Opportunities for wildlife habitat connectivity between Kanha National Park and Pench National Park in Madhya Pradesh

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Wildlife corridors have been broadly defined as landscape elements linking historically connected habitats in order to facilitate movement and offset possible long term negative impacts of inbreeding and genetic isolation. Wildlife corridors have long been a subject of considerable discussion amongst wildlife biologists and conservationists with contrasting schools of thought arguing their merits and demerits. However studies during the last few years have indicated that wildlife corridors have emerged as a critical conservation strategy that can help minimise genetic isolation, offset fragmentation problems, improve animal dispersal, restore ecological processes and reduce of man animal conflict. .

This study was undertaken to explore the possibilities of identifying a suitable wildlife corridor between two very important wildlife areas in India the Kanha National Park (KNP) and the Pench National Park (PNP) both located in the central Indian state of Madhya Pradesh. Kanha is one of the richest biodiversity areas in India with around 300 species of birds and 22 species of mammals which includes the highly endangered swamp deer. As per the 2002 tiger census, Kanha had a thriving tiger population of 127 tigers. The Pench National park and tiger reserve which is approximately 200 Kms from Kanha is spread across the Seoni and Chhindwara districts of Madhya Pradesh. The Pench national park is also very rich in biodiversity with around 20 species of mammals and around 300 species of birds. The Pench National Park (Madhya Pradesh) as per the 2002 tiger census had 40 tigers. The present project attempted to evaluate the possibilities of assessing the suitability of this area as a wildlife corridor with Tiger as the focal species. The project specifically focused on the use of Geographic Information System (GIS) modeling to identify likely routes for movement of tigers based on various parameters like cover, prey abundance, human habitation and natural and artificial barriers between these two areas. Cost path analysis was carried out in the Arc-GIS environment to identify a suitable corridor for tiger movement. The study considered habitat suitability,

perennial water bodies, road density, railway tracks, human settlement density and total forest edge as key variables that could possibly influence tiger movement (impede or aid) across the landscape. Forest cover mapping was done using Indian Remote Sensing satellite LlSS-111 data. Prey abundance data was generated to identify habitat suitability. Spatial datasets for these variables were created and cost surfaces ranking each variable for movement were generated. Each cost surface was weighted for importance.

Based on the derived movement model, three corridor path scenarios were generated to identify the most promising corridor route suited for tiger movement. Results of this study show that the most optimal corridor paths which provide two distinct movement zones, passes through Kurai, Ari, Waraseoni, Lalbarra, Braghat Project, Keolari Bahmani, South Lamta, North Lamta, West Baihar and East Baihar forest ranges. Forest compartments through which the optimal corridor path traverses have also been identified. Weak links on these corridor routes where cover and habitat conditions are currently sub-optimal have also been identified. These areas need special attention in the long term and need to be suitably developed to ensure corridor connectivity. Recommendations on the development of the corridor path areas and weak links have been provided. These have been based on standard wildlife corridor design principles. The involvement of local communities through eco-tourism initiatives should be seen as a crucial element in long term development of the Kanha-Pench wildlife corridor.