Field Note:
Capture and collaring of Gaur in Sanjay Tiger Reserve

In an ambitious stride toward biodiversity conservation, Madhya Pradesh Forest Department (MPFD) together with the Wildlife Institute of India (WII) reintroduced 50 gaurs from Kanha and Satpura Tiger Reserves to the Sanjay Dubri Tiger Reserve (SDTR) during 2023-24.

The animals have been monitored by a team of WII researchers and SDTR officers since their release. These animals have been exploring a considerable part of the reserve besides moving into neighbouring areas of Guru Ghasidas National Park in Chhattisgarh and also to Bandhavgarh Tiger Reserve in Madhya Pradesh. The collars of select individuals have worn off and some collars suffered a considerable amount of damage making it necessary to re-collar.

In response to their dispersal, the necessity for replacing collars became unavoidable. The Madhya Pradesh Forest Department, in collaboration with the Wildlife Institute of India, strategically re-collared six gaurs, comprising two males and four females from three distinct herds. This targeted approach not only aided in understanding their behavioral adaptations to new habitats and interstate movement but also provided vital insights into the overall success of the species recovery project.

Field operations to collar these individuals were initiated between October 25 to 27, 2024 and involved park managers, scientists, veterinarians, research scholars and front-line staff who coordinated essential preparations for the capture and collaring process.

To start with, the research team identified suitable herds for collaring based on the movement history of the individuals after their release into the wild. Initially the targeted herds were monitored using the captive elephants. This also provided an opportunity to approach the gaurs closely and make the respective herds familiar with the captive elephant so as to facilitate closer approach for the darting.

About Gaur

Gaur- one of the world's largest and most powerful bovid is native to the forests and grasslands of South and Southeast Asia, where it plays a vital role in maintaining ecosystem health. Standing over 1.2 metres at the shoulder and weighing up to a ton, this megaherbivore significantly impacts habitat dynamics in Indian forests. Gaurs play a vital role in the ecosystem as both grazers and browsers, shaping vegetation structure and aiding in seed dispersal. Their feeding habits create microhabitats that enhance plant diversity. By reducing the density of certain plant species, gaurs help maintain open areas in dense forests, allowing sunlight to penetrate and fostering a variety of plant life. However, in recent years, the gaur population has faced threats from habitat loss, poaching, and human-wildlife interactions. In several protected areas, local gaur populations have disappeared. To counter this, conservation efforts such as reintroduction projects and establishment of protected corridors are being explored to restore gaur populations in their native ecosystems.

The operation began with the team assembling at the Pondi Forest Rest House for a final round of drills, training, checks and preparations. The monitoring team reported sighting a herd of 13 individuals near the Tingi grasslands in the Pondi Forest Range. Based on this information, the core team mobilized the captive elephants and proceeded to the sighting location. Early in the morning, the herd was observed grazing in a grassy meadow, and as the day advanced, the herd gradually moved deeper into the dense forest.

The darting team arrived at the site, advancing towards the gaur on the backs of captive elephants, which skilfully guided the herd to a more accessible and open area suitable for darting. Adult individuals were selected for collaring. They were chosen based on long-term monitoring by the WII's research team and identifiable through their distinct physical characteristics. The team administered a combination of Thiafentanil (an opioid) and Azaperone (a short-acting tranquilizer) to immobilize the animal, which went into sternal recumbency within two to four minutes. Once the gaur was sedated, the team quickly approached, blindfolded and stabilized the animal prior to any intervention. The physiological parameters were evaluated followed by weighing, collaring, ear tagging and numbering.

Later in the evening, following a report from the monitoring team about a herd of nine individuals including a calf in Domarpart beat of the Pondi Forest Range, the capture team moved to the area and initiated the field capture operation.

By the end of the day, a total of five gaurs, comprising 1male and 4 females, were successfully collared. In a groundbreaking achievement, the team managed to partially revive the immobilized animal using Butorphanol tartrate and was able to make the animal walk for few steps while under sedation. This marked the first-of-its-kind success of walking a wild bovid under sedation in the country.

On the second day, the team moved to the Domarpart area to capture and collar the sixth gaur. Presence of wild elephants in the area also posed a challenge for the team, as the animal was grazing along with the herd thus, making closer approach difficult for darting and collaring procedures. Additionally, the captive cow elephants assisting in the capture operation required the team to exercise with extra caution while strategizing ways to proceed safely in this potentially challenging environment. The captive male tusker 'Bapu' proved to be an asset during the operation as he helped in deterring the wild elephants, by providing an added layer of safety for the team to work.

While the captures generally followed planned protocols, capturing the fourth and sixth individuals presented a unique challenge. For instance, during the capture of the fourth gaur, the revival drug did not get fully administered causing the gaur to regain half consciousness and bolt from the area. The team however maintained vigilance, and the gaur eventually returned, allowing a successful second dart of revival.

The final capture provided a great learning experience. After darting, the male gaur began running erratically, eventually heading toward the staging area where the ground team was positioned. This unexpected turn sent the team into a brief scramble. After approximately 15 minutes, the gaur settled in a bamboo patch, creating an opportunity for the team to safely carry out collaring procedures.
Capturing wild gaurs, that weigh between 600 and 1,000 kg, is a complex and demanding task. It requires a dedicated, well-coordinated team with specialized roles, including duly sensitized tracking team, darting team, animal handling team, post immobilization animal monitoring team, animal lifting, weighing and emergency management team. The success of each capture depends on the seamless coordination of these team members and their responsibilities.

This operation, marked by dedication, precision, and adaptive management, has contributed valuable insights into the behaviour and handling of these majestic animals, setting new benchmarks for future wildlife conservation efforts.

Collaring megaherbivores like the gaur plays a crucial role in conservation efforts, providing vital insights into their behaviour, movement, and ecological impact. By fitting these large animals with GPS or VHF tracking collars, researchers can collect real-time data on their movement patterns, which helps in understanding how gaurs use their habitat for activities such as foraging, resting, and breeding. This data is essential for mapping their home range – the area in which they live and fulfil their ecological roles. For a species like the gaur, defining these ranges is critical to identify and conserve essential habitats, as their grazing and browsing directly influences vegetation structure and biodiversity within their ecosystems. Tracking collars also help conservationists monitor the movement of gaurs in human-impacted landscapes, where understanding their interactions with human settlements is key to mitigating conflicts.

About the Authors:

Ritesh Vishwakarma holds a Master's degree in Wildlife Sciences, and began his journey in conservation science in 2017 with the All India Tiger Estimation Project. He later transitioned to the Gaur Reintroduction Project in Bandhavgarh, where he became instrumental in conducting key feasibility studies for gaur reintroduction across Sanjay Tiger Reserve, Nagarjunasagar Srisailam Tiger Reserve, and Bandhavgarh Tiger Reserve. Currently, he serves as Senior Project Associate for the Gaur Reintroduction Plan in Sanjay Tiger Reserve.

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