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Leopard cat (*Prionailurus bengalensis*) uses caves as a refuge in Maharashtra

The mainland leopard cat (*Prionailurus bengalensis*) is one of India's 15 wild cat species (Menon 2014), ranging widely from the Russian Far East to Singapore (Ghimirey *et al*. 2023). Within India, it occurs across the Western and Eastern Ghats, eastern coastal hills, the Himalayas, and northeast India (Sharma *et al*. 2024). Genetic and ecological analyses show that the Western Ghats population is both geographically isolated and genetically distinct from those in Northeast India and Southeast Asia (Mukherjee *et al*. 2010). Globally, the species is classified as *Least Concern* (Ghimirey *et al*. 2023), yet in India it receives the highest legal protection under Schedule I of the Wildlife (Protection) Act, 1972. Highly adaptable, the leopard cat occupies habitats ranging from tropical rainforests to human-modified landscapes such as plantations (Macdonald & Loveridge 2010). Its distribution correlates strongly with prey abundance and local environmental conditions (Mittermeier & Wilson 2009). Breeding patterns vary geographically—seasonal in temperate regions (late April–June in Russia) and continuous near the equator (Mittermeier & Wilson 2009). For denning, females typically use hollow trees, dense shrubs, overhanging rocks, or large roots (Yu 2010). Until now, there has been no record of this species using caves for birthing or shelter, making the present observation of cave use an ecologically significant finding.

The study cave is located in the Satara District of Maharashtra, in the Northern Western Ghats. It is a 52-meter-long laterite cave, with its height varying from 1.5 to 6 m. The cave has a stream and a pool present year-round. It was formed through prolonged weathering of basalt rock (Widdowson & Cox 1996, Jog *et al.* 2002, Watve 2013), which creates porous structures that can hold water, forming natural aquifers (Tardy 1997). The surrounding habitat includes tropical semi-evergreen forests found at higher elevations of the Western Ghats, while moist deciduous forests are present on the slopes (Champion & Seth 1968).

A remotely sensed camera trap [Browning Trail Cameras Recon Force Elite HP4 (BTC-7E-HP4)] was deployed facing the cave entrance. The camera trap was installed to document the diversity of fauna that uses the cave as part of a broader study. It was operational from 4 February to 21 May 2024, and continuously recorded. We checked the camera trap monthly to retrieve data. All the images were carefully examined for the presence of species. Over 108 camera-trap days (2,592 hours), we captured 8,692 images, including 14 images of a leopard cat recorded on 7 and 24 March 2024. The cat was observed near a laterite cave during crepuscular hours (5 h 43 min 45 s - 5 h 44 min 30 s) and nocturnal hours (8 h 9 min 44 s – 8 h 26 min 24 s) (Fig. 1). Likely prey, including rodents, bats, and geckos, was also documented (Can *et al*. 2020). This aligns with prior findings on the species' reliance on caves for food and water, particularly in summer (Manchi *et al*. 2024). The cave may offer a suitable birthing site for females (Yu 2010). These observations highlight the cave's potential as a critical habitat, necessitating further monitoring to understand its ecological importance. Cave ecosystems are susceptible to environmental changes, yet they face increasing threats from human activities such as pollution, unregulated tourism, and habitat degradation. The cave surroundings must be managed by the forest department and other relevant agencies, with the involvement of local communities. The visit of people inside the caves

should be managed and regulated. The significance of outreach and awareness cannot be compromised in managing solid waste and other environmental hazards. Specifically, all concerned stakeholders should be involved in maintaining the religious and conservation importance of this unique subterranean habitat. Last but not least, efforts initiated towards the conservation of this cave should continue.

Figure 1. The leopard cat at the cave entrance

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P.R. Patil[1], D. Kawalkar[1]*, S.S. Manchi[2], A. Dhamorikar[1] & H. Pethe[1]

[1] *Speleological Association of India, KNG Pudur, Thadagam Rd, Coimbatore, Tamil Nadu, India*
[2] *Sálim Ali Centre for Ornithology & Natural History, (South India Centre of Wildlife Institute of India), Anaikatty P.O., Coimbatore, Tamil Nadu, India*
E-mail: dhanushakawalkar@gmail.com