

Elephant's movement route identification: A detail investigation in Bankura district, West Bengal, India.

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Abstract:

Animal migration is a natural process in respect of their basic needs. Every animal group or individual require certain space for their ecological interaction as a member of ecosystem. It is easy to say that the biggest animal require large space (home range) for their survival. These animal change or extend their home range due to changed climatic condition, different biological problem and anthropogenic factors. For this instance we see the biggest terrestrial mammal elephant (*Elephas maximus*) migrate long distance from sink region to source region seasonally. Bankura district is becoming a new destination for elephant from Dalma Wildlife Sanctuary, Jharkhand. These migrated elephants are roaming about throughout the district. Study tries to investigate could they maintain any following route for their movement. For that purpose study collect information from forest rangers in different successive two years. By the information it has been found that elephants maintained their movement route positively as same as former year.

Keywords: Animal migration, Home range, Sink region, Source region, Anthropogenic factor.

Introduction:

Conservation of wildlife animal needs some information about the background of the wildlife situation, history of the particular place. Elephant of Dalma Sanctuary, Jharkhand roaming about towards western part of West Bengal state follow the regenerated forest patch (R.Sukumar, 2003). Landuse variables such as spatial heterogeneity in vegetation, seasonal change in resource availability and population density have influenced elephant migration (Kumar et al, 2010) in a big way. But the ancient Gazetteer report of the study area shows the different situation. According to the Bengal District Gazetteer Bankura wild elephant were formerly fairly numerous but have now disappeared (O. Malley, 1908). Elephant become rare until 1980s due to forest losses and poor cover quality of coppice sal forest (Palit, 1991; Malihitra, 1995; Panda, 1996). A change detection method based on 1988 to 1991 satellite image data for Bankura and adjoining districts of south West Bengal confirmed positive increases 315 km² in forest cover (Sudhakar and Raha, 1994). In support of increasing movement of elephant in this region Government of India declare a reserve for elephant consisting part of Purulia, Paschim Medinipore and Bankura District as Mayurjharna Elephant Reserve (414 sq km) in 2002. From Dalma to this district, elephants come and go back in defined time. But their coming and going route is less investigated. Therefore our work result is very important because so many social issues are being related with movement route of elephants.

Study area:

Bankura district is situated in the eastern portion of Chotonagpur plateau. It is ecologically and topographically a transitional region. Extension is 22°38'01.09"N to 23°38'06.24"N and 86°36'18.35"E to 87°46'25.56"E with 6882 sq. km geographical area. Bankura district consist of 28 forest ranges and three forest divisions. The

character of the forest of the study area is tropical dry deciduous forests with central plant species composition are Sal (*Shorea robusta*).

Objective:

Elephant movement route identification in the district is now become very essential to control many social issues. Many implementation program which related with its, will be applicable when route is demarcated. Keeping in view the above mention situation the propose study is designed by these objectives.

1. A comprehensive survey has been conducted to gather information from forest rangers to get the entry and exit route of elephants.
2. This same method done in different two years to verify the results.
3. Finally a movement route map will be prepared for this district.

Materials and methods:

A forest range level survey was carried out. At first a mouza map of Bankura district was prepared. This map was clipped by each forest range by using ArcGIS 10.3 version Software. In this clipped map elephant's movement route is sketched by the information of a particular forest ranger or office stuff. This survey work has been done from all forest range in Bankura district. After completing this all sketched map were mosaiced to prepare a district view map of elephant movement route. This survey was done in two different years (2016-2017) to justify the results.



Fig-1. Elephants route through mouzas in different two colours in different two years (blue-2015, orange-2017) in Radhanagar forest range. Sketched from the range office stuff information.

Results: In two successive year elephants hardly follow more or less same route. By the information of some forest rangers like Saltora, Khatra, Mejhia, sub group or individual elephants accidentally entered into this ranges.

