

TOOLS AND METHODOLOGY

2.1 TOOLS

The following classical tools of an ethologist were used - Eyes, ears, camcorder, sound recorder, note pad, data sheet, pen/pencil and stopwatch.

For vocalizations, Matlab software, version 8 was used and audiospectrograms were elucidated for each vocalization recorded.

2.2 METHODOLOGY:

2.2.1. Focal Sampling Technique

The behavioral studies were done by focal sampling technique. The behavioral pattern and activities of animal were recorded on the data sheet. Each activity was be assigned a particular code to make the recording of data convenient. Each field observation hour was divided into four sampling periods of 15 minutes each. A sampling period had an observation/recording time of 10 minutes and notes- making interval of 5 minutes.

With this method, several behaviors in selected individuals could be observed simultaneously. For example, when maternal behavior was recorded, a focal animal sample of an individual provided a record of all acts in which that animal was either the actor or receiver.

Sampling Period = 15 minutes

Notes-Making Interval = 5 minutes

Observation/Recording Time = 10 minutes

The observational animals belong to the **Sahiwal breed of *Bos indicus*** at all 3 sampling sites.

2.2.2 Sampling Size

Total of 30 individual animals were observed, 10 from each of the three sampling sites.

2.2.3. Sampling sites

Three different sampling sites from Agra-Mathura- Kheragarh region were-

1. Dayalbagh Goshala, Agra - Privately managed, unorganized, medium capacity
2. Smallholders sites, Kheragarh – Family managed, unmonitored, small capacity
3. DUVASU Dairy Farm, Mathura – Govt. managed, organized, large capacity

Figure 1 shows a map with the location of all the sampling sites.

1. Dayalbagh Goshala

Dayalbagh Goshala is situated near the DEI Campus. There are 4 physically separate sheds - Milking ward, Maternity ward, Sick ward and Calf ward. The Goshala housed 450 cows, out of which 180 were milking cows. Free ranging area was not available for milking cows and milking shed had a space crunch. However, they were regularly herded out for grazing upto a distance of 3 km towards Poiya Ghat, the Yamuna river bank, every morning and evening. Melodious Shehnai instrumental music was played for calming and soothing the cattle.

2. Small holder sites, Kheragarh

Kheragarh is 45 kilometers from Agra. It houses numerous rural Smallholder families that maintain a few cows as their source of livelihood in the open space of their residential plots. A lot of free space was provided around the animal anchoring trees, with natural environment. Mother and calf were within each other's vision 24X7.

3. DUVASU Dairy Farm, Mathura

This site is Government funded and intensive farming management is practiced in this organized Dairy farm. Milking cows are under continuous observation of the trained and experienced caretakers. Total cows were 250 and milking cows were 180. Proper spacing amongst individual animals was maintained in milking shed with continuous play of music and running fans.

Sanitation conditions were good and great care of mothers and calves was provided, with regular check ups, tests and high quality feed. Proper fields were nearby for grazing the milking cows.

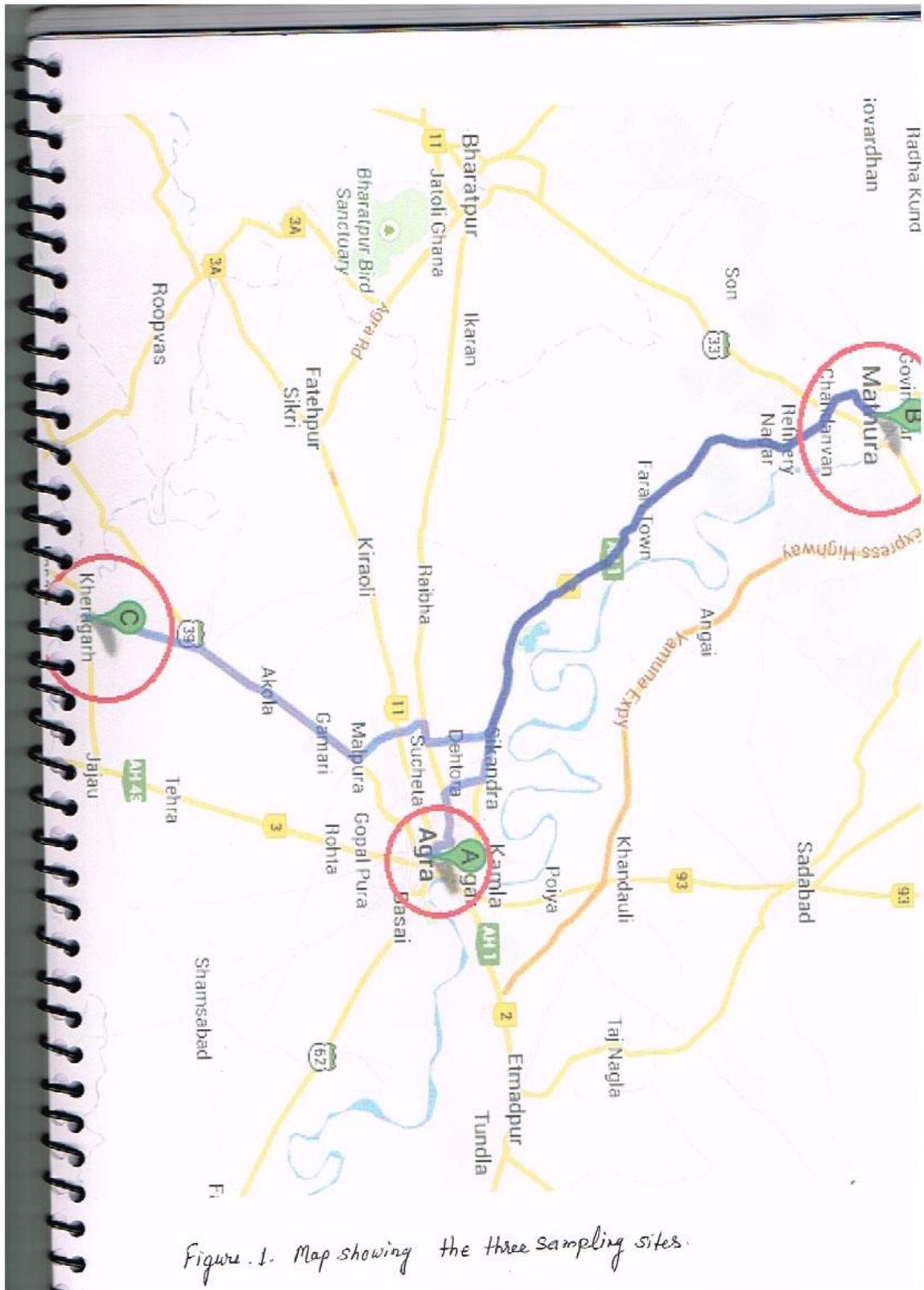


Figure .1. Map showing the three sampling sites.