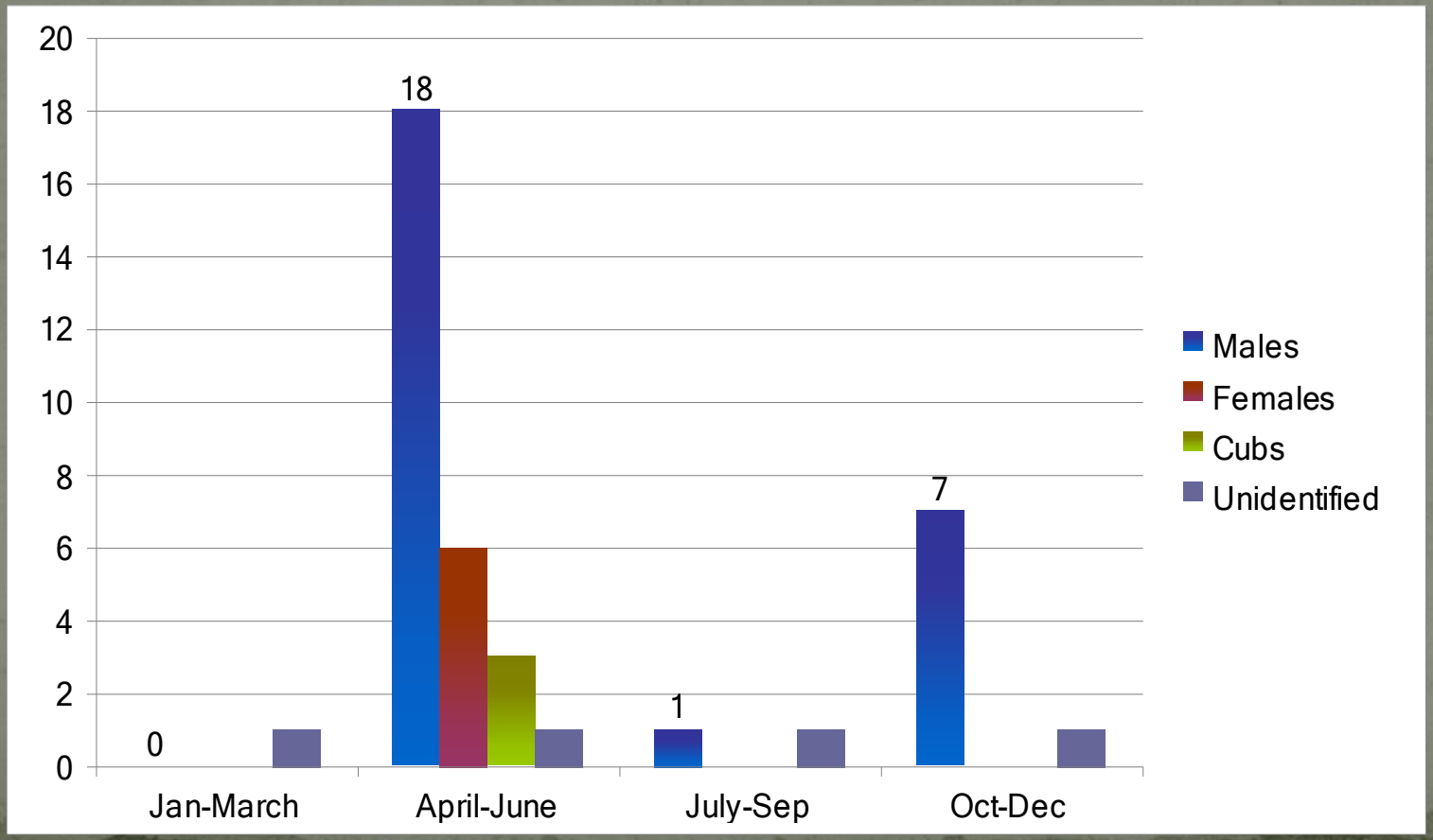
- Over 60% (6 out of 9 study plots) of the study area confirmed the existence of sloth bears, by the use of Camera traps.
- However, this results along with the results of visual encounter (Daylight photos of Sloth Bears) was used to identify11 different individuals in and around MaradanMaduwa area (around the line transect).
- This consists of 6 males 2 females and 3 cubs. (Cubs were identified using the features of the mother).

- Overall sightings of spotlight census were 15 sightings in 16 drive averaging 0.937 sighting per drive.
- This consists of 7 males, 3 females, 2cubs and 3 unidentified sightings.
- The average visibility of the transect was calculated as 50.4m (both left and right), the total survey area was 0.504 Square kilometers.
- The population density of the area was established as 1.86 individuals per Square Kilometer.
- The maximum number of sightings per drive was 3 sightings (in November and July)
- Possibility of encountering at least one bear during night drive is 62.5%

