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COMMUNICATION

BIRDS OF SURAT-DANGS: A CONSOLIDATED CHECKLIST OF 75 YEARS (1944–2020) WITH SPECIAL EMPHASIS ON NOTEWORTHY BIRD RECORDS AND BIRD HOTSPOTS FROM NORTHERN WESTERN GHATS OF GUJARAT, INDIA

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Birds of Surat-Dangs: a consolidated checklist of 75 years (1944–2020) with special emphasis on noteworthy bird records and bird hotspots from northern Western Ghats of Gujarat, India

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Abstract: Surat-Dangs, historically known as a Bhil State, is the northernmost tip of Western Ghats in the state of Gujarat. Despite being a part of an endemic bird area and global biodiversity hotspot, avifaunal diversity has been less documented in the landscape. Two protected areas, Purna Wildlife Sanctuary and Vansda National Park, are designated in the landscape. A handful of studies on birds have been conducted after Dr. Salim Ali's collection in 1944–48. We surveyed the landscape (both protected and non-protected areas) in 2012–13 and 2015–2018 for documentation of the avifaunal diversity. We present a consolidated checklist of birds from our surveys as primary data and all published literature and eBird checklists as secondary data. We have reported a total of 297 bird species belonging to 70 families and 21 orders including the first record of Nilgiri Wood-Pigeon *Columba elphinstonii* for the State as well as Purna Wildlife Sanctuary. Here, we have re-reported various species, which was suspected to be locally extinct from the protected area or landscape among other noteworthy bird records. We have identified bird-rich localities outside the protected areas based on the survey done by Salim Ali (1944–48) that can be used for future surveys. We also propose the landscape to be declared as an Important Bird Area (IBA) as per Global IBA criteria (A1, A2, & A3), which will pave the milestone for future conservation endeavors in the landscape.

Keywords: Avian diversity, eBird, Important Bird Area, Gujarat Forest Department, Nilgiri Wood-Pigeon.

Gujarati abstract: સુરત-ડાંગ્સ, જે ઐતહાસિક રીતે ભીલ રાજ્ય તરીકે જાણીતો છે તે ગુજરાત રાજ્યમાં પશ્ચિમ ઘાટનો ઉત્તરીય ભાગ છે. સ્થાનિક પક્ષી ક્ષેત્ર અને વૈશ્વિક જૈવવિવિધતા હોટસ્પોટનો ભાગ હોવા છતાં, આ વસિતારના પક્ષીવૈવિધ્ય વધે ઘણી ઓછી માહિતી ઉપલબ્ધ છે. આ વસિતારમાં પૂરણા વન્યપ્રાણી અભયારણ્ય અને વાંસદા રાષ્ટ્રીય ઉદ્યાન એ બે આરક્ષિત ક્ષેત્ર ઘોષિત કરવામાં આવ્યા છે. ૧૯૪૪-૪૮ દરમિયાન ડૉ. સલીમ અલીના સંગ્રહ પછી પક્ષીઓ પર થોડા ઘણાં સંશોધનો કરવામાં આવ્યા છે. ૨૦૧૨-૧૩ અને ૨૦૧૫-૨૦૧૮માં પક્ષીવૈવિધ્યની નોંધ કરવા માટે, અમે આ વસિતારનું (બંને, આરક્ષિત અને બંનિ- આરક્ષિત) સરવેક્ષણ કર્યું હતું. અમે અમારા સર્વે દરમિયાન નોંધેલા પક્ષીઓને પ્રથમ માહિતી અને અન્ય પ્રકાશિત સાહિત્ય અને ઇ-બર્ડ ચેકલિસ્ટ્સનો ગોળા માહિતી તરીકે ઉપયોગ કરીને એક એકીકૃત ચેકલિસ્ટ રજૂ કરીએ છીએ. અમે ૭૦ ફેમિલી અને ૨૧ ઓર્ડરમાં વર્ગીકૃત કુલ ૨૯૭ પક્ષીઓની પ્રજાતિઓની નોંધ કરી છે, જેમાં રાજ્ય અને પૂરણા વન્યપ્રાણી અભયારણ્ય માટે નીલગરિયુડ-પીજન કોલંબા એલ્ફિન્સ્ટોનીની પ્રથમ નોંધ છે. અન્ય નોંધપાત્ર પક્ષીઓની નોંધ ઉપરાંત અહીં અમે એવા અમુક પક્ષીઓની પણ નોંધ કરી છે જેમની આરક્ષિત વસિતાર અથવા આ વસિતારમાંથી સ્થાનિક રીતે લુપ્ત થવાની આશંકા હતી. અમે ડૉ. સલીમ અલી (૧૯૪૪-૪૮) દ્વારા કરેલા સરવેક્ષણના આધારે, આરક્ષિત ક્ષેત્રોની બહાર પક્ષીઓથી સમૃદ્ધ વસિતારોની ઓળખ કરી છે, જેનો ઉપયોગ ભવિષ્યના સરવેક્ષણ માટે થઈ શકે છે. અમે આ વસિતારને વૈશ્વિક આઈબીએ માપદંડ (એ૧, એ૨, અને એ૩) મુજબ મહત્વના પક્ષી વસિતાર (આઈબીએ) તરીકે ઘોષિત કરવાની પણ દરખાસ્ત કરી છે, જેનાથી વસિતારમાં ભાવિ સંરક્ષણ પ્રયત્નો માટેનો પાયો બંધાશે.

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INTRODUCTION

Gujarat State occupies the northern extremity of the western seaboard of India. Its natural ecosystems range from marine and wetlands to deserts, grasslands, moist deciduous forests, and a coastline of 1,650km, with two gulfs (Gulf of Khambhat and Gulf of Kachchh), the longest in India. The State is home to nearly 582 species of birds (Ganpule 2017). Gujarat falls on the Indus Flyway that makes it an important place on the ornithological map of India (Jambu 2013).

The Dangs District (20.550–21.083 °N, 73.450–73.950 °E; 105–1,317 m; 1,764km²) lies in the southern part of Gujarat State bordering Maharashtra. It forms the northernmost tip of the Western Ghats (hereafter referred to as WG) and is endowed with closed-canopy forest with trees of 30m height or more. WG has been identified as a global biodiversity hotspot and endemic bird area (Stattersfield et al. 1998; Myers et al. 2000); however, only a few avifaunal studies have been undertaken in the Dangs District in the past (Ali 1954–55; Shull 1962; Worah 1991; Singh et al. 2000; Trivedi 2003).

The landscape starts from the rugged mountain chains of Sahyadri Hills in the east and descends in the west to the plains of Gujarat. Most of the region of the Dangs District is endowed with hilly terrain. With elevation ranging from 105m in the west to 1,317m in the eastern border, with some hills in the east and south, the region is chained with a series of flat-topped low hills. Along with forest patches in Surat District, the landscape was noted as “Surat-Dangs”, a tribal country since British time. The Dangs District is divided mainly into four valleys of Gira, Purna, Khapri, and Ambika rivers, arising from the hills and flowing down towards the west into the Arabian Sea. These are perennial rivers retaining some water even in the dry hot summer season.

Forests of the Dangs are known to be the richest in diversity and density in Gujarat State. The district has a forest cover of 77.16%, with 440–550 plant species, of which, 120 species are medicinal and economically valuable timber species (Jain 1963; Patel 1971; Shah & Yadav 1979; Singh et al. 2000; Kumar et al. 2007). Two protected areas (hereafter referred to as PAs) designated in the Surat-Dangs landscape are Purna Wildlife Sanctuary (160km²) (hereafter referred to as PWS) and Vansda National Park (24km²) (hereafter referred to as VNP, Image 1). The entire forest area of the VNP falls under the following subtypes: 3B/C2 southern moist mixed deciduous forest, 5/E9 dry bamboo brakes, 5/IS1 tropical riverine forest (Champion & Seth 1968). The PWS forest is under eight sub-types: 3B/C1 a very moist teak forest,

3B/C1b moist teak forest, 3B/C1c slightly moist teak forest, 3B/C2 southern moist mixed deciduous forest, 5A/C1b dry teak forests, 5A/C3 dry mixed deciduous forests, 5E9 dry bamboo brakes, and 5/IS1 dry tropical riverine forest (Champion & Seth 1968).

Dangs forest has a long history of timber exploitation and systematic forestry since 1840 (Worah 1991), and selective felling had eliminated almost all large trees (mostly teak with a girth of 90cm) since 1897 (Khanchandani 1970). In addition, forestry operations of thinning and climber-cutting remove lianas as well as several species of low timber value associated with teak (Anonymous 2001). Worah (1991) had documented the negative impact of forest fragmentation on the avian community in the Dangs forests. In Dangs, mass flowering of *Bambusa arudinacea* (Retz.) Willd., a species widespread in the area, happened in 2007. Owing to its ecology, all the bamboos dried up post-flowering, forest fires became frequent. Hence, as per bamboo management, harvesting license was given for three years. During these years, most of the bamboo in the sanctuary was harvested, altering the habitat into an open and sparse forest (Jambu 2013).

After the bamboo flowering of 2007 and subsequent harvesting, a 30-day survey, spanning various months and seasons of the year (2012–2013), was done by Nikunj Jambu (hereafter referred to as NJ) in PWS and surrounding areas to document the avifaunal species present therein. After the survey, various sporadic field trips were made by NJ and Kaushal Patel (hereafter referred to as KP) covering various localities of Dangs District. Another year-long survey was carried out by NJ and KP during 2015–2016, covering various regions of the district, with special focus on PWS. A vulture census was also carried out in April 2016, in collaboration with the local forest department, to estimate the vulture population in the Gadad region of Dangs. For the endangered and endemic species, Forest Owlet, KP carried out special status and distribution surveys in 2015–2016 in the district. Also, a citizen science initiative called Dangs Bird Festival (hereafter referred to as DBF) was initiated by NJ and KP in collaboration with the local forest department for three consecutive years from 2016 to 2018. Data collected through DBFs is also mentioned here. Lastly, previous surveys by Ali (1954–1955), Shull (1962), Worah (1991), Singh et al. (2000), Trivedi (2003), earlier published records, reports and eBird sightings are incorporated here to prepare a consolidated checklist of the last 75 years (1944–2020).

METHODS

The methodology used (for example, direct sightings, call recording, call playback, survey timings) for bird surveys were different with different time series. These are mentioned in detailed year-wise descriptions in the following section.

NJ surveyed 18 different trails across PWS in winter and summer seasons from December 2012 to April 2013 (referred to as NJ 2012–2013), multiple times, both during day and evening, once each between 06.45–10.00 h and 16.00–18.45 h. The trails were selected in such a way that different types of habitats are covered. Call playback and call recording methods were not used during this study period. Ad libitum data collection was also done at random locations in PWS. Also, different habitats were thoroughly and intensively surveyed for selective bird species.

