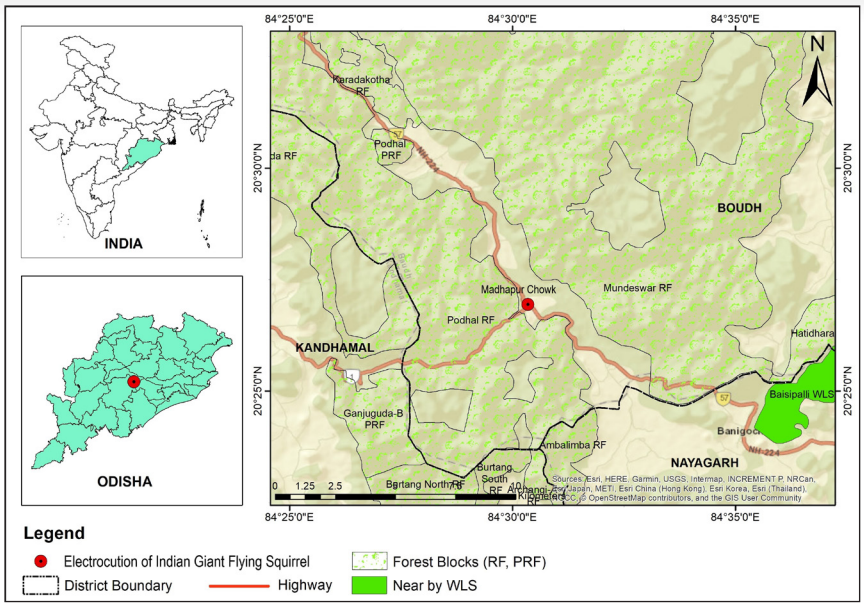
Electrocution of an Indian Giant Flying Squirrel in Odisha, India

The Indian Giant Flying Squirrel or the Large Brown Flying Squirrel *Petaurista philippensis* of the rodent family Sciuridae glide horizontally through the tree canopies for their mobility. It generally takes shelter in the mid-canopy and uses tall trees for feeding and gliding across (Koli 2006). Preferring cryptic habitats, this species remains active from dusk hours and retires before dawn, ideally resting to narrow tree cavities (Koli 2006). *P. philippensis* is frugivorous & folivorous and prefers tree species such as *Madhuca longifolia*, *Terminalia bellirica*, *Diospyros melanoxylon*, and *Ficus religiosa* for nesting and foraging (Koli et al. 2013).

Dead Indian Giant Flying Squirrel tied to an advertisement board by villagers after electrocution at Madhapur Chowk, NH 57, Boudh District, Odisha.

The species with a wide distribution range is regarded globally as 'Least Concern' in the IUCN Red List (Walston et al. 2016) and listed in Schedule I of the 2022 amendment of the Indian Wildlife Protection Act, 1972. However, many recent studies are indicative of its declining status, with increasing anthropogenic pressures such as habitat encroachment and fragmentation, agricultural expansion, logging, poaching, induced forest fire, hunting for domestic consumption, and ethnomedicinal uses (Koli 2016).

We encountered a fresh carcass of a flying squirrel on a road junction of NH 57 in the early morning hours of 25 November 2021 at Madhapur Chowk, Boudh District, Odisha (20.4489 N & 84.5058 E). The carcass was tied with ropes on an advertisement board out of curiosity and concern by the gathered crowd. The incident was then informed to the forest department by the locals. Upon casual interrogation, the eyewitnesses revealed that the animal fell unconscious after colliding with an adjacent live electric transmission wire, parallel to the highway, along the forest edge, over a height of 8 m from the ground. The length of the carcass approximately measured ~48 cm and tail ~58 cm as it was roughly measured by a piece of rope and marked with a pen, because of unavailability of a proper measuring tape at the site. Later on, the approximate measurements of the specimen were compared with a field guide (Menon 2014) for confirming the



Electrocution site of Indian Giant Flying Squirrel in Eastern Ghats of Odisha, India. RF - Reserve Forest, PRF - Protected Forest, WLS - Wildlife Sanctuary.

identification. The squirrel had long bushy tail, longer than the slender body, and a claret grey colour washed with white hair in the ventral part, overall grey fur and patagium between forelimbs and hind limbs was confirmly identified to be a Giant Indian Flying Squirrel *P. philippensis* (Menon 2014; Koli 2016). The ventral body of the carcass showed marked injuries from the electrocution and a few burnt furs on careful observation. The area in which the incident took place, is a critical wildlife habitat passing through Podhal and Mundeswar reserve forests of Boudh District, Odisha in the Eastern Ghats. The hilly mountainous region is composed of mixed deciduous forests (Mohapatra et al. 2019). The site is about 10–12 km far radially from the Baisipali Wildlife Sanctuary and Satkosia Tiger Reserve where the species has been recorded previously.

To the best of our knowledge, such incidents of electrocution have not been recorded in the region, in the case of the Giant Indian Flying Squirrel *P. philippensis* previously and this report hence presents one such first case. A roadkill case of the species was previously reported from the Nilgiris (Samson et al. 2016), and two observations being caught dead in the barbed wire fence, were reported from Agumbe in the Western Ghats (Conservation India 2013, 2014).

Increasing linear infrastructures such as roads, railways, and high-tension electric lines in important wildlife areas, without effective mitigation measures, pose a severe threat to wildlife. Especially in the case of small-bodied, arboreal mammals, such incidents become even more serious in areas of heterogeneous forest habitats in peri-urban landscapes. Many such incidents in cases of arboreal primates have been widely recorded previously and electrocution is one major concern among them (Chaves et al. 2022). Such structures, fragment the forests, restrict animal mobility, and increases the chances of accidents by acting as physical and psychological barriers (WII 2016). However major mitigation measures considered in developmental projects are in prior to the movement of large-bodied animals, and birds, but are often silenced in cases of other animals (WII 2016; Chaves et al. 2022).

Several reports have discussed measures for ease of movement across such structures for birds (WII 2016) and arboreal macaques but

since these squirrels have specified gliding capability, broadly restricted to particular heights distances and need good canopy closure and connectivity for moving across, structures and areas passing through their habitats must be amended accordingly for better permeability of the species across its habitat fragments. Moreover, such species are understudied across their distribution ranges and often remain unnoticed in many places by locals, despite their good presence in marginal forest patches, adjacent to human habitations (Mahapatra et al. 2019). The species needs a better understanding of its ecology, biology, distribution, and underlying conservation aspects for its long-term persistence (Koli 2016). This case report hence drops light again on the often-undermined consequences of development, faced by lesser attended mammals such as the Giant Indian Flying Squirrel *P. philippensis* and urges our attention towards understanding more on the conservation significance of such species and include them while planning green infrastructures.

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