

Distribution Update

Range extension of the dhole in the Sahyadri ranges of Maharashtra, India

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Abstract

The dhole *Cuon alpinus*, also known as the Asiatic wild dog, is a medium-sized, Endangered, pack-living carnivore found in a wide range of habitats across eleven countries. The species has one of its largest surviving sub-populations in the Western Ghats (Sahyadri) mountains of India, but it is threatened by prey depletion, habitat loss, and fragmentation of natural habitats. Previous studies and reports have recorded the distribution and occurrence of this species from the northern Western Ghats region in the state of Maharashtra, India. Here, we report a new confirmed record of the dhole captured on a camera-trap in January 2025, from a survey conducted in the private and community lands of the Pawna catchment, Maval Tehsil in Pune District of Maharashtra. The record is significant as it denotes a range extension for this species in the northern Western Ghats mountains of the state. The region is a potential corridor for the species linking the Tamhini and Bhimashankar wildlife sanctuaries, but it is critically threatened from unsustainable land-use changes.

The dhole *Cuon alpinus* is an Endangered carnivore, known to occur in eleven countries, and India supports the largest wild population of the species globally (Kamler et al. 2015). However, the distribution of the species across India is fragmented. Dhole populations are present in the Western and Eastern Ghats, central and east India, and extend into the Himalayas and north-east India. This latter distribution seems continuous with populations in Nepal, Bhutan, Myanmar, and further into south-east Asia (Kamler et al. 2015). In India, the dhole is classified as a Schedule I species, providing it the highest level of protection from persecution and hunting under Indian law. While there are no dhole-specific conservation action plans in the country, dhole habitats are generally protected through existing Indian laws aimed at safeguarding other flagship species, such as the tiger *Panthera tigris* and Asian elephant *Elephas maximus*.

Several studies have been conducted in India focusing on various aspects of dhole ecology, including foundational research by Cohen et al. (1978), Johnsingh (1982), Venkataraman et al. (1995), and Karanth and Sunquist (1995, 2000). Prey selection and dietary partitioning by dholes have been extensively studied with respect to competing large carnivores (Andheria et al. 2007, Ramesh et al. 2012, Selvan et al. 2013). Additionally, research on their occurrence, habitat occupancy, and distribution in various landscapes has been carried out by Srivathsa et al. (2014, 2019), Bashir et al. (2014), Punjabi et al. (2017), and Singh et al. (2020). Recent studies have shed better light on activity patterns (Ghaskadbi et al. 2016), pack-size variation

(Bhandari et al. 2021), feeding ecology (Ghaskadbi et al. 2022, Krishnakumar et al. 2022), and responses to anthropogenic stressors (Pattekar et al. 2024). While fewer in number, telemetry studies by Acharya et al. (2010) and Habib et al. (2021) have provided valuable insights into the home range sizes, movement ecology, and ranging patterns of dholes, particularly across the central Indian landscape.

The Western Ghats presumably holds the largest dhole sub-population anywhere in the world based on the extent of forest cover and prey availability (Kamler et al. 2015). Punjabi et al. (2017) describe the habitat occupancy and distribution of the dhole in the northern range-limits of the Western Ghats. The species was later confirmed to be present in the Phansad Wildlife Sanctuary of the Raigad District, and Tamhini Wildlife Sanctuary of Pune District in the state of Maharashtra extending its known distribution (Pardeshi et al. 2020). The northernmost documented occurrence of the dhole from the Western Ghats is from the Vansda National Park of Gujarat state which lies in the Dangas, the northern boundary of the Western Ghats (Kazi et al. 2021). Here we report on a confirmed dhole occurrence record from the Pawna catchment forest in the Maval Tehsil of Pune District, Maharashtra, indicating a further extension of the dhole's known range within the state of Maharashtra (Figure 1).