During the study of 2015–2016, we surveyed 23 random trails, covering various habitats (dense forest, open forest, moist deciduous forest, dry deciduous forest, mixed deciduous forest, agricultural fields near the edge of the PA boundary) of PWS. These trails were covered in winter and summer seasons during day and evening times. Call play-back method and opportunistic surveys were done to cover reserve forests and agricultural fields, in addition to the PAs, in the Dangs District (referred to as NJ and KP 2015–16). The call play-back method was used to identify nocturnal bird species (owlets, owls and nightjars). Pre-recorded calls were obtained from www.xeno-canto.org/asia for use in call play-back method in locations where the species were expected to occur.

As a part of a citizen science and outreach program, during DBF, the participants were divided into five teams and each team walked different forest trails varying 2–8 km to cover all the types of habitats in and around the PWS. Volunteers and forest staff also accompanied each team on all three days at 06.30–11.00 h. All the sightings were verified by volunteers as well as confirmed with the bird photographs taken during the walk. DBF was conducted for three consecutive years: 5–7 February 2016, 3–5 February 2017 and 9–11 February 2018. No call play-back, call recording or nocturnal surveys were done during these events (referred to as DBF 2016, DBF 2017, and DBF 2018).

For the confirmation records of the Forest Owlet, KP used the knowledge of locals. KP conducted interviews using both audio and visual clues. Confirmation was further made by playing pre-recorded call of the species. Calls were played from October 2015 to May 2016, known to be its breeding season (Mehta et al. 2008).

The species is vocal during this season and easy to detect using the call play-back method. As the species is diurnal, the call was played in the morning (07.00–11.00 h) and afternoon (13.00–18.00 h) in teak-dominated open dry-deciduous forests or seasonal agricultural fields. After selecting a site, the pre-recorded call was broadcast for 1 minute, followed by 5 minutes of pause. The presence/absence record of the species was confirmed by direct sighting, call response, or both by visiting all 111 sites thrice.

A census (total count) of *Gyps indicus* (Long-billed Vulture) was carried out on 2 and 3 April 2016 at Gadad Village, Piplai Devi range by NJ and KP, in collaboration with the forest department - North Dangs division, Ahwa. Around 20 volunteers accompanied with the forest department staff participated in this activity.

eBird (www.ebird.org) is an online platform, where bird-watchers around the world share their sightings and checklists. Verified data from such open-source platforms is used as secondary data by many researchers in preparing consolidated checklists. We have also incorporated certain eBird checklists from seasoned birders in our consolidated checklist (Referred to as eBird- The Dangs County, Gujarat India and Vansda NP).

Finally, data collected by the authors (NJ 2012–13, NJ and KP 2015–16, DBF 2016, DBF 2017, and DBF 2018) as primary data and previous bird surveys (Ali (1954–1955), Shull (1962), Worah (1991), Singh et al. (2000), Trivedi (2003), ebird records, and other published article on new bird sightings from the landscape) as secondary data are incorporated in preparing a consolidated checklist for the last 75 years (1944–48 to 2020) from Surat-Dangs landscape. Lastly, bird hotspots and localities have been identified from the surveys done by Ali (1954–55) and Shull (1962).

RESULTS

In total 297 species (Table 1, Figure 1) belonging to 21 orders and 70 families (Figure 2) has been recorded from the Surat-Dangs landscape representing 51.03% of the avifauna recorded from the Gujarat State (Ganpule 2017) and 22.85% of India's Bird species (Rahmani et al. 2016). Both the protected areas are home to 77.44 % (PWS) and 65.32 % (VNP) of the 297 species recorded from the district. The high diversity could be due to intense alterations in habitat fidelity over the past 125 years (1897–2020). Local Dangi names for some of the bird species have also been provided here.

Order Passeriformes dominated the avifauna with

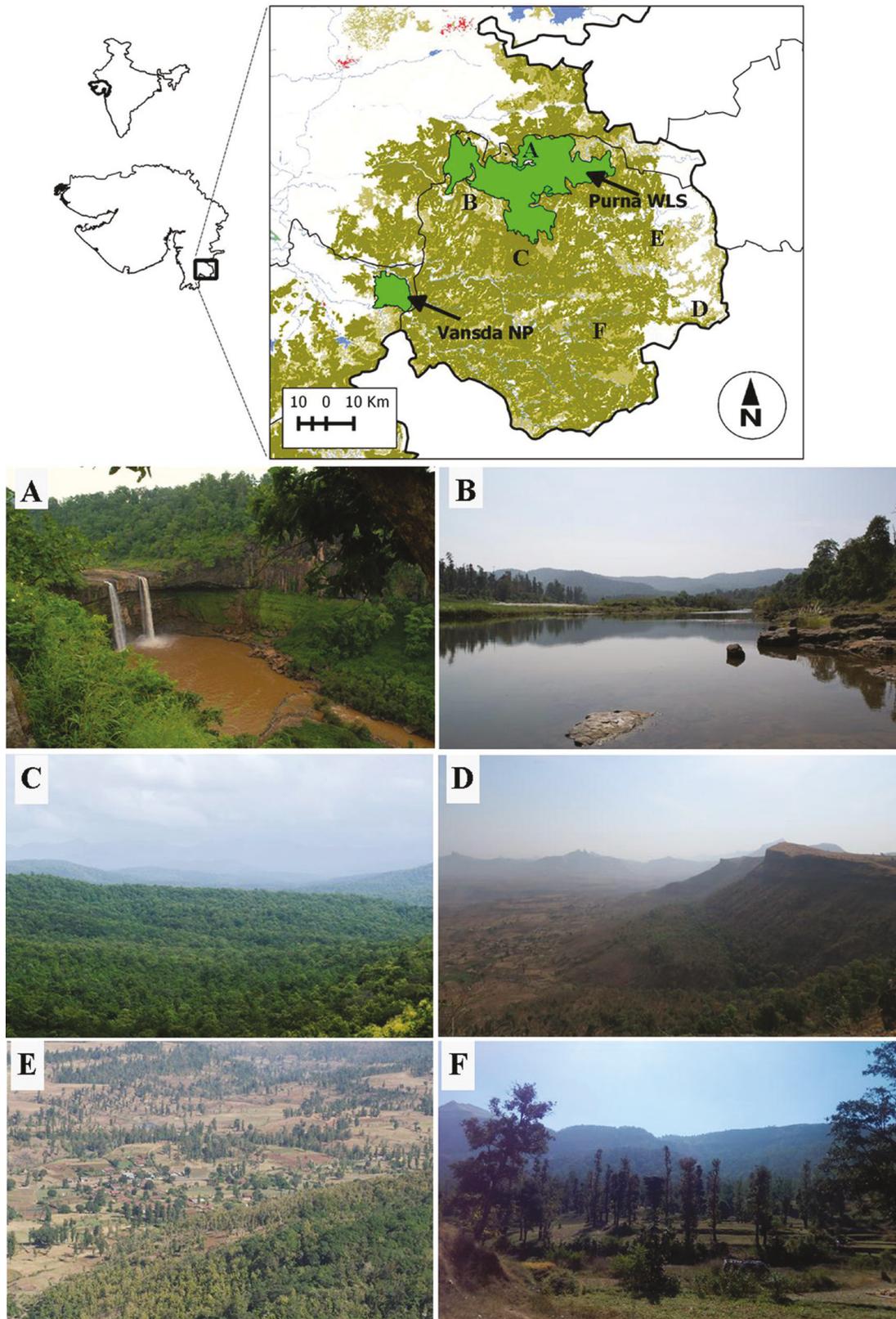


Image 1. Map of the study area with different habitat types: **A**—Gira waterfall, a riverine – moist deciduous forest system at Gira River, near Girmal Village | **B**—Riverine mixed deciduous forest system at Purna River, near Bheshkarti Village | **C**—Mixed deciduous (high canopy forest) Purna WS | **D**—Don hill chains flat plateau on the top and unique wild mango forest in the valley, near Gadad Village | **E**—Top view of forest edge with village and agriculture complex | **F**—Open teak dominated dry deciduous forest and agriculture field. (D- Don hills- Vulture nesting sites, F- One of the Forest Owlet positive sites) (© A,B,C,F—Kaushal Patel | © D,E—Parul Bhatnagar).

141 species belonging to 37 families (see Figure 2). Family Accipitridae exhibited the highest richness with 25 species, followed by Muscicapidae and Strigidae with 18 and 13 species, respectively. The birds of Surat-Dangs belong to seven basic foraging guilds (Figure 3). Insectivores (133 spp, 44.78%) dominated the birds' assemblages followed by carnivores (45 spp, 15.15%) and omnivores (48 spp, 16.16%); 42 species (14.14%) are aquatic; granivore (15 spp, 5.05%), frugivore (11 spp, 3.70%), and nectarivore (3 spp, 1.01%) are least represented (Figure 3). We have re-reported the following species: Red Spurfowl *Galloperdix spadicea* (J.F. Gmelin, 1789), Jungle Bush Quail *Perdicula asiatica* (Latham, 1790), White-spotted Fantail *Rhipidura (albicollis) albogularis* (Lesson, 1832), and Indian Yellow Tit *Parus (xanthogenys) aplotus* (Blyth, 1847), which were suspected to be locally extinct from PWS (Trivedi & Soni 2006).

Nineteen species fall under various categories as per the IUCN Red List. Seven species were categorized as Near Threatened, seven Vulnerable, two each Critically Endangered and Endangered, while one as Data Deficient (Table 2). Record of WG endemic Nilgiri Wood Pigeon *Columba elphinstonii* (Sykes, 1832) from Surat-Dangs is an addition to the bird list of the State. Surat-Dangs is home to four range-restricted species to WG (15.38%, 4 out of 26) and one range-restricted species (Forest Owlet *Athene blewitti*) to central Indian forests (Rehmani et al. 2016), 17 country endemic birds (22.67%, 17 out of 75) (Birdlife International 2020) and 49 Biome restricted species (AS07 Sino-Himalayan Temperate Forest- 1 out of 183= 0.55%, AS08 Sino-Himalayan temperate forest- 1 out of 169= 0.59%, AS10 Indian peninsula tropical moist forest: 8 out of 55= 14.54%, Indio-Malayan tropical dry zone- 37 out of 78= 47.44%, AS13 Saharo-Sindian desert- 2 out of 20= 10%) (Chan et al. 2004) (See Table 2 for details).

