PANNA TIGER RESERVE, PANNA, MP.

NEWSLETTER

(MAY 2022)

'VULTURE TELEMETRY PROJECT'

"SATELLITE TRACKING OF VULTURES *in* PANNA TIGER RESERVE"

25 Vultures Tagged for Satellite-Tracking in Panna Tiger Reserve, A First in the Country

1. Introduction:

The exercise of capturing and GPS tagging of vultures in the wild, at Panna Tiger Reserve (PTR), in the central Indian state of Madhya Pradesh, is one among the first scientific undertakings of its kind, and the largest vulture telemetry projects in India. Current scientific literature shows fourteen vulture species have been tagged and studied across 24 countries, with none from India. Nine species of vultures are found in the country, of which three are critically endangered. Seven of these species are found in PTR. These include 3 migratory species namely, Himalayan Griffon *(Gyps himalayensis)*, Eurasian Griffon *(Gyps fulvus)*, and Cinereous vulture *(Aegypius monachus),* who migrate from Northern areas and come to PTR in the month of November and return back in the month of February-March. Four vulture species namely, Indian vulture *(Gyps indicus)*, White-Rumped vulture *(Gyps bengalensis)*, Red-headed vulture *(Sarcogyps calvus)* and Egyptian vulture *(Nepphron percnopterus)* are resident of PTR. Apart from the current telemetry study in PTR, being taken up as a part of Landscape Management Plan, telemetry projects are underway in the states of Himachal Pradesh and Gujarat, all of which are vital for science-based global conservation efforts, to prevent extinction of Old-World vultures in India.

2. Tagging Vultures at PTR:

The tagging is done with the help of Wildlife Institute of India (by a team of researchers and resource persons from Wildlife Institute of India and professional trappers) during the winters of 2020-2021 and 2021-2022. A total of 25 vultures have been tagged with solar GPS devices which includes 3D acceleration sensors and are being tracked through satellite transmission of data from the tags. This is perhaps the only large-scale telemetry study in India and the tagged birds include 13 Indian vultures, 02 Red-headed vultures (both are critically endangered), 08 Himalayan Griffons and 02 Eurasian Griffons (both are near threatened species).

Mechanism of the telemetry device deployed:

The Bird Solar UMTS tag, which has been used in the current telemetry study of the vulture in Panna Tiger Reserve, consists of a GPS sensor, solar charging panel, 3D acceleration sensor, two UMTS antennas, and one UHF antenna in it. The GPS sensor acquires the location of the individual, the 3D acceleration sensor records the movement pattern of the bird in the 3-dimensional axes. The battery, the primary power source of the tag, gets charged by the solar charging panel on the tag. The UMTS antenna transmits data or update the configuration of the tag through the mobile tower (GPRS/GSM based connection). The UHF antenna gives the facility of the on-site tracking with the handheld terminal. Once deployed, the tag keeps logging the GPS location and 3D acceleration data of the individual bird which is kept stored in the storage device and gets transmitted periodically to a global data repository, Movebank. Once the data is transmitted, the tag removes the stored data. The user keeps downloading the data from the Movebank account associated with the current study. Since, bird like vulture moves for long distance daily and it is very difficult to track them on field due to rugged terrain, the UMTS tags give the opportunity to get the telemetry data with ease.

3. Movement Data of Migratory (Himalayan & Eurasian Griffon) and Resident Vultures:

(i) Update on movements of tagged Himalayan Griffons:

Movement of Himalayan Griffons for return journey from PTR started at the end of month of March. Movement data received on 27th April showed that 4 Himalayan Griffon vultures, with tag number HG_8673, HG_8677, HG_6987 and HG_8654 have crossed Indian border and were respectively in Tibetan region of China, Uyghur region of China near the Karakoram range, Nepal and Tibetan region of China. Later, data received on 9th May 2022, showed that HG_8677 had entered Kazakhstan crossing Kyrgyzstan and staying in Altyn Emel National Park, Kazakhstan. Daily average distance travelled was more than 100 km. Not all Griffons have taken the same route but the direction in which they are moving is same, Northwards. The route passes through Nepal and then enters China. Picture 1 shows the routes taken and location of HG_8673, HG_6987 and HG_8654 as on 27th April 2022:

Picture 1: Routes taken & Location of HG_8673, HG_6987 and HG_8654 as on 27th April 2022