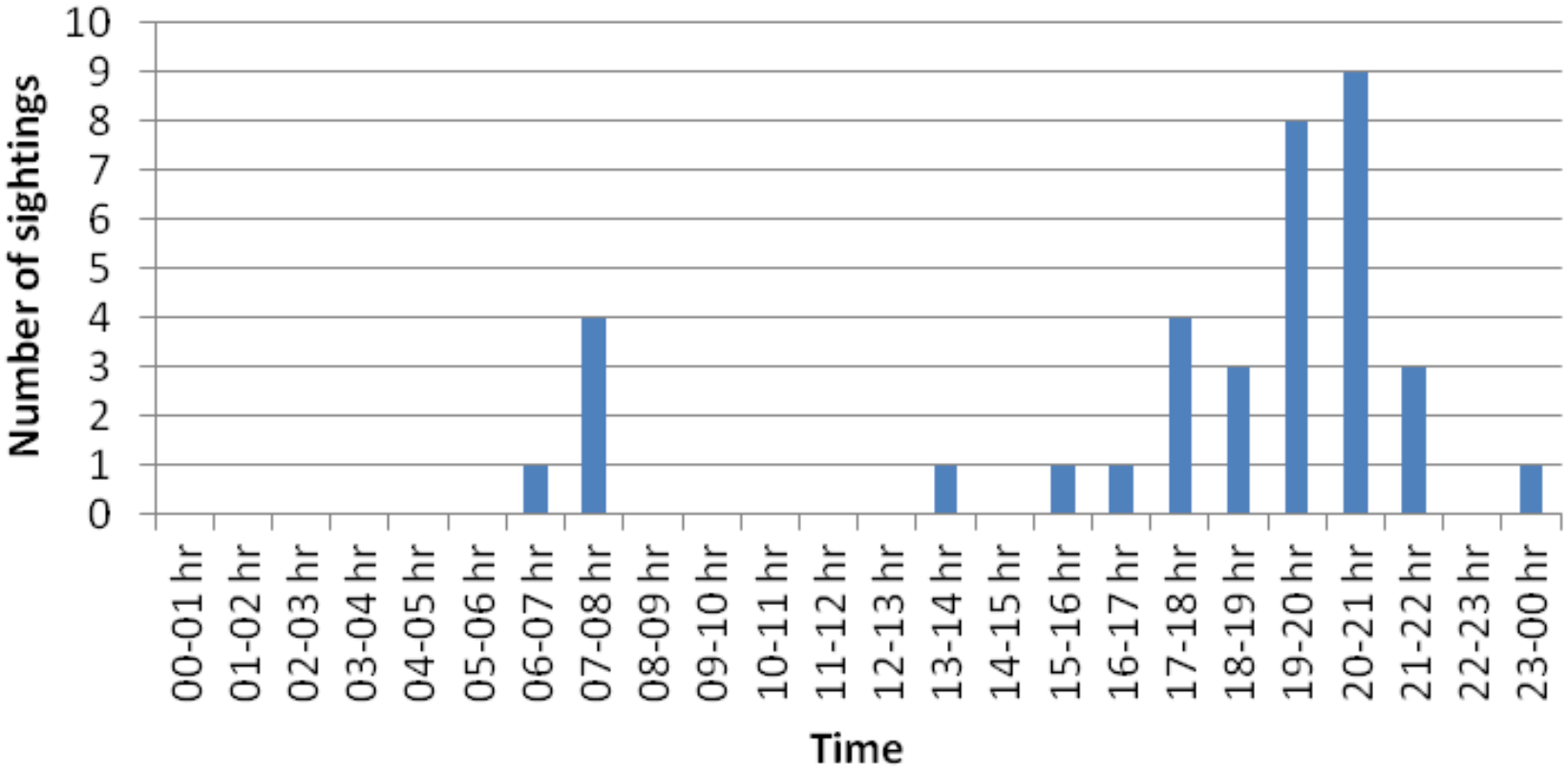
A total of 39 direct visual encounters (including night drives,) were recorded during the study period. 26 were male animals, 6 females and 3cubs were recorded and 4 were unidentified.



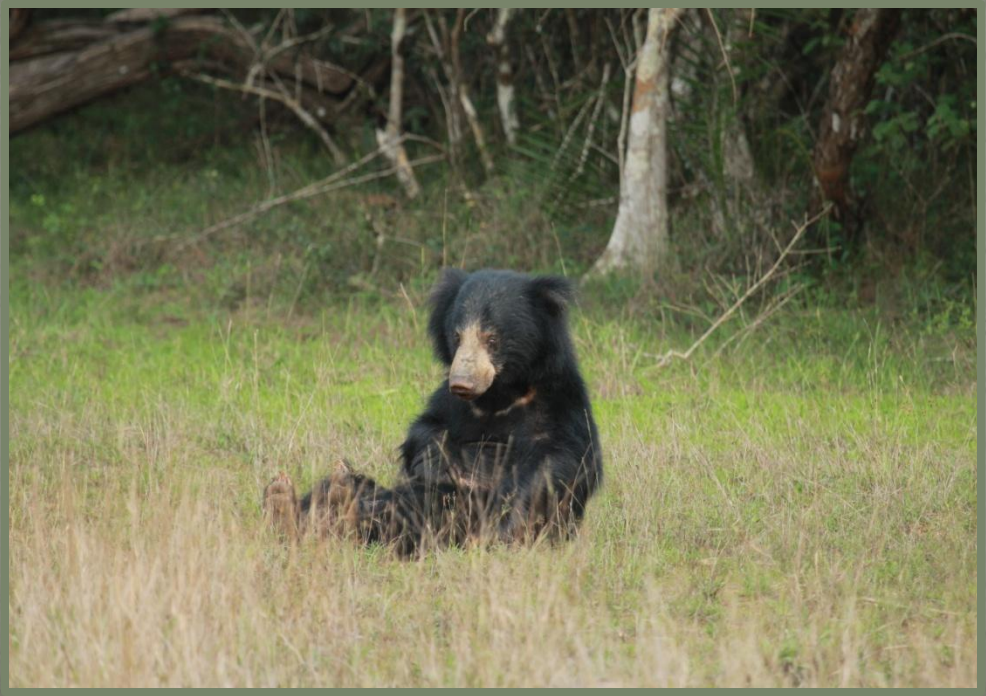
- Out of all direct visual encounters, 28 sightings were recorded during the months of April-June, 8 was recorded during October – November whereas the remaining two quarters (January- March and July - September) resulted in very low numbers.