PROBABLE FIRST RECORD FOR GUJARAT STATE

Nilgiri Wood-Pigeon *Columba elphinstonii* (Sykes, 1832)

On 3 March 2016, during a forest walk in conservation plot (a part of PWS), KP observed a bird similar to Turtle Dove on a teak tree of about 15m height. After close inspection with binocular (Steiner Predator Pro 8x42), KP observed that the bird had darker maroon-brown underparts, darker under-wing and uniform slate-grey tail, a black and white chequered pattern on the hindneck and purple-green gloss on the mantle, foreneck and breast. After a thorough inspection, the individual was identified to be a WG endemic *Columba elphinstonii* (Nilgiri Wood Pigeon), normally found in moist deciduous and shola forests (Grimmett et al. 2014). It is listed under the

'Vulnerable' category by IUCN (Birdlife International 2017a). This is probably the first record from PWS and Gujarat State, as the species has not been listed in the 'Birds of Gujarat State Checklist' by Ganpule (2016). The species can be confused with the common and similar appearing species of Turtle Dove and thereby could be easily ignored. The closest record of this species is from the adjoining Nashik District in Maharashtra (Gaidhani 2019). KP was not able to photograph the individual, owing to not having a camera, but had satisfactorily confirmed the species using binocular and Grimmett et al. (2014) as the field guide. The species could be a rare resident in the landscape. Further surveys are required to understand the population status and distribution of this species in Surat-Dangs.

NOTEWORTHY FIRST RECORDS FROM THE SURAT-DANGS FORESTS

Western Reef-Egret *Egretta gularis* (Bosc, 1792)

Western Reef-Egret *Egretta gularis* is usually found around seashores, estuaries, mangroves and tidal creeks, but occasionally in freshwater (Grimmett et al. 2014). One of the team spotted an individual during the DBF 2016 in a river near Duldha Village on 7 February 2016. This sighting record from Dangs is more than 100km away from the nearest coastline. NJ and KP photographed and reconfirmed the sighting, along with five other members of the DBF at the same location on 8 February 2016.

Taiga Flycatcher *Ficedula albicilla* (Pallas, 1811)

Taiga Flycatcher *Ficedula albicilla* can be easily mistaken with the recently split subspecies Red-breasted Flycatcher *F. Parva* (Rasmussen & Anderton 2005). It is a winter migrant to India and its distribution is mainly in northeastern, eastern, and central India, the Eastern Ghats (hereafter referred to as EG) reaching up to western Maharashtra and Goa (Rasmussen & Anderton 2005; Grimmett et al. 2014). No sightings were recorded from Gujarat State until 2011 from the Saurashtra region (Ganpule 2013). On 13 January 2013, NJ photographed the species in PWS from a trail near the Mahal campsite. Records in 2014, 2017, and 2018 from PWS during the winter suggest that the Taiga Flycatcher is a common winter visitor in Dangs forests. Apart from Dangs, the species has been recorded from Gir NP, Sagai, Rajpipla, Morbi, Rajkot, Thol WS, and Girnar WS from October to March in the state (Ganpule 2014a).

Large-tailed Nightjar *Caprimulgus macrurus* Horsfield, 1821

On 6 April 2013, after surveying the trail in

**Table 1. Consolidated checklist of the birds of Surat-Dangs over 75 years (1944–2020).**

Data set: 1—Ali S. (1954–55) & Shull (1962) | 2—Worah (1991) | 3—Singh et al. (2000) | 4—Trivedi (2003) | 5—NJ (2012–2013) | 6—NJ & KP (2015–2016) | 7—DBF 2016 | 8—DBF 2017 | 9—DBF 2018 | 10—eBird sightings | 11—Published Articles

Published article: A—Jat (2015) | B—Patel et al. (2017) | C—Maheria et al. (2018) | D—Patel (2017a) | E—McMaster A.S. (1871) | F—Bharti (2017) .

Guild: C—Carnivore | AQ—Aquatic | I—Insectivore | F—Frugivore | O—Omnivore | G—Granivore | N—Nectarivore

Habitat Preference: FIS—Forest-Interior Species | FES—Forest-Edge Species | IES—Interior-Edge Species (used by Worah (1991) for her study)

IUCN Status: LC—Least Concern | DD—Data Deficient | NT—Near Threatened | VU—Vulnerable | EN—Endangered | CR—Critically Endangered

Local Status: R—Resident | WV—Winter Visitor | MV—Monsoon Visitor | PV—Passage Visitor | SV—Summer Visitor | VAG—Vagrant | UNK—Unknown

Note: we have followed Praveen et al. (2020) for nomenclature. (Exceptions: We have considered Black-eared Kite *Milvus lineatus* and Black Kite *Milvus migrans*, Barbary Falcon *Falco (peregrinus) peregrinoides* and Peregrine Falcon *Falco peregrinus*, Hume's Whitethroat *Sylvia althaea* and Lesser Whitethroat *Sylvia curruca* as separate species.)

Common name	Scientific name	Guild	Local name	Habitat preference	IUCN Status	Local status	1	2	3	4	5	6	7	8	9	10	11
Order Accipitriformes																	
Family Accipitridae																	
Shikra	<i>Accipiter badius</i>	C	Shashina	FIS	LC	R	+	+	+	+	+	+	+	+	+	+	+
Eurasian Sparrowhawk	<i>Accipiter nisus</i>	C			LC	WV	+	-	-	-	-	-	-	-	+	+	
Greater Spotted Eagle	<i>Clanga clanga</i>	C			VU	WV	-	-	-	-	+	-	-	-	-		
Bonelli's Eagle	<i>Aquila fasciata</i>	C			LC	R	-	-	-	-	+	-	-	+	+		
Tawny Eagle	<i>Aquila rapax</i>	C			VU	R	+	-	-	+	-	-	-	-	-		
White-eyed Buzzard	<i>Butastur teesa</i>	C			LC	R	+	-	-	+	+	+	+	-	+	+	
Common Buzzard	<i>Buteo buteo</i>	C			LC	WV	-	-	-	-	-	-	-	-	-	+	
Long-legged Buzzard	<i>Buteo rufinus</i>	C			LC	WV	-	-	-	-	+	-	-	-	-	+	
Short-toed Snake Eagle	<i>Circaetus gallicus</i>	C			LC	R	+	+	-	-	+	+	-	+	-	+	
Eastern Marsh Harrier	<i>Circus spilonotus</i>	C			LC	WV	+	-	-	-	-	-	-	-	-	-	
Pallid Harrier	<i>Circus macrourus</i>	C			NT	WV	+	+	-	-	-	-	-	-	-	+	
Montagu's Harrier	<i>Circus pygargus</i>	C			LC	WV	+	-	-	-	-	-	-	-	-	+	
Black-winged Kite	<i>Elanus caeruleus</i>	C			LC	R	+	+	-	+	+	+	+	+	-	+	
White-rumped Vulture	<i>Gyps bengalensis</i>	C	Gidh		CR	R	+	+	+	+	+	-	-	-	-	+	
Indian Vulture	<i>Gyps indicus</i>	C	Gidh		CR	R	+	-	-	+	-	+	-	-	-	+	
Brahminy Kite	<i>Haliaeetus indus</i>	C			LC	R	+	-	-	-	+	-	-	-	-	-	
Booted Eagle	<i>Hieraaetus pennatus</i>	C			LC	WV	-	-	-	-	-	+	-	-	-	+	
Grey-Headed Fish Eagle	<i>Haliaeetus ichthyaetus</i>	C			NT	R	-	-	-	-	+	-	-	-	-	-	
Black Eagle	<i>Ictinaetus malaiensis</i>	C			LC	R	-	-	-	+	+	-	-	-	-	-	
Black-eared Kite	<i>Milvus lineatus</i>	C	Shamdi		LC	WV	-	-	-	-	-	-	-	-	+	-	
Black Kite	<i>Milvus migrans</i>	C	Shamdi		LC	R	+	+	+	-	+	-	-	+	-	+	
Egyptian Vulture	<i>Neophron percnopterus</i>	C			EN	R	+	-	-	-	-	-	-	-	-	-	
Crested Hawk Eagle	<i>Nisaetus cirrhatus</i>	C			LC	R	+	-	-	-	-	+	-	+	-	+	
Oriental Honey-Buzzard	<i>Pernis ptilorhynchus</i>	C	Madhiyo/Duggo		LC	R	+	+	-	+	+	+	+	+	+	+	
Crested Serpent Eagle	<i>Spilornis cheela</i>	C	Kokhi	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Order Anseriformes																	
Family Anatidae																	
Common Teal	<i>Anas crecca</i>	AQ			LC	WV	-	-	-	-	-	-	+	-	-	+	

Common name	Scientific name	Guild	Local name	Habitat preference	IUCN Status	Local status	1	2	3	4	5	6	7	8	9	10	11
Indian Spot-billed Duck	<i>Anas poecilorhyncha</i>	AQ	Batak		LC	R	-	-	-	-	-	-	+	-	-	+	
Lesser Whistling Duck	<i>Dendrocygna javanica</i>	AQ	Batak		LC	R	-	-	-	-	+	-	-	-	-	-	
Knob-billed Duck	<i>Sarkidiornis melanotos</i>	AQ			LC	R	-	-	-	-	-	-	-	-	-	-	+
Order Apodiformes																	
Family Apodidae																	
Indian House Swift	<i>Apus affinis</i>	I	Abholi		LC	R	-	+	-	-	-	-	-	+	-	+	
Asian Palm Swift	<i>Cypsiurus balasiensis</i>	I	Abholi		LC	R	-	+	+	-	-	-	-	+	-	+	
Alpine Swift	<i>Tachymarpis melba</i>	I	Abholi		LC	R	+	-	-	+	+	-	-	+	-	+	
Family Hemiprocnidae																	
Crested Treeswift	<i>Hemiproctne coronata</i>	I			LC	R	+	+	+	+	+	+	+	-	-	+	
Order Bucerotiformes																	
Family Bucerotidae																	
Indian Grey Hornbill	<i>Ocyroceros birostris</i>	F	Bhenas	FIS	LC	R	+	+	+	+	+	+	+	-	+	+	
family Upupidae																	
Common Hoopoe	<i>Upupa epops</i>	I	Sagarfani		LC	R	-	-	+	+	+	+	-	-	+	+	
Order Caprimulgiformes																	
Family Caprimulgidae																	
Indian Nightjar	<i>Caprimulgus asiaticus</i>	I			LC	R	-	-	+	+	-	+	-	+	-	+	
Jungle Nightjar	<i>Caprimulgus indicus</i>	I	Taapu		LC	R	+	+	-	+	-	+	-	-	-	-	
Large-tailed Nightjar	<i>Caprimulgus macrurus</i>	I			LC	R	-	-	-	-	+	-	-	-	-	-	+
Syke's Nightjar	<i>caprimulgus maharattensis</i>	I			LC	R	-	-	-	-	-	-	-	-	-	-	+
Order Charadriiformes																	
Family Burhinidae																	
Indian Thick-Knee	<i>Burhinus indicus</i>	I			LC	R	+	-	-	-	-	-	-	-	-	-	+
Great Thick-knee	<i>Esacus recurvirostris</i>	I			NT	R	-	-	-	-	-	-	-	-	-	-	+
Family Charadriidae																	
Red-wattled Lapwing	<i>Vanellus indicus</i>	AQ	Titodi		LC	R	-	-	+	+	+	+	+	+	-	+	
Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	AQ	Titodi		LC	R	-	-	-	-	-	-	-	-	-	-	+
Family Laridae																	
Gull-billed Tern	<i>Gelochelidon nilotica</i>	AQ			LC	WV	-	-	-	-	-	+	-	-	-	-	
River Tern	<i>Sterna aurantia</i>	AQ			NT	R	-	-	-	-	-	+	-	-	-	-	+
Family Recurvirostridae																	
Black-winged Stilt	<i>Himantopus himantopus</i>	AQ			LC	R	-	+	-	-	-	+	-	-	-	-	+
Family Scolopacidae																	
Common Sandpiper	<i>Actitis hypoleucos</i>	AQ	Titodi	IES	LC	WV	-	+	+	+	+	+	+	+	+	+	
Wood Sandpiper	<i>Tringa glareola</i>	AQ	Titodi		LC	WV	-	-	-	-	-	-	-	+	-	+	
Common Greenshank	<i>Tringa nebularia</i>	AQ			LC	WV	-	-	-	-	-	-	-	+	-	+	
Green Sandpiper	<i>Tringa ochropus</i>	AQ	Titodi		LC	WV	+	+	+	+	+	-	-	+	-	+	