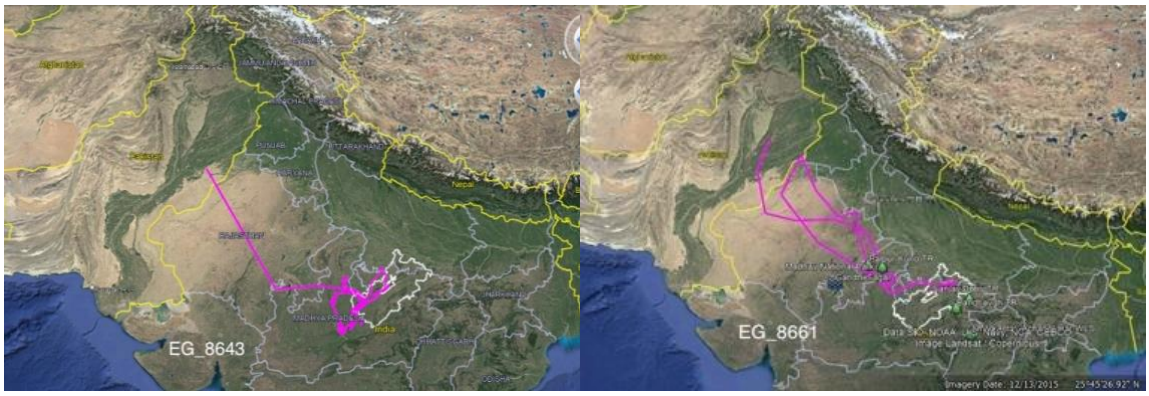
Picture 2 shows the routes taken and location of HG_8677 as on 27th April and 9th May, 2022:

27th April, 2022 **9th May, 2022**

Picture 2: Routes taken & Location of HG_8677 as on 27th April & 9th May, 2022

(ii) Update of movements of tagged Eurasian Griffons:

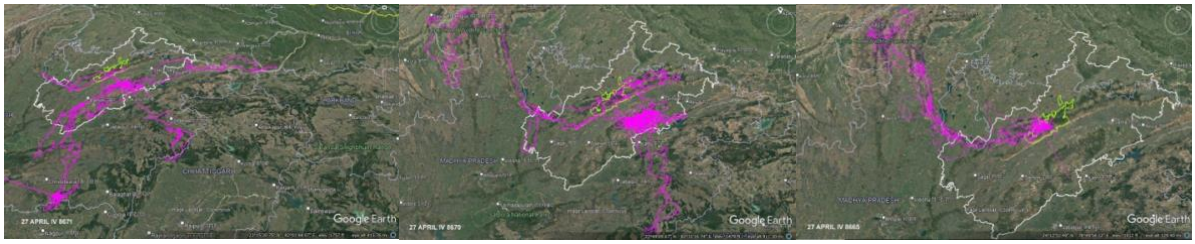
The Eurasian Griffons started their journey back home later than Himalayan Griffons. Two Eurasian Griffon vultures were GPS tagged along with 23 other vultures and as per data received, these Eurasian Griffon started their return journey from PTR in the month of April. In the first week of May 2022, location of both the tagged Eurasian Griffons, EG_8643 and EG_8661, was in Pakistan. While EG_8643 was in Lal Suhanra National Park of Bhawalpur District of Punjab Province, Pakistan; the other Eurasian Griffon EG_8661 was in Shorkot Plantation Reserve near Multan district of Pakistan. EG_8661 first went to Pakistan in April and then came back all the way to MP and again went to Pakistan. Both the Eurasian Griffon vultures are further moving West. Picture 3 shows the routes taken and location of EG_8643 and EG_8661 as on 5th May 2022:



Picture 3: Routes taken & Location of EG_8643 and EG_8661 as on 5th May, 2022

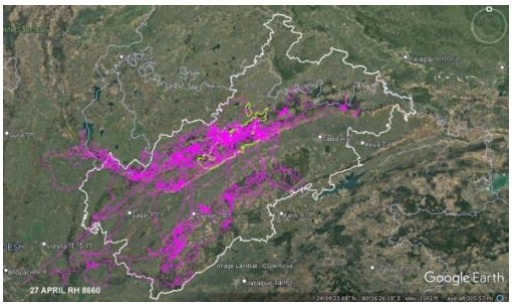
(iii) Update on movements of tagged resident vultures:

GPS tagged resident vultures namely, Indian Vultures and Red-headed vultures, mostly sub-adult, are showing very interesting behaviour. One Indian Vulture (IV_8671) travelled all the way to Bihar along the bank of the river Shone and came back and also visited Amarkantak-Achanakmar WLS. Two others Indian Vulture (IV_8670 & IV_8665) travelled up to Palpur-Kuno WLS in Sheopur district, and using Greater Panna Landscape extensively. Picture 4 shows movements of IV_8671, IV_8670 and IV_8665 as on 27th April 2022.



Picture 4: Movement of IV_8671, IV_8670 and IV_8665 as on 27th April 2022

The Red-headed Vultures are mostly confined within Greater Panna Landscape. Picture 5 shows the movement of one of the tagged Red-headed Vulture (RH_8660):



Picture 5: Movement of RH_8660 as on 27th April 2022

4. Conclusion:

Since the catastrophic decline of vultures over the end of the last century, telemetry-based research has become imperative for understanding movement patterns of these birds. This includes migration, foraging, roosting, nesting, bathing and other behaviours, understanding all of which is critical for their conservation, specifically when these birds require large area for survival including human spaces and carcass dumps. The current study will establish baseline data of these activities across a spatiotemporal scale. Furthermore, haematological, and microbiological analysis from the obtained samples will help determine the overall health status of the individuals and to a certain extent, about the health of vulture populations in and around the reserve. All findings from the current study will lead to significant policy implications, in providing answers to existing knowledge gaps, and towards adaptive management of these remarkable raptors in the Panna Landscape.

****