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Cover: Common Silverline *Spindasis vulcanus vulcanus* in poster colours adapted from photograph by Kalpesh Tayade. © Pooja R. Patil.



from Uttar Pradesh and Uttarakhand through to Nepal, northern West Bengal and Sikkim and then to western Assam and the forested valleys of Bhutan, which are below 1,100 m (Duckworth et al. 2015). The eastern limit of its range is through western Assam (Sankar & Acharya 2004) to the Sunderbans of West Bengal (India) and Bangladesh (Duckworth et al. 2015) and Sri Lanka is the southern limit (Schaller 1967). Chital occurs sporadically in the forested areas throughout the rest of the Indian peninsula (Sankar & Acharya 2004). Within Bangladesh, it currently exists only in the Sundarbans and some ecoparks situated around the Bay of Bengal, as it became extinct in the central and northeastern parts of the country (Duckworth et al. 2015). Introduced populations also occur within Andaman & Nicobar Islands. Chital is listed as 'Least Concern' on the IUCN RedList of Threatened Species because they possess a very wide range. The population is declining outside protected areas. Although they are widely distributed across India, there are no record of Chital from the Great Indian Bustard (GIB) Sanctuary, Maharashtra.

Study Area

The study area lies in the Deccan landscape which is a large plateau in western and southern India. The landscape is semi-arid region of India and receives very less rainfall which makes it suitable for GIB. The summer season, lasting from mid-February to mid-June (Habib 2007), is very dry and extremely hot, with temperatures regularly exceeding 48°C. The Great Indian Bustard Sanctuary, established in 1979, is a wildlife sanctuary for the Great Indian Bustard *Ardeotis nigriceps* at Solapur Maharashtra, India. The sanctuary is spread over seven talukas: Mohol, Mhada, northern Solapur, Karmala, Nevasa, Karjat, and Shrigonda. The original spread of the GIB Sanctuary was 8,469 km², which has been reduced to 1,222.61 km², including reserved forest, Gairan lands, and private lands (including grasslands) in 2011. This vast grassland is home for many resident wildlife species and a variety of migratory species, along with the GIB. The major floral species are *Azadirachta indica*, *Acacia nilotica*, *Ziziphus* spp., *Glericidia sepium*, *Hardwickia binata*, & *Albizzia lebbeck* and the prominent grasses are *Aristida funiculata*, *Aristida stocksii*, *Chrysopogon fulvus*, *Heteropogon contortus*, *Lodhopogon tridentatus*, & *Melanocentris jacquemontii* (Habib 2007). Also, the sanctuary has a good population of Blackbuck, Indian Wolf, Indian Fox, Golden Jackal, and Jungle Cat. There has been no previous record of the Spotted Deer from any part of the sanctuary.

MATERIALS AND METHODS

During the field work exercise for radio collaring of Indian Grey Wolves to monitor movement in the human-dominated landscape of Maharashtra, camera traps have been placed in the Gangewadi area of the GIB sanctuary. The trails and junctions of the area were targeted and Cuddeback Ambush/C1 camera traps (<http://cuddeback.com/cameras>) were placed. Cameras were tied up on tree trunks at the height of 25–35 cm from the ground at the animal trails. The camera delay was set at multi-shot mode with a delay of 5 seconds and were active for 24 hours.

RESULTS

Over the survey period, species photo-captured included the Indian Grey Wolf, Indian Fox, Jungle Cat, Black Buck, Wild Boar, porcupine, and Black-Naped Hare. A male Spotted Deer was captured by a single camera trap (17.83240°N, 76.00439°E) on 30 December 2020 at 0517 h (Image 1). This is the first record of Spotted Deer in the grassland ecosystem of Solapur region of Maharashtra (Image 1).

DISCUSSION

The Spotted Deer is endemic to southern Asia (Schaller 1967) and found in dry deciduous, moist deciduous, thorn forest, and mangroves. As per the IUCN RedList, the distribution data show that Spotted Deer are present in the entire state of Maharashtra. They are found almost exclusively in dry and mixed deciduous forest habitat intermixed with grasslands. They are most commonly associated with a mixture of forest and more open grass-shrub, but they occupy a wide range of habitats throughout their native range, often avoiding rugged terrain (Anderson 1999). It is one of the most common prey species for carnivores in the forest ecosystem. Carnivores that may prey upon Chital in the GIB Sanctuary include Indian Wolf *Canis lupus pallipes*. The sanctuary is dominated by a matrix of grasslands, barren lands and agricultural land, with small patches of *Azadirachta* sp. and *Gliricidia* sp. plantation. The sanctuary has long record of research activities on various flora and fauna (Kumar 1988; Rahmani 1988; Habib 2007; Habib & Kumar 2007; Kumar & Rahmani 2008; Vanak & Gompper 2010; Janakiraman & Jalal 2015; Varghese et al. 2016; Khan et al. 2019) but there is no earlier record of the Spotted Deer. The present work is the first record of Spotted Deer from this region. In the surrounding of the sanctuary various other wildlife sanctuaries are present. The closest sanctuary which has Spotted Deer population is Nayangaon Mayur Wildlife