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Marsh Sandpiper	<i>Tringa stagnatilis</i>	AQ	Titodi		LC	WV	-	-	-	-	+	-	-	+	-	+	
Common Redshank	<i>Tringa totanus</i>	AQ			LC	WV	-	-	-	-	-	-	-	+	-	+	
Family Turnicidae																	
Barred Buttonquail	<i>Turnix suscitator</i>	O			LC	R	-	-	-	+	+	+	-	-	-	-	
Order Ciconiiformes																	
Family Ciconiidae																	
Asian Openbill	<i>Anastomus oscitans</i>	AQ			LC	R	-	-	-	-	-	+	-	+	-	+	
European White Stork	<i>Ciconia ciconia</i>	AQ			LC	WV	+	-	-	-	-	-	-	-	-	-	
Wolly-necked Stork	<i>Ciconia episcopus</i>	AQ			VU	R	+	+	-	-	-	-	-	-	-	-	
Painted Stork	<i>Mycteria leucocephala</i>	AQ			NT	WV	+	-	-	-	-	-	-	-	-	-	
Order Columbiformes																	
Family Columbidae																	
Asian Emerald Dove	<i>Chalcophaps indica</i>	F	Nir/Nil holo	FIS	LC	R	+	+	-	+	+	+	-	+	+	+	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>	F			VU	R	-	-	-	-	-	+	-	-	-	-	
Rock Pigeon	<i>Columba livia</i>	G	Pareva		LC	R	+	+	-	+	+	+	+	-	-	+	
Spotted Dove	<i>Streptopelia chinensis</i>	G	Holi	IES	LC	R	+	+	+	+	+	+	+	-	+	+	
Laughing Dove	<i>Streptopelia senegalensis</i>	G	Hasti Holi	FES	LC	R	-	+	+	-	+	+	+	-	+	+	
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	G	Holi		LC	R	-	-	+	+	-	+	-	+	+	+	
Oriental Turtle Dove	<i>Streptopelia orientalis</i>	G	Holi		LC	WV	+	+	-	+	+	+	-	+	-	+	
Red Collared Dove	<i>Streptopelia tranquebarica</i>	G	Holi		LC	R	-	-	-	-	+	-	+	+	-	+	
Grey-fronted Green Pigeon	<i>Treron affinis</i>	F		FIS	LC	R	-	-	+	-	-	-	-	-	-	-	
Yellow-footed Green Pigeon	<i>Treron phoenicopterus</i>	F	Halid/Harod	FIS	LC	R	+	+	+	+	+	+	+	-	+	+	
Order Coraciiformes																	
Family Alcedinidae																	
Common Kingfisher	<i>Alcedo atthis</i>	AQ	Dhindha		LC	R	-	+	-	+	+	+	+	+	+	+	
Pied Kingfisher	<i>Ceryle rudis</i>	C	Dhindhla		LC	R	-	-	+	-	+	-	-	+	-	+	
Oriental Dwarf Kingfisher	<i>Ceyx erithaca</i>	AQ	Dhindhla		LC	MV	-	-	-	-	-	-	-	-	-	-	A
Black-capped Kingfisher	<i>Halcyon pileata</i>	AQ			LC	R	+	-	-	-	-	-	-	-	-	+	
White-throated Kingfisher	<i>Halcyon smyrnensis</i>	AQ	Dhindhla	FES	LC	R	-	+	+	+	+	+	+	+	+	+	
Stork-billed Kingfisher	<i>Pelargopsis capensis</i>	AQ			LC	R	+	-	-	-	-	-	-	-	-	-	
Family Coraciidae																	
Indian Roller	<i>Coracias benghalensis</i>	I	Tashliyo	FES	LC	R	+	+	-	+	+	+	+	-	+	+	
Eurasian Roller	<i>Coracias garrulus</i>	I		FES	LC	PV	-	-	-	-	-	+	-	-	-	+	
Family Meropidae																	
Green Bee-eater	<i>Merops orientalis</i>	I	Pirvit	FES	LC	R	+	+	+	+	+	+	+	+	+	+	
Blue-cheeked Bee-eater	<i>Merops persicus</i>	I	Pirvit		LC	PV	-	-	-	-	-	-	-	-	-	+	
Blue-tailed Bee-eater	<i>Merops philippinus</i>	I	Pirvit		LC	PV	-	-	+	-	-	-	-	-	-	+	
Blue-bearded Bee-eater	<i>Nyctornis athertoni</i>	I			LC	R	+	-	-	-	-	-	-	-	-	-	

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Order Cuculiformes																	
Family Cuculidae																	
Grey-bellied Cuckoo	<i>Cacomantis passerinus</i>	I			LC	SV	-	-	-	-	-	-	+	-	-	+	
Banded Bay cuckoo	<i>Cacomantis sonneratii</i>	I			LC	R	+	-	-	-	-	-	-	-	-	+	
Greater Coucal	<i>Centropus sinensis</i>	C	Kakad Kumbhariyo	IES	LC	R	+	+	-	+	+	+	+	+	+	-	
Pied Cuckoo	<i>Clamator jacobinus</i>	I			LC	SV	-	-	+	-	-	+	+	-	-	-	
Indian Cuckoo	<i>Cuculus micropterus</i>	I		FIS	LC	SV	+	+	+	+	-	-	-	-	+	+	
Lesser Cuckoo	<i>Cuculus poliocephalus</i>	I			LC	PV	+	-	-	-	-	-	-	-	-	-	
Asian Koel	<i>Eudynamis scolopaceus</i>	O	Kohoo	IES	LC	R	-	+	+	+	+	+	-	+	-	+	
Common Hawk Cuckoo	<i>Hierococcyx varius</i>	I	Pipida	IES	LC	R	+	+	+	+	+	+	-	+	-	+	
Blue-faced Malkoha	<i>Phaenicophaeus viridirostris</i>	I			LC	R	-	-	-	-	-	-	+	-	-	-	
Fork-Tailed Drongo Cuckoo	<i>Surniculus dicruroides</i>	I			LC	SV	-	-	-	-	-	-	-	-	-	+	
Sqaure-tailed Drongo Cuckoo	<i>Surniculus lugubris</i>	I			LC	SV	-	-	+	-	-	-	-	-	-	-	
Sirkeer Malkoha	<i>Taccocua leschenaultii</i>	I			LC	R	+	-	+	-	-	-	-	-	-	+	
Order Falconiformes																	
Family Falconidae																	
Amur Falcon	<i>Falco amurensis</i>	C			LC	PV	-	-	-	-	-	-	-	-	-	-	+
Barbary Falcon	<i>Falco (peregrinus) pelegrinoides</i>	C			LC	WV	-	-	-	-	-	+	-	-	-	-	
Peregrine Falcon	<i>Falco peregrinus</i>	C			LC	R	-	-	-	-	+	+	+	-	-	+	
Eurasian Hobby	<i>Falco subbuteo</i>	C			LC	WV	-	+	-	+	-	+	-	-	-	-	
Common Kestrel	<i>Falco tinnunculus</i>	C			LC	WV	-	+	-	+	+	+	-	-	-	+	
Order Galliformes																	
Family Phasianidae																	
Blue-breasted Quail	<i>Synoicus chinensis</i>	G			LC	R	-	-	-	-	-	-	-	-	-	-	B
Common Quail	<i>Coturnix coturnix</i>	G	Lavri		LC	WV	+	-	-	-	-	-	-	-	-	-	
Painted Francolin	<i>Francolinus pictus</i>	G	Titar	FES	LC	R	+	+	+	+	-	+	-	-	-	+	
Grey Francolin	<i>Francolinus pondicerianus</i>	G			LC	R	-	-	-	-	-	-	-	+	-	+	
Red Spurfowl	<i>Galloperdix spadicea</i>	O	Jungli Mardho/ Kukdo	FIS	LC	R	+	+	+	-	-	+	-	-	-	+	
Red Junglefowl	<i>Gallus gallus</i>	O	Jungli Mardho/ Kukdo	FIS	LC	R	-	-	-	-	-	+	-	-	-	+	
Grey Junglefowl	<i>Gallus sonneratii</i>	O	Jungli Mardho/ Kukdo	FIS	LC	R	+	+	+	+	+	+	-	-	+	+	
Indian Peafowl	<i>Pavo cristatus</i>	O	Mor	FIS	LC	R	+	+	+	+	+	+	-	+	+	+	
Jungle Bush Quail	<i>Perdica asiatica</i>	G		IES	LC	R	+	+	+	-	-	-	-	-	-	+	
Order Gruiformes																	
Family Gruidae																	
Sarus Crane	<i>Antigone antigone</i>	O			VU	WV	-	-	-	-	-	-	-	-	-	-	+
Common Crane	<i>Grus grus</i>	O	Karkucha		LC	WV	-	-	-	-	-	-	-	-	-	-	+
Demoiselle Crane	<i>Grus virgo</i>	O			LC	WV	-	-	-	-	+	+	-	-	-	-	