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Three dholes were observed in the Pawna catchment forests of Shilimb village in Pune District, Maharashtra (18°37'54"N, 73°26'22.1"E) by naturalists at the Shillim Institute (R Kamble and P Bodke *pers. comm.*) at approximately 14:00 on 01 April 2022, though no photographic evidence of the species was captured. The Wildlife Conservation Trust undertook a camera-trap survey of the private and community lands in the region from 02 January to 28 February 2025. Dhole droppings were recorded on 03 January 2025 by the research team at a nearby location (18°37'53.97"N, 73°26'24.57"E) at an altitude of 900m. The observed droppings were a communal latrine and presumably identified to belong to dholes (Cohen et al. 1978). For the survey, 40 square grid cells (1km² each) were laid out on a map of the study area, of which 21 grid cells were sampled using Browning Strike Force DCL Nano trail cameras. A single camera-trap was opportunistically deployed in each grid cell, based on observations of indirect signs on animal trails. Cameras were deployed between 14-21 nights in each grid cell with a total effort of 308 trap-nights (three cameras were stolen during the survey). At 14:35 on 22 January 2025, a single dhole was captured on camera trap at the same location where the dholes were first observed in 2022 (Figure 2). The dhole was photographed once at a single location during the entire survey.

Significance of the Record

Dholes need well connected habitats for survival and functional corridors for movement as noted in several studies (Srivathsa et al. 2014, Punjabi et al. 2017, Srivathsa et al. 2020, Rodrigues et al. 2022). In the northern Western Ghats landscape, the nearest source population of dholes is present in the Chandoli National Park and Koyna Wildlife Sanctuary, within the Sahyadri Tiger Reserve (Punjabi et al. 2017). This finding provides photographic evidence of the dhole approximately 100km north of this source population. Additionally, direct sightings of the dhole by local naturalists on an earlier occasion, suggest that this area could be a crucial corridor between the Tamhini and Bhimashankar Wildlife Sanctuaries (Figure 1). Pardeshi et al. (2020) mention the occurrence of dholes in Tamhini, but there have not been confirmed records from Bhimashankar since W.H. Sykes, a British naturalist, noted their presence in 1834 (Sykes 1834). Therefore, it is crucial that this corridor remains functional for dholes to naturally recolonize Bhimashankar Wildlife Sanctuary.

Furthermore, our camera traps captured images of potential prey species such as the northern red muntjac *Muntiacus vaginalis*, wild pig *Sus scrofa*, sambar deer *Rusa unicolor*, and Indian chevrotain *Moschiola indica*, along with other threatened species, the Indian leopard *Panthera pardus fusca*. This highlights that the region harbours multiple threatened mammalian species. However, significant fragmentation of this habitat due to extensive human infrastructure underscores the threats faced by this ecosystem, as a substantial portion of the forest in the region is under private ownership. Therefore, it is crucial that these remnant habitats are protected through private conservation and restoration initiatives to facilitate the recovery of endangered carnivores such as dholes.

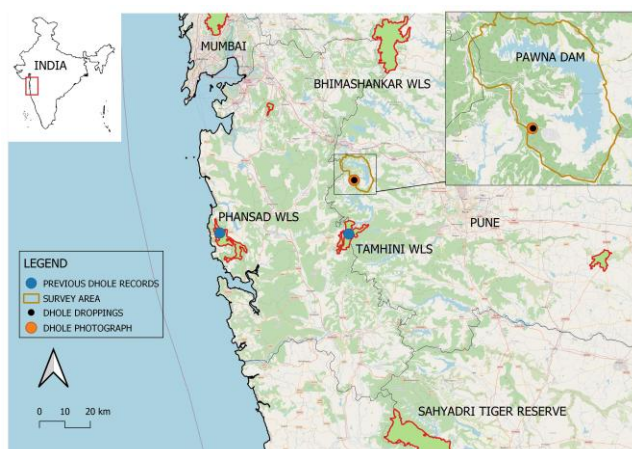


Figure 1. The locations of the survey area, dhole droppings, and dhole photograph from Shilimb village, Pune District, Maharashtra. Previous dhole records from the Phansad, and Tamhini Wildlife Sanctuaries are indicated with blue circles (noted in Pardeshi et al. 2020).



Figure 2. The camera trap photograph of the dhole from Shilimb village, Maval Tehsil, Pune District of Maharashtra.

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Biographical sketch

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