DEMOGRAPHIC AND GENETIC CORRELATES OF POPULATION GROWTH AND VIABILITY OF REINTRODUCED TIGER (Panthera tigris) POPULATION IN PANNA LANDSCAPE, CENTRAL INDIA

The research on carnivore reintroduction and their survivability has gained considerable attention in the field of conservation science as their number has drastically reduced in recent years. Because of their secretive behaviour, very little is known about the biology of reintroduced carnivores, especially their immediate behavioural response and adaptability to the new environment. In this context, the tiger (Panthera tigris) reintroduction programme that was implemented at Panna Tiger Reserve, central India was taken as a model subject and was rigorously studied between 2009 and 2015. We reintroduced three adult tigers in 2009 with three adult female supplementation in between 2011 and 2015. In this time frame 41 cubs were born. The reproductive rate for this tiger population was $1.36 \pm 1.36$ cubs/female/year. Such proliferative reproduction within the population serves as a major initial success indicator of overall reintroduction programme. The current genetic diversity is comparable to other stable tiger population in India. Annual home ranges of male and female tigers were $132.7 \pm 9.0$ km$^2$ and $73.6 \pm 9.6$ km$^2$, respectively, and did not differ significantly across seasons. There was a clear difference in habitat selection by the tigers between exploratory period and settled period with individual variations in habitat selection during exploratory and settled periods. Population Viability Analysis (PVA) predicted that neither several combination of reinforcement nor varying degree of sub adult loss in the modelled population have no considerable impact on the viability of the population. Improvement of carrying capacity have significant increasing impact on the viability of the modelled population. The expected genetic heterozygosity level will fall below 0.54 (set threshold value) after 40 years, which is considered to be least diversity in tiger. Therefore, distantly related individual from the same geographical region may be considered to be reinforced after 40 years to enhance diversity within the population. However, this post release monitoring based research provides new knowledge in the science of reintroduced tiger.