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Family Rallidae																	
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	AQ	Kuwa		LC	R	+	+	+	+	-	-	-	+	+	+	
Eurasian Coot	<i>Fulica atra</i>	AQ			LC	R	-	-	-	-	+	+	-	-	-	-	
Order Passeriformes																	
Family Acrocephalidae																	
Byth's Reed Warbler	<i>Acrocephalus dumetorum</i>	I			LC	WV	+	-	-	-	-	+	-	-	-	-	+
Large-billed Reed Warbler	<i>Acrocephalus orinus</i>	I			DD	PV	-	-	-	-	-	-	-	-	-	-	C
Clamorous Reed Warbler	<i>Acrocephalus stentoreus</i>	I			LC	WV	-	-	-	-	-	+	+	-	-	+	
Booted Warbler	<i>Iduna caligata</i>	I			LC	WV	+	-	-	-	-	+	-	-	-	+	
Sykes's Warbler	<i>Iduna rama</i>	I			LC	WV	+	-	-	-	-	-	-	-	-	-	
Family Aegithinidae																	
Common Iora	<i>Aegithina tiphia</i>	I	Shirishot	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Family Alaudidae																	
Rufous-tailed Lark	<i>Ammomanes phoenicurus</i>	O			LC	R	+	-	-	-	-	+	-	-	-	-	+
Skye's Short-toed Lark	<i>Calandrella dukhunensis</i>	I					+	-	+	-	-	-	-	-	-	-	
Ashy-crowned Sparrow Lark	<i>Eremopterix griseus</i>	G			LC	R	-	-	-	-	-	-	-	-	-	-	+
Crested Lark	<i>Galerida cristata</i>	O			LC	R	-	-	-	-	-	-	-	-	-	-	+
Indian Bushlark	<i>Mirafra erythroptera</i>	O			LC	R	-	-	-	-	-	-	-	-	-	-	+
Family Artamidae																	
Ashy Woodswallow	<i>Artamus fuscus</i>	I		IES	LC	R	-	+	-	-	+	+	-	-	-	-	+
Family Campephagidae																	
Large Cuckooshrike	<i>Coracina macei</i>	I	Gaekwad	IES	LC	R	+	+	+	+	+	+	+	-	-	-	+
Black-headed Cuckooshrike	<i>Lalage melanoptera</i>	I			LC	SV	-	-	+	+	-	-	-	-	+	+	
Small Minivet	<i>Pericrocotus cinnamomeus</i>	I		IES	LC	R	+	+	+	+	+	+	+	+	+	+	
White-bellied Minivet	<i>Pericrocotus erythropygius</i>	I			LC	UNK	-	-	-	-	-	-	-	+	-	-	
Rosy Minivet	<i>Pericrocotus roseus</i>	I				VAG	-	-	-	-	-	-	-	-	-	-	D
Orange Minivet	<i>Pericrocotus flammeus</i>	I		FIS	LC	R	+	+	+	+	+	+	+	-	+	+	
Family Chloropseidae																	
Golden-fronted Leafbird	<i>Chloropsis aurifrons</i>	O	Nilfesa	FIS	LC	R	+	+	+	+	+	+	+	+	+	+	
Jerdon's Leaf Bird	<i>Chloropsis jerdoni</i>	O	Nilfesa	IES	LC	R	-	+	-	-	+	+	+	-	+	+	
Family Cisticolidae																	
Zitting Cisticola	<i>Cisticola juncidis</i>	I			LC	R	-	-	-	-	-	-	-	+	-	+	
Common Tailorbird	<i>Orthotomus sutorius</i>	I	Darjido/ Liliyo/Tilliyo	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Rufous-fronted Prinia	<i>Prinia buchanani</i>	I			LC	R	-	-	-	-	-	-	-	-	-	-	+
Graceful Prinia	<i>Prinia gracilis</i>	I			LC	R	+	-	-	-	-	-	-	-	-	-	
Grey-breasted Prinia	<i>Prinia hodgsonii</i>	I		IES	LC	R	-	+	+	+	+	-	-	-	+	+	
Plain Prinia	<i>Prinia inornata</i>	I			LC	R	-	-	-	-	-	+	+	+	+	+	
Ashy Prinia	<i>Prinia socialis</i>	I		FIS	LC	R	-	+	-	+	-	+	+	-	-	+	

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Jungle Prinia	<i>Prinia sylvatica</i>	I			LC	R	+	-	-	-	+	+	-	-	-	+	
Family Corvidae																	
Large-billed Crow	<i>Corvus macrorhynchos</i>	O	Kagdo	FES	LC	R	-	+	+	+	+	+	+	-	+	+	
House Crow	<i>Corvus splendens</i>	O	Kagdo		LC	R	+	+	+	+	+	+	-	-	-	+	
White-bellied Treepie	<i>Dendrocitta leucogastra</i>	O			LC	UNK	-	-	-	-	-	-	-	-	-	-	E
Rufous Treepie	<i>Dendrocitta vagabunda</i>	O	Khasa/Karooli	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Family Dicaeidae																	
Thick-billed Flowerpecker	<i>Dicaeum agile</i>	O	Chik-Chika		LC	R	+	+	+	+	+	+	+	+	+	+	
Pale-billed Flowerpecker	<i>Dicaeum erythrorhynchos</i>	O	Chik-Chika	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Family Dicruridae																	
White-bellied Drongo	<i>Dicrurus caerulescens</i>	I	Kabri Bandoli	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Ashy Drongo	<i>Dicrurus leucophaeus</i>	I			LC	WV	+	-	+	+	+	+	+	-	+	+	
Black Drongo	<i>Dicrurus macrocercus</i>	I	Kali Bandoli	FES	LC	R	-	+	+	+	+	+	+	-	+	+	
Greater Racket-tailed Drongo	<i>Dicrurus paradiseus</i>	I	Bhingraj	IES	LC	R	+	+	+	+	+	+	+	-	+	+	
Family Emberizidae																	
Black-headed Bunting	<i>Emberiza melanocephala</i>	O			LC	WV	-	-	-	-	-	-	-	+	-	+	
Crested Bunting	<i>Emberiza lathami</i>				LC	R	-	-	-	-	-	-	-	-	-	+	
Family Estrildidae																	
Red Avadavat	<i>Amandava amandava</i>	O			LC	R	-	-	+	-	+	-	-	-	-	-	
Green Avadavat	<i>Amandava formosa</i>	O			VU	R	-	-	+	-	-	-	-	-	-	-	
Indian Silverbill	<i>Euodice malabarica</i>	O			LC	R	-	-	-	-	+	-	+	-	+		
Tricoloured Munia	<i>Lonchura malacca</i>	O			LC	R	-	-	-	-	+	-	-	-	-	-	
Scaly-breasted Munia	<i>Lonchura punctulata</i>	O	Jhora		LC	R	-	-	+	-	+	+	-	-	-	+	
White-rumped Munia	<i>Lonchura striata</i>	O	Jharu		LC	R	+	-	-	+	+	+	-	-	-	+	
Family Fringillidae																	
Common Rosefinch	<i>Carpodacus erythrinus</i>	G			LC	WV	+	-	-	+	+	-	-	-	-	+	
Family Hirundinidae																	
Red-rumped Swallow	<i>Cecropis daurica</i>	I			LC	R	+	+	-	+	+	+	+	+	+	+	
Barn Swallow	<i>Hirundo rustica</i>	I			LC	WV	-	-	-	-	+	+	+	-	+	+	
Wire-tailed Swallow	<i>Hirundo smithii</i>	I			LC	R	-	-	-	-	+	+	-	+	-	+	
Streak-throated Swallow	<i>Petrochelidon fluvicola</i>	I			LC	R	-	-	-	-	+	-	-	-	-	+	
Dusky Crag Martin	<i>Ptyonoprogne concolor</i>	I			LC	R	+	+	-	+	-	+	+	+	-	+	
Eurasian Crag Martin	<i>Ptyonoprogne rupestris</i>	I			LC	WV	+	-	-	+	-	+	-	-	-	-	
Plain sand Martin/ Grey-throated Martin	<i>Riparia chinensis</i>	I			LC	R	-	-	+	-	-	-	-	-	-	+	
Family Laniidae																	
Brown Shrike	<i>Lanius cristatus</i>	I			LC	WV	+	-	-	+	+	+	-	-	-	+	
Masked Shrike	<i>Lanius nubicus</i>	I			LC	VAG	-	-	-	-	-	-	-	-	-	-	F