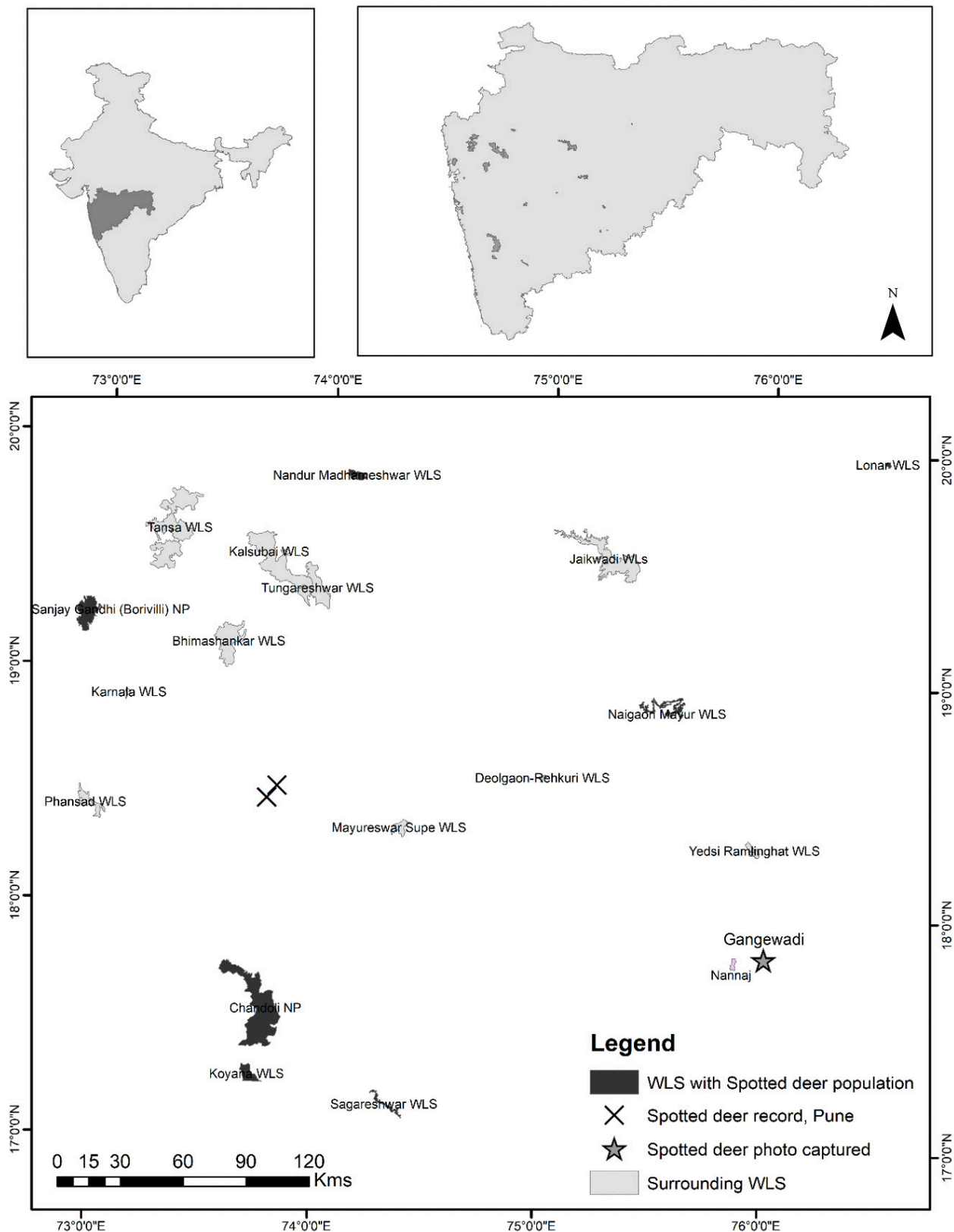


Figure 1. The location of the first photographic evidence of Spotted Deer *Axis axis* from Great Indian Bustard Sanctuary (marked with star symbol) along with the record of dead Spotted Deer from Pune (marked with cross in 2016 and 2017). The solid black colour polygons are the PAs where Spotted Deer population is present and the light grey polygons show surrounding PAs. Topleft: map of India showing the state of Maharashtra (topright), showing the PAs of Maharashtra around Great Indian Bustard Sanctuary. Bottom figure shows protected areas and Spotted Deer presence around the sanctuary along with the photographed location of Spotted Deer in Gangewadi area of the sanctuary.



Image 1. First photographic record of Spotted Deer *Axis axis* from Great Indian Bustard Sanctuary, Maharashtra.

Sanctuary (WS) (Show as symbol and name in legend in bottom map of Figure 1) which is about 124 km away from the photo-captured point. The other close by sanctuaries are Sagareshwar WS (190 km), Lonar WS (240 km), Nandur WS (305 km), and SGNP (356 km), where Spotted Deer population is present (Figure 1). There have been a few earlier records of Spotted Deer from Pune district (250 km away from Nannaj Bustard Sanctuary). In 2016, a dead male Spotted Deer was found at dumping site in Warje, Pune (The Golden Sparrow 2016) and in 2017 a male was killed by dogs in Khadakwasla area of Pune (Phadnis 2017). These two areas are close to each other and surrounded by forested area. Each year Pune division of the state forest department conducts waterhole census in four wildlife sanctuaries: Nannaj Bustard Sanctuary (10 km; part of GIB Sanctuary as Gangewadi area), Bhimashankar (292 km), Rehekhuri (145 km) and Mayureshwar (178 km). In the census during year 2021 no Spotted Deer was recorded from the above given wildlife sanctuaries, and the species was never recorded from Solapur district. This is the first wild record of Spotted Deer here. The other ungulates recorded from the Solapur region, including the GIB Sanctuary are Black Buck *Antelope cervicapra*, Chinkara *Gazella bennettii*, and Wild Boar *Sus scrofa*.

Systematic studies are necessary to assess whether populations of *A. axis* have started colonising the area or are using the area as a corridor. This data may support actions for conservation of regional biodiversity.

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