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INDIAN TIGERS ARE HIGHLY STRESSED DUE TO HUMAN DISTURBANCES

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

Sariska tiger | Photo Credit: Special Arrangement

Compared with 200-odd Amur tigers in Russian Far East, the Bengal tigers in three tiger reserves in India — Bandhavgarh, Kanha, Sariska — are about 20% more stressed, a study found. The Indo-Russian team measured the stress level by studying the glucocorticoids metabolites present in the faeces of tigers.

“Increased stress level for prolonged periods will affect the immunity and fitness of tigers. Most importantly, elevated stress negatively impacts reproductive hormones which can lead to reduced fertility and reproductive failure. We have earlier found captive elephants showing compromised reproductive cycle due to stress,” said Dr. Govindhaswamy Umapathy from the Laboratory for the Conservation of Endangered Species (LaCONES) at the Centre for Cellular and Molecular Biology (CSIR-CCMB), co-author of a paper published in the journal *PLOS ONE*.

Tigers in the Kanha reserve had the highest faecal glucocorticoids metabolites level (markers for stress) while tigers in the Bandhavgarh reserve had the lowest level and comparable with the Amur tigers of Russia.

“Though there is a variation in the concentration of glucocorticoids metabolites in tigers in the three reserves, there is no significant difference in the stress levels. The elevated stress in Bengal tigers might be due to anthropogenic disturbance,” says Vinod Kumar, Technical Officer at CCMB and a co-author of the paper.

While the tiger reserves in India are smaller than in Russia, the anthropogenic disturbances are very high in Indian reserves.

Besides high anthropogenic stress, tigers in the three reserves experience higher population density compared with Amur tigers in Russia. At 11.33 tigers per 100 sq km, the density of tigers is many times higher in India compared with Ussuriisky reserve in Russia (0.15 tigers per 100 sq. km). “Anthropogenic disturbances and higher population density could be causing higher stress in Indian tigers,” Dr. Umapathy says.

“A 2015 study by our team found that tigers reintroduced in Sariska reserve experienced high stress due to anthropogenic disturbances,” Dr. Umapathy says. Besides high vehicular traffic, tigers in the Sariska reserve encounter herders, villagers who visit the forest for collecting wood and livestock grazing. As a result, the reproducing ability of Sariska tigers reduced.

Unlike Sariska, the Panna tiger reserve faces less anthropogenic disturbances. As a result, three of the five reintroduced tigresses in Panna reserve produced multiple litters successfully in four years, while in Sariska a tigress could successfully breed only once after four years.

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