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Long-tailed Shrike	<i>Lanius schach</i>	I			LC	R	+	-	+	+	+	+	-	-	-	+	
Bay-backed Shrike	<i>Lanius vittatus</i>	I	Kanchya		LC	R	-	-	-	-	-	+	-	+	+	+	
Family Leiothrichidae																	
Common Babbler	<i>Argya caudata</i>	I			LC	R	-	-	-	-	+	-	+	-	+	+	
Large Grey Babbler	<i>Argya malcolmi</i>	I			LC	R	-	-	-	-	-	-	-	+	-	+	
Jungle Babbler	<i>Argya striata</i>	I	Khigdo	IES	LC	R	+	+	+	+	+	+	+	-	+	+	
Family Monarchidae																	
Black-naped Monarch	<i>Hypothymis azurea</i>	I		FIS	LC	R	+	+	+	+	+	+	+	+	+	+	
Indian Paradise-flycatcher	<i>Terpsiphone paradisi</i>	I	Dudhraj	IES	LC		+	+	+	+	+	+	+	+	+	+	
Family Motacillidae																	
Tawny Pipit	<i>Anthus Campestris</i>	I			LC	WV	-	-	-	-	-	-	-	-	-	-	+
Olive-backed Pipit	<i>Anthus hodgsoni</i>	I			LC	WV	+	-	-	-	-	+	-	-	-	-	
Paddyfield Pipit	<i>Anthus rufulus</i>	I			LC	R	-	-	-	-	-	-	-	-	+	+	
Tree Pipit	<i>Anthus trivialis</i>	I			LC	WV	+	-	-	+	+	+	+	+	-	+	
Forest Wagtail	<i>Dendronanthus indicus</i>	O			LC	WV	+	-	+	-	-	-	-	-	-	-	+
White Wagtail	<i>Motacilla alba</i>	AQ			LC	WV	-	+	-	+	+	+	+	+	+	+	
Grey Wagtail	<i>Motacilla cinerea</i>	AQ	Titvi	FIS	LC	WV	+	+	-	+	+	+	+	+	+	+	
Citrine Wagtail	<i>Motacilla citreola</i>	AQ			LC	WV	+	-	-	+	+	+	+	-	-	+	
Western Yellow Wagtail	<i>Motacilla flava</i>	AQ			LC	WV	-	-	+	-	+	+	+	-	+	+	
White-browed Wagtail	<i>Motacilla maderaspatensis</i>	AQ			LC	R	-	-	-	-	-	-	-	-	-	-	+
Family Muscicapidae																	
Brown Rock Chat	<i>Oenanthe fusca</i>	I			LC	R	-	-	-	-	-	+	-	+	-	+	
White-rumped Shama	<i>Copsychus malabaricus</i>	I		FIS	LC	R	+	+	+	+	+	+	-	+	+	+	
Oriental Magpie Robin	<i>Copsychus saularis</i>	I	Khaprya chor	IES	LC	R	+	+	+	+	+	+	+	-	+	+	
Tickell's Blue Flycatcher	<i>Cyornis tickelliae</i>	I	Titari	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Verditer Flycatcher	<i>Eumyias thalassinus</i>	I	Titari	FIS	LC	WV	-	+	+	+	+	+	+	+	+	+	
Taiga Flycatcher	<i>Ficedula albicilla</i>	I	Titari		LC	WV	-	-	-	-	+	+	-	+	+	+	
Red-breasted Flycatcher	<i>Ficedula parva</i>	I	Titari	IES	LC	WV	+	+	+	+	+	+	+	+	+	+	
Ultramarine flycatcher	<i>Ficedula superciliaris</i>	I	Titari		LC	WV	-	+	-	-	-	+	+	+	+	+	
Bluethroat	<i>Luscinia svecica</i>	I			LC	WV	-	-	-	-	-	+	+	+	-	+	
Blue-capped Rock Thrush	<i>Monticola cinclorhyncha</i>	I			LC	WV	+	-	-	+	+	-	-	+	-	+	
Blue Rock Thrush	<i>Monticola solitarius</i>	I			LC	WV	+	-	-	+	-	-	-	+	-	+	
Asian Brown Flycatcher	<i>Muscipapa dauurica</i>	I	Titari		LC	WV	+	+	-	-	-	+	+	+	+	+	
Rusty-tailed Flycatcher	<i>Ficedula ruficauda</i>	I			LC	WV	-	-	-	-	-	-	-	+	-	-	
Malabar Whistling Thrush	<i>Myophonus horsfieldii</i>	I		FIS	LC	R	+	+	-	+	-	+	+	+	+	+	
Black Redstart	<i>Phoenicurus ochruros</i>	I		IES	LC	WV	-	+	-	+	+	-	-	+	-	+	
Pied bushchat	<i>Saxicola caprata</i>	I			LC	R	-	-	-	-	-	+	+	-	-	+	
Siberian Stonechat	<i>Saxicola maurus</i>	I			LC	WV	+	-	-	-	-	+	-	+	-	+	

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Indian Robin	<i>Copsychus fulicatus</i>	I			LC	R	+	-	-	+	-	+	+	-	-	+	
Family Nectariniidae																	
Vigor's Sunbird	<i>Aethopyga vigorsii</i>	N	Choohi	FIS	LC	R	+	+	+	+	+	+	+	+	+	+	
Purple Sunbird	<i>Cinnyris asiaticus</i>	N	Choohi	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Purple-rumped Sunbird	<i>Leptocoma zeylonica</i>	N	Choohi		LC	R	-	-	+	+	+	+	+	+	-	+	
Family Oriolidae																	
Indian Golden Oriole	<i>Oriolus kundoo</i>	O	Haldiya		LC	R	+	+	+	+	+	+	+	+	+	+	
Black-hooded Oriole	<i>Oriolus xanthornus</i>	O	Haldiya	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Family Paridae																	
White-naped Tit	<i>Machlolophus nuchalis</i>	I			VU	R	-	-	-	-	-	-	-	-	-	-	+
Indian Yellow Tit	<i>Machlolophus aplonotus</i>	I			LC	R	+	-	-	-	-	+	+	+	-	+	
Great Tit/ Cinereous Tit	<i>Parus cinereus</i>	I	Bibi Chowdhra	IES	LC	R	+	+	+	+	+	+	+	-	+	+	
Family Passeridae																	
Yellow-throated Sparrow	<i>Gymnoris xanthocollis</i>	O	Chivan Sakhar	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
House Sparrow	<i>Passer domesticus</i>	G			LC	R	+	+	+	+	+	+	+	+	-	+	
Family Pellorneidae																	
Brown-cheeked Fulvetta/ Quaker Tit Babbler	<i>Alcippe poioicephala</i>	I		FIS	LC	R	+	+	+	+	+	+	+	-	+	+	
Puff-throated Babbler	<i>Pellorneum ruficeps</i>	I		FIS	LC	R	+	+	+	+	-	+	-	-	+	+	
Family Phylloscopidae																	
Common Chiffchaff	<i>Phylloscopus collybita</i>	I			LC	WV	-	-	-	+	+	+	-	-	-	+	
Sulphur-bellied Warbler	<i>Phylloscopus griseolus</i>	I		IES	LC	WV	+	-	-	+	+	+	+	+	-	+	
Hume's Leaf Warbler	<i>Phylloscopus humei</i>	I		IES	LC	WV	+	-	-	-	-	+	-	-	-	+	
Yellow-browed Warbler	<i>Phylloscopus inornatus</i>	I		IES	LC	WV	-	+	-	+	-	-	-	-	-	-	
Green Warbler	<i>Phylloscopus nitidus</i>	I		IES	LC	PV	+	-	-	-	-	+	+	+	-	+	
Western Crowned Warbler	<i>Phylloscopus occipitalis</i>	I		IES	LC	WV	+	-	-	+	-	-	-	-	-	-	
Greenish Warbler	<i>Phylloscopus trochiloides</i>	I		IES	LC	WV	+	+	-	+	+	+	+	-	-	+	
Tytler's leaf Warbler	<i>Phylloscopus tytleri</i>	I		IES	LC	WV	+	-	-	-	-	-	-	-	-	-	
Family Pittidae																	
Indian Pitta	<i>Pitta brachyura</i>	I	Gofli		LC	SV	-	+	+	+	+	-	-	+	+	+	
Family Ploceidae																	
Baya Weaver	<i>Ploceus philippinus</i>	G	Sugri		LC	R	-	-	-	-	-	-	-	-	-	-	+
Family Pycnonotidae																	
Red-vented Bulbul	<i>Pycnonotus cafer</i>	O	Bulbuliyo/ Pistolila/ phesra	FES	LC	R	+	+	+	+	+	+	+	+	+	+	
Red-Whiskered Bulbul	<i>Pycnonotus jocosus</i>	O			LC	R	+	-	-	-	-	+	+	+	+	+	
White-eared Bulbul	<i>Pycnonotus leucotis</i>	O			LC	R	-	-	-	-	+	+	+	+	-	+	
White-Browed Bulbul	<i>Pycnonotus luteolus</i>	O		IES	LC	R	-	+	-	-	-	-	-	-	-	+	



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Family Rhipiduridae																	
White-spotted Fantail	<i>Rhipidura albogularis</i>	I		IES	LC	R	+	-	+	-	-	-	-	-	-	+	
White-browed Fantail	<i>Rhipidura aureola</i>	I		IES	LC	R	-	-	+	+	+	+	-	-	-	+	
White-throated fantail	<i>Rhipidura albicollis</i>						-	-	+	-	-	-	-	-	-	-	
Family Sittidae																	
Velvet-fronted Nuthatch	<i>Sitta frontalis</i>	I			LC	R	+	+	-	+	-	+	+	-	-	+	
Family Stenostiridae																	
Grey-headed Canary Flycatcher	<i>Culicicapa ceylonensis</i>	I	Titari	FIS	LC	WV	-	+	+	+	+	+	+	-	+	+	
Family Sturnidae																	
Bank Myna	<i>Acridotheres ginginianus</i>	O	Kabar	FES	LC	R	-	-	-	-	+	-	-	-	-	+	
Common Myna	<i>Acridotheres tristis</i>	O	Kabar	FES	LC	R	+	+	+	+	+	+	-	-	-	+	
Asian Pied Starling	<i>Gracupica contra</i>	O			LC	R	-	-	+	-	-	-	-	-	-	-	
Rosy Starling	<i>Pastor roseus</i>	O			LC	WV	-	-	+	-	-	+	-	+	-	+	
Chestnut-tailed Starling	<i>Sturnia malabarica</i>	O			LC	WV	-	-	-	-	-	-	-	-	-	+	
Brahminy Starling	<i>Sturnia pagodarum</i>	O		FES	LC	R	-	+	+	-	-	+	-	+	-	+	
Family Sylviidae																	
Yellow-eyed Babbler	<i>Chrysomma sinense</i>	I			LC	R	-	+	-	-	-	-	-	+	-	+	
Hume's Whitethroat	<i>Sylvia althaea</i>	I			LC	WV	+	-	-	-	-	-	-	-	-	-	
Lesser Whitethroat	<i>Sylvia curruca</i>	I			LC	WV	+	-	-	-	-	-	-	-	-	+	
Family Timaliidae																	
Tawny-bellied Babbler	<i>Dumetia hyperythra</i>	I			LC	R	+	-	+	+	+	+	-	+	+	+	
Indian Scimitar Babbler	<i>Pomatorhinus horsfieldii</i>	I		FIS	LC	R	+	+	+	+	-	+	+	-	+	+	
Family Turdidae																	
Indian Blackbird	<i>Turdus simillimus</i>	O			LC	SV	+	-	-	-	-	+	+	-	-	+	
Tickell's Thrush	<i>Turdus unicolor</i>	O			LC	WV	-	-	-	-	-	-	-	-	-	+	
Orange-headed Thrush	<i>Geokichla citrina</i>	O		FIS	LC	R	-	+	+	+	+	+	+	-	-	+	
Family Vangidae																	
Bar-winged Flycatcher Shrike	<i>Hemipus picatus</i>	I		FIS	LC	R	+	+	-	+	-	+	+	+	-	+	
Common Woodshrike	<i>Tephrodornis pondicerianus</i>	I	Valbafiya	FIS	LC	R	+	+	+	+	+	+	+	-	+	+	
Malabar Woodshrike	<i>Tephrodornis sylvicola</i>	I	Valbafiya		LC	R	+	-	-	-	-	-	-	-	-	-	
Large Woodshrike	<i>Tephrodornis virgatus</i>	I	Valbafiya		LC	R	-	+	-	-	-	-	-	-	-	-	
Family Zosteropidae																	
Oriental White-eye	<i>Zosterops palpebrosus</i>	I	Gharya	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Order Pelecaniformes																	
Family Ardeidae																	
Grey Heron	<i>Ardea cinerea</i>	AQ	Kabro baglo		LC	R	-	-	-	-	-	-	-	+	-	+	
Indian Pond Heron	<i>Ardeola grayii</i>	AQ	Dhokla	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Cattle Egret	<i>Bubulcus ibis</i>	AQ	Bag		LC	R	+	+	+	+	+	+	+	+	+	+	