Activity pattern of the Sloth Bear



- Three mating pairs and mating calls were observed at three different locations of the park, in Maradan maduwa, Ikiriyagollawa road and near Nelumwila during the month of June.
- Four females along with their cubs were also recorded during this period.

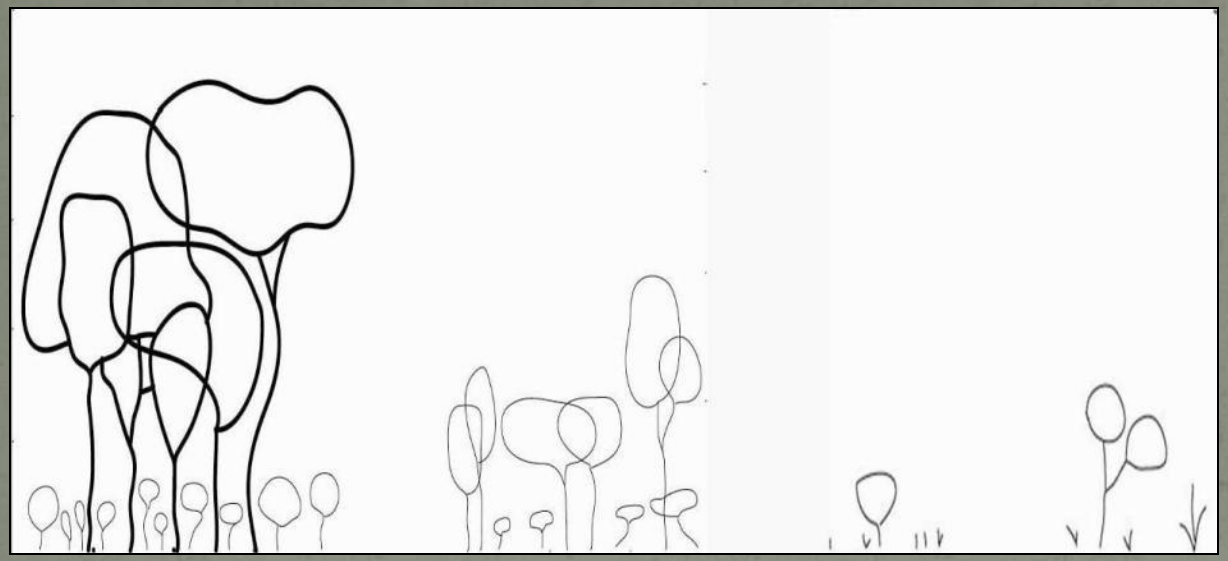


Scat Analysis

- In our study area sloth bears were apparently omnivorous, eating fruits and insects, with plant material constituting a major part of their diet the bear scat in the maradanmaduwa area chiefly contained the remains of fleshy fruits viz., weera *Drypetessepiaria*, madan *Syzygium cumini* and palu *Manilkara hexandra*, along with remains of termites, these four species dominated the diet in the study area.

Vegetation analysis

Tree profiles of the three different study plots are as follows



Dry deciduous forests Shrub lands Grass lands

The major species found in the canopy of the study plots were (Weera)*Drypetessepiaria*, (Palu)*Manilkarahexandra*, *Diospyros sp*., (Burutha) *Chloroxylonswietenia* . Sub canopy and understory consisted of mainly (KoraKaha) *Memocylonumbellatum* (Korakaha), (Karaba) *Carissa sp*., (Yakinarang) *Citrus sp*. (Walindi) *Phoenix sp*..

- The study indicates that camera trapping along with spotlight and track census is a good technique in estimating the population of sloth bears.

Hypothesis

Scat patterns

Den sits

Habitat preference

Phase 2 of the study

Goal

To map, evaluate the population density and composition of sloth bears in Willpattu National Park and to identify their habitat needs, preferences and home range. The information/knowledge gained through this study can then be applied island wide in the subsequent conservation strategies and efforts for the sloth bear.

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Acknowledgements

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THANK YOU