

## **Project Update: May 2011**

Kodagu, Southern India, which produces about 2% of world's coffee, is the study region for my study "Embracing Elephant Behavioral Dynamics for Human-Elephant Co-existence". Coffee plantations cultivated in the dense multi-storied agroforestry systems are considered as "managed forests" and these harbour about 1252 elephants either as residents and migrants.

I have now completed 6 months of field work for my project which commenced from December 2010.

1. The first phase of the study which was planned to start in October 2010 was held up due to the delay in obtaining official permission from the Forest Department. Records of crop compensation and damage cases for the last 6 years till present are being collected from the each Forest Range of Kodagu. Other required documents like topography maps, forest department maps, etc were also obtained to assist with selecting transect and conflict study sites. Most of the records are in local language and have to be translated, so the data collection is still in progress. Data is simultaneous being entered into Microsoft Excel sheets.
2. Pilot surveys were carried out according to the human-elephant conflict intensity in the region. For the feasibility of my work, the southern part of Kodagu has been considered as the primary study area. Further, major corporate estates (TATA, Bombay Burma Trading Corporation Ltd (BBTC)) and other smaller corporate estates (Dubarry, Eliza, Maldare estate, etc) were contacted for permission to work on these from the month of January. Mobile numbers were and are being distributed to the relevant estate people. Information on elephant presence and location of their presence is pursued, and the area is then visited to take opportunistic videos and photos, GPS locations, measures of distance from the Reserve forest, and so on. Within each estate, these are divided into several blocks for management purposes. Blocks which elephants use as refuges areas are identified with the aid of local information and also through constant field visits. Also, rainfall data and other information about each corporate estate (planting, staffing, responses to elephants etc) are being collected and entered into Microsoft Excel. GPS locations of estate boundaries, sacred groves and reserve forests are being marked on a general site map.
3. Camera traps: Dr. Andre Pittet, Centre for Electronics and Design Technology, Indian Institute of Science (IISc), Bangalore has provided 4 Camera Traps for this project. An additional 4-6 camera traps will be made available soon. Estates were and are being visited for determining suitable sites for the placement of camera traps. Elephant's entry - exit points and certain regular path are monitored for 3 months through indirect signs (footprints, damage to fences or plants, dung) and direct signs (sighting). Cameras are rotated very 2-3 weeks to different identified regular entry and exit points since this work aims mainly to identify the individual elephants entering the estates.
4. Randomized line transects are currently being laid out for vegetation (3 transects have been completed) and dung surveys in corporate estates, private estates and reserve forest. Line transects of 3 km each, with a strip width of 5m on both sides are being laid out and undertaken. All dung samples within the 5m width are considered. Perpendicular distance to the transect line, GPS locations of each dung are taken. Any damage to the coffee plants or trees is also noted down along with their perpendicular distance to the transect. For an intact dung bolus, this is measured using vernier calliper since bolus size is an excellent indicator of age and maturity. Dung piles are weighed and checked for the presence of fibre and any other seeds (e.g. Coffee, jackfruit, etc) or plants that can be identified (grass, stem, branches, leaf, fruits and so on).

5. Dung-decay monitoring is also carried out simultaneously within the estates whenever fresh dung piles are located within 24 hours of deposit.
6. Opportunistic unstructured interviews with local people and managers are being carried out.

**Work yet to complete**

Since the field work was started only from the month of January 2011 as opposed to October 2010 due to logistical and weather delays, the field work period has been extended from December 2011 to April 2012.

Vegetation sampling completion by October, 2011. Two more dung surveys in the month of November 2011 and one in April 2012. Dung decay monitoring will continue throughout the study period and the camera traps will also be rotated in different locations within the estate.



**Figure 1 : View from top of one of the estate (Yemmegundi Divsion, TATA Coffee Ltd)**



**Figure 2: Family of three inside the Coffee estate (Gattadhulla, TATA Coffee Ltd)**



**Figure 3 : Elephants inside the Coffee estate (Gattadhulla, TATA Coffee Ltd)**



Figure 4: The Famous “Muduka” (Oldie) in the Coffee estate. He seems to have an infection in his left eye.



**Figure 5: Elephant inside the coffee estate (inside the blocks). Due to low visibility in Coffee estates, behavioural observations are difficult.**



**Figure 6: Field assistants at work (Dung survey). This is inside one of the blocks within the coffee estate which is usually used as refuge areas. Elephants uproot or bend the coffee plants to make space for themselves. If elephants enter one side, there are specific places within a block where they take refuge during the day time**