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Striated Heron	<i>Butorides striata</i>	AQ			LC	R	+	-	-	+	-	-	+	-	-	+	
Great Egret	<i>Ardea alba</i>	AQ			LC	R	+	+	+	-	-	+	-	+	-	+	
Little Egret	<i>Egretta garzetta</i>	AQ	Bag	FES	LC	R	+	+	+	+	-	+	+	-	+	+	
Western Reef Egret	<i>Egretta gularis</i>	AQ			LC	UNK	-	-	-	-	-	+	-	-	-	+	
Intermediate Egret	<i>Ardea intermedia</i>	AQ			LC	R	+	-	-	+	+	+	+	+	-	+	
Family Threskiornithidae																	
Glossy Ibis	<i>Plegadis falcinellus</i>	O	Kokanghar		LC	WV	-	-	-	-	-	-	-	-	+	+	
Red-naped Ibis	<i>Pseudibis papillosa</i>	O	Kokanghar		LC	R	+	+	+	+	+	+	+	-	+	+	
Black-headed Ibis	<i>Threskiornis melanocephalus</i>	O	Kokanghar		NT	WV	-	-	-	-	+	-	-	-	-	+	
Order Piciformes																	
Family Megalaimidae																	
Coppersmith Barbet	<i>Psilopogon haemacephalus</i>	F	Popli	FES	LC	R	+	+	+	+	+	+	+	+	+	+	
White-cheeked Barbet	<i>Psilopogon viridis</i>	F	Kukroos	FIS	LC	R	+	+	-	+	-	+	+	-	-	+	
Brown-headed Barbet	<i>Psilopogon zeylanicus</i>	F		IES	LC	R	+	+	+	+	+	+	+	-	+	+	
Family Picidae																	
White-naped Woodpecker	<i>Chrysocolaptes festivus</i>	I	Tirga		LC	R	+	-	-	+	-	+	+	-	+	+	
Greater Flameback	<i>Chrysocolaptes guttacristatus</i>	I	Tirga		LC	R	+	-	+	+	+	+	-	+	+	+	
Yellow-fronted Woodpecker	<i>Leiopicus mahrattensis</i>	I	Tirga	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Brown-capped pygmy Woodpecker	<i>Yungipicus nanus</i>	I	Bobdi Tirga	FIS	LC	R	+	+	+	+	+	+	+	+	+	+	
Black-rumped Flameback / Lesser Goldenback	<i>Dinopium benghalense</i>	I	Tirga	IES	LC	R	+	+	+	+	+	+	+	-	+	+	
White-bellied Woodpecker	<i>Dryocopus javensis</i>	I	Hardiya Tirga	FIS	LC	R	+	+	+	+	+	+	-	+	-	+	
Heart-spotted Woodpecker	<i>Hemicircus canente</i>	I	Tirga	FIS	LC	R	+	+	-	+	+	+	+	-	-	+	
Eurasian Wryneck	<i>Jynx torquilla</i>	I			LC	WV	-	-	-	-	-	-	-	+	-	+	
Rufous Woodpecker	<i>Micropternus brachyurus</i>	I	Tirga		LC	R	+	+	-	+	-	+	+	+	-	+	
Lesser Yellownape	<i>Picus chlorolophus</i>	I	Tirga	FIS	LC	R	+	+	-	+	-	-	-	-	-	+	
Streak-throated Woodpecker	<i>Picus xanthopygaeus</i>	I	Tirga		LC	R	-	-	-	-	+	-	-	-	-	-	
Order Podicipediformes																	
Family Podicipedidae																	
Little Grebe	<i>Tachybaptus ruficollis</i>	AQ			LC	R	-	+	-	+	+	+	+	-	-	+	
Order Psittaciformes																	
Family Psittaculidae																	
Plum-headed Parakeet	<i>Psittacula cyanocephala</i>	F	Tuhi/Popat	IES	LC	R	+	+	+	+	+	+	+	+	+	+	
Alexandrine Parakeet	<i>Psittacula eupatria</i>	F	Popat/Hudo	IES	NT	R	+	+	+	+	+	+	+	+	+	+	
Rose-ringed Parakeet	<i>Psittacula krameri</i>	F	Popat	FES	LC	R	+	+	+	+	+	+	+	+	+	+	
Order Strigiformes																	
Family Strigidae																	



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Short-eared Owl	<i>Asio Flammeus</i>	C	Duda		LC	WV	+	-	-	-	-	-	-	-	-	-	-
Spotted Owlet	<i>Athene brama</i>	C	Chirbiliya Duda/ Chibri		LC	R	+	-	+	+	+	+	-	+	-	+	
Indian Eagle Owl	<i>Bubo bengalensis</i>	C	Motha Duda		LC	R	+	+	-	-	-	+	-	-	-	-	+
Dusky Eagle Owl	<i>Bubo coromandus</i>	C			LC	R	-	-	+	-	-	-	-	-	-	-	-
Jungle Owlet	<i>Glaucidium radiatum</i>	C	Kabra / Jungli Duda	FIS	LC	R	+	+	+	+	+	+	+	+	+	+	+
Forest Owlet	<i>Athene blewitti</i>	C	Barik Thorpia Duda		EN	R	-	-	+	-	-	+	-	+	-	+	
Brown Fish Owl	<i>Ketupa zeylonensis</i>	C	Machimaar Dudo		LC	R	-	-	-	+	-	+	+	-	-	-	+
Brown Hawk Owl	<i>Ninox scutulata</i>	C			LC	R	+	+	-	+	-	+	-	+	-	-	+
Indian Scops Owl	<i>Otus bakkamoena</i>	C			LC	R	+	-	-	+	+	+	-	-	-	-	+
Eurasian Scops Owl	<i>Otus scops</i>	C			LC	WV	-	-	+	-	-	-	-	-	-	-	-
Oriental Scops Owl	<i>Otus sunia</i>	C			LC	R	-	-	-	-	-	+	-	-	-	-	+
Brown Wood Owl	<i>Strix leptogrammica</i>	C			LC	R	-	-	-	+	+	+	-	-	-	-	+
Mottled Wood Owl	<i>Strix ocellata</i>	C			LC	R	+	+	-	-	+	+	-	-	-	-	+
Family Tytonidae																	
Common Barn Owl	<i>Tyto alba</i>	C	Chihar		LC	R	-	+	+	+	+	-	-	-	-	-	+
Order Suliformes																	
Family Phalacrocoracidae																	
Indian Cormorant	<i>Phalacrocorax fuscicollis</i>	AQ			LC	WV	-	-	-	-	-	+	-	-	-	-	+
Little Cormorant	<i>Microcarbo niger</i>	AQ	Kar		LC	WV	-	+	+	+	+	+	+	-	+	+	
Order Trogoniformes																	
Family Trogonidae																	
Malabar Trogon	<i>Harpactes fasciatus</i>	I	Bhishkhighar	FIS	LC	R	+	+	+	+	+	+	+	-	+	+	

compartment 7 of PWS, while resting at Waghdarda checkpost, a call of Nightjar was heard by NJ around 20.15h. The call was typical 'Chaunk Chaunk Chaunk....'. Immediately the call was tallied with the pre-recorded call and confirmed as a call of Large-tailed Nightjar. The sighting of Trivedi & Soni (2006) in Ratanmahal WS was the first record for the state; however, the species was not recorded by Trivedi & Soni (2006) from PWS. This record substantiated the range extension of Large-tailed Nightjar further south by approximately 90km. It is also a new record for PWS. Also, eight individuals of this species have been sighted by Mishra & Singh (2010) from the Phot Mahadev thorn forest in Kutch District. Ganpule (2016) mentioned this species as a rare winter visitor.

Streak-throated Woodpecker *Picus xanthopygaeus* (J.E. & G.R. Gray, 1847)

On 6 April 2013, while walking a trail in compartment

56 of the Bardipada range, a green woodpecker foraging in bamboo thickets was observed by NJ. Knowing that it is not among the commonly found woodpeckers, photographs of the bird were taken immediately and identified as Streak-throated Woodpecker. This species was recorded from Shoolpaneshwar Wildlife Sanctuary, which delimits its southernmost range (Desai et al. 1993). Our record extends its range approximately by 40km towards the south, and it is also a new record for PWS. According to Ganpule (2016), the species is uncommon to a rare resident in the north to south forests of Gujarat but is not recorded elsewhere in the state.

Rusty-tailed Flycatcher *Ficedula ruficauda* Swainson, 1838

One individual of *Ficedula ruficauda* was photographed by Shailesh Gupta on 4 February 2017 during DBF 2017. This sighting is the first record from Dangs. Besides

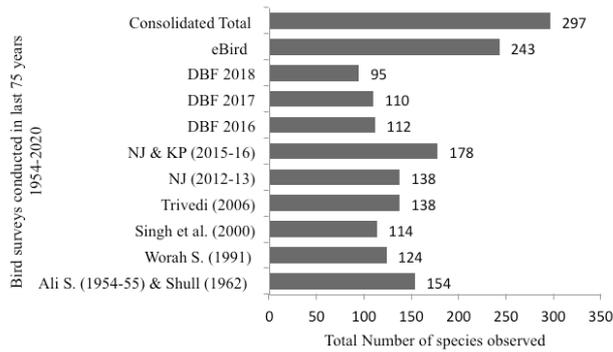


Figure 1. Number of species documented during different studies in Surat-Dangs landscape.

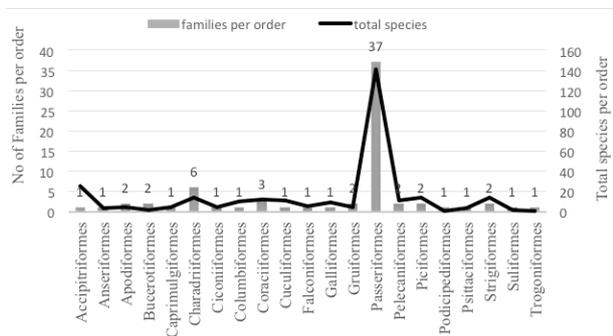


Figure 2. Family and order representation of Avifauna from the Surat-Dangs landscape.