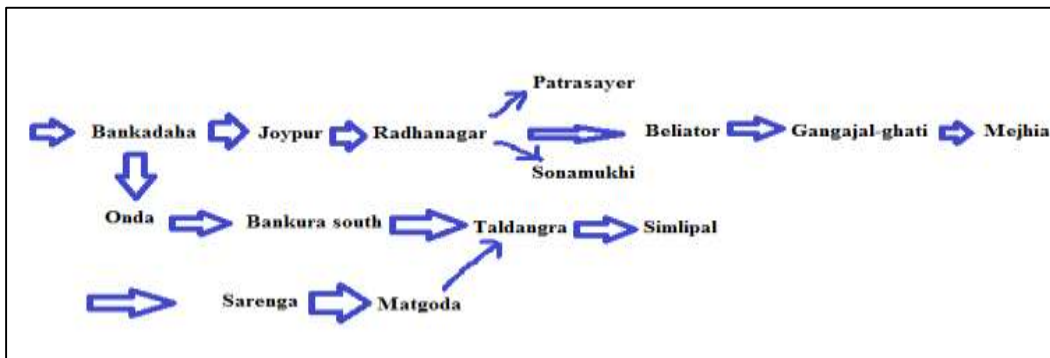


Fig-2. Flow direction of elephant movement through the forest ranges in Bankura district.

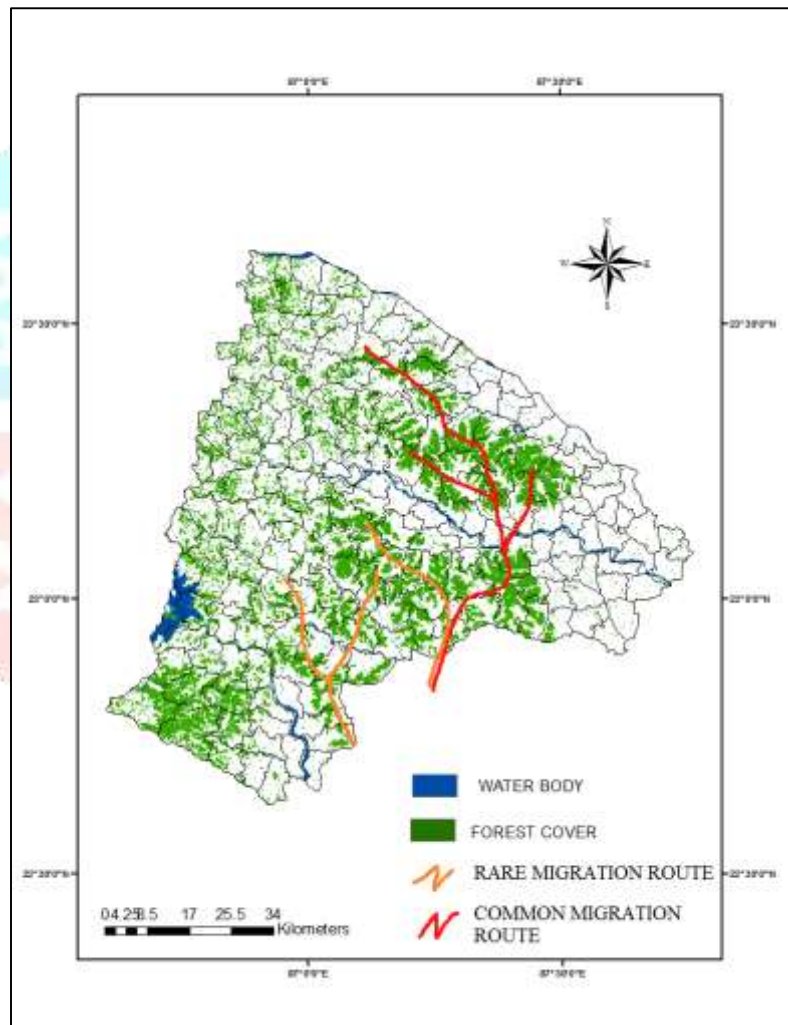


Fig-3. Elephants movement route map of Bankura district through associate mouzas in 2017. Source information by forest rangers or office stuffs.

Discussions:

After finalizing the map of elephant's movement route it has been found that elephants maintained their movement route using forest patch. In this successive two years there is no remarkable change has been found. The buffer zone of the movement route of elephants will be more affected socially. Therefore when any method will be implemented to conserve or control the situation, this buffer area will take at first for their exposes to elephant's movement.

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