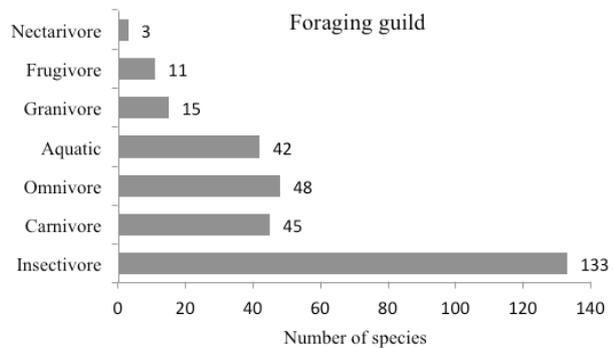


Figure 3. Composition of birds belonging to various foraging guilds in Surat-Dangs landscape.

this, one sighting from Morbi (Ganpule 2014b) and few from Girnar Mountains had been reported from Gujarat (Bagda 2017, 2019; Ghervada 2019; Vachhani 2019).

Lesser Whistling Duck *Dendrocygna javanica* (Horsfield, 1821)

On 15 June 2012, NJ observed 10 individuals of Lesser Whistling Duck swimming in the Purna River near Mahal campsite, which is the first record from Dangs.

Ali (1954–55) had noted this species as resident fairly common locally, but not abundant in Gujarat. Worah (1991) and Trivedi (2003) also did not report the species from Dangs. Recently this species has been recorded from areas surrounding Dangs, viz., Doswada (Songadh), Maya Lake (near Raghupura), Rangavali Dam (Nandurbar, Maharashtra), Vyara and Vansda NP (Chaudhari 2014; Tembhekar 2015; Patel 2015; Patel 2016; Jamadar 2019).

Rosy Minivet *Pericrocotus roseus* (Vieillot, 1818)

Rosy Minivet is mainly found (breeding) in the Himalaya from west to east up to Arunachal Pradesh and hills of Manipur, and winter-visitor to peninsular India (Birdlife International 2018b). Globally, the species is found in Afghanistan, Bangladesh, Bhutan, China, Nepal, Pakistan, Thailand, and Vietnam. The species was not listed in the Gujarat bird checklist (Ganpule 2016, 2017). First photographic evidence of this species was confirmed by Patel (2017a) from VNP. Another record was from VNP (Prakash 2017) and a closest photographic evidence was found on eBird platform from Tansa Wildlife Sanctuary (in Maharashtra State) in 2016 (Kasare 2016).

White-bellied Minivet *Pericrocotus erythropygius* (Jerdon, 1840)

Two individuals were sighted by one of the participants of DBF 2017 from the Bheskatri Trail team led by NJ. Ganpule (2016) mentions the species as uncommon to a rare resident. The species has been reported from the thorn and scrub forests of Kutch, Gir National Park and Hingolghadh in Saurashtra (Ganpule 2016). There has been no other record of the species from Dangs landscape till date and further investigation on the distribution of species in the landscape is necessary.

THREATENED SPECIES TO LOCAL EXTINCTION

Long-billed Vulture *Gyps indicus* (Scopoli, 1786)

In March 2016, 43 individuals of Long-billed Vulture were observed during the ‘Dangs Vulture Census’ with nesting and egg hatchling activity at Gadad Village, Piplai Devi range, Dangs. The state level vulture census was also conducted by the GEER foundation on 28 and 29 May 2016 from Dangs District (Kamboj et al. 2016). Since 2007, the Long-billed Vulture is the only vulture species reported from the Dangs. Its population is becoming stable now: eight individuals in 2005, 43 in 2007, 58 in 2010, 67 in 2012, and 43 in 2016 (Kamboj et al. 2016). Within the Gujarat State, the *Gyps* Vulture population has undergone a drastic decline to complete extirpation from many localities, including the nearest population from the Surat District (Kamboj et al. 2016). The nesting



population of 43 Long-billed Vulture in Dangs needs immediate conservation attention to prevent its local extinction from the district. The same locality (Gadad) has seen local extinction of *Gyps bengalensis* (White-rumped Vulture) recently. Although, one sighting of *Gyps bengalensis* has been recorded from Dangs in flight (Patel 2016; Andharia 2019), possibly a passer-by from the neighboring population in Valsad (Gujarat) and Nashik (Maharashtra) districts (Kamboj et al. 2016).

Indian Peafowl *Pavo cristatus* Linnaeus, 1758

The species is common and highly abundant in many protected areas and metro city parks or human-dominated areas. The species is also part of the diet of large carnivores like Tiger, Leopard, and Dhole (Arviazhagan et al. 2007). In Dangs, the species is heavily poached for its meat due to its large body size and tasteful flesh. There are very few records of the species from Dangs. It is a rare resident in the landscape.

Red Junglefowl *Gallus gallus* (Linnaeus, 1758)

Ali (1954–55) had not mentioned about Red Junglefowl *Gallus gallus* during his field-trips to Gujarat State. Ali (1954–55) had collected *G. spadicea* and *G. Sonneratii* (but not *G. gallus*) from Dangs; however, Ganpule (2016) mentioned that the species could be vagrant or rare resident with probable occurrence (“?”) in the forest belt of southern Gujarat. The species was once spotted on 6 February 2016 on Girmal track by one of the DBF 2016 team. Two individuals were also recorded from Girmal, carrying nesting material on 26 July 2017 (Theba 2017a).

Grey Junglefowl *Gallus sonneratii* Temminck, 1813

Grey Junglefowl *Gallus sonneratii* was observed in 2012–13 from the Mahal waterfall trail, in 2016 from Girmal, Bardipada, conservation plot, Koshmal, and Bheskatri. During DBF 2018, on 10 and 11 February 2018, it was observed by two different teams in Mahal track. The species can be easily heard in the early mornings near the Mahal campsite and relatively common among two other members (*G. spadicea* and *G. gallus*); however, the species is also susceptible to habitat change as well as hunting.

White-bellied Woodpecker *Dryocopus javensis* (Horsfield, 1821)

Surat-Dangs is the northernmost site for the White-bellied Woodpecker in India and the westernmost limit of its global range (Grimmett et al. 2014). The species is found only in Surat-Dangs forests of Gujarat State

(Ganpule 2016). It is the largest woodpecker of peninsular India and is a bird of primary moist deciduous forest and secondary forest. It is also seen in tropical evergreen and semi-evergreen forest, while it nests in large dead trees (Ali & Ripley 1983; Grimmett et al. 1998). In Gujarat, primary moist deciduous forest is the preferred habitat of species. The conversion of primary moist deciduous forests to either secondary forests or plantations has resulted in reduced availability of suitable nesting trees (Worah 1991; Santharam 2003). The population of this species is patchy and not connected. Ali (1954–1955) reported that tribal people hunt the species in Dangs District. The species is highly susceptible to local extinction due to hunting and less availability of nesting trees. It is comparatively easy to find the species in Conservation plot in PWS and VNP, but is rare in other parts of the landscape. Evaluation of its distribution and immediate conservation action is needed to prevent the local extinction of the species in the landscape.

ENDEMIC BIRD SPECIES

Forest Owlet *Athene blewitti* Hume, 1873

Existence of this rare and endemic species has been doubtful in Dangs District of Gujarat State for many years (Khacher 1996). The first unconfirmed record was noted during the biodiversity survey of VNP on 30.12.1998 from Kevdi locality (Singh et al. 2000). The first confirmed record with photographic evidence was reported from PWS in 2015 (Patel et al. 2015). The survey by KP (2015–2016) has revealed that the species is not restricted to PAs, but widely distributed throughout the Dangs District (Figure 4) and is fairly common in the agricultural fields, along with the teak dominated forest patches. The Dangs forest holds the second largest population with a total of at least 51 individuals, next only to Melghat, Maharashtra. Also, the population size could be much higher than what has been observed in the landscape; however, the positive locations outside the protected area are highly vulnerable to forest fire, habitat destruction, poaching and hunting, use of its body parts in religious rituals as well as illegal wildlife trade. The species is listed under the Endangered category of IUCN (Birdlife International 2018a). Dangs forests possess one of the highly suitable sites for the species and negligible use of rodenticide in the landscape (Worah 1991; Trivedi & Soni 2006) could provide sufficient prey species to the diet of Forest Owlet. The Dangs forests are one of the strongholds for the species and can support its long-term conservation.

Grey-fronted Green Pigeon *Treron affinis* (Jerdon, 1840)

Grey-fronted Green Pigeon is a bird species endemic

Table 2. Species list as per Important Bird Area criteria by Birdlife International.

	Family	English name	Scientific name	IUCN Red List
IBA Criteria A1. Globally threatened species				
1	Accipitridae	White-rumped Vulture	<i>Gyps bengalensis</i>	CR
2	Accipitridae	Indian Vulture	<i>Gyps indicus</i>	CR
3	Accipitridae	Egyptian Vulture	<i>Neophron percnopterus</i>	EN
4	Strigidae	Forest Owlet	<i>Athene blewitti</i>	EN
5	Accipitridae	Greater Spotted Eagle	<i>Clanga clanga</i>	VU
6	Accipitridae	Tawny Eagle	<i>Aquila rapax</i>	VU
7	Ciconiidae	Wolly-necked Stork	<i>Ciconia episcopus</i>	VU
8	Columbidae	Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>	VU
9	Estrildidae	Green Avadavat	<i>Amandava formosa</i>	VU
10	Paridae	White-naped Tit	<i>Machlolophus nuchalis</i>	VU
11	Gruidae	Sarus Crane	<i>Antigone antigone</i>	VU
12	Acrocephalidae	Large-billed Reed Warbler	<i>Acrocephalus orinus</i>	DD
13	Accipitridae	Pallid Harrier	<i>Circus macrourus</i>	NT
14	Accipitridae	Grey-Headed Fish Eagle	<i>Haliaeetus ichhyaetus</i>	NT
15	Burhinidae	Great Thick-knee	<i>Esacus recurvirostris</i>	NT
16	Ciconiidae	Painted Stork	<i>Mycteria leucocephala</i>	NT
17	Laridae	River Tern	<i>Sterna aurantia</i>	NT
18	Psittaculidae	Alexandrine Parakeet	<i>Psittacula eupatria</i>	NT
19	Threskiornithidae	Black-headed Ibis	<i>Threskiornis melanocephalus</i>	NT
IBA Criteria A2. Restricted range species				
1	Columbidae	Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>	VU
2	Columbidae	Grey-fronted Green Pigeon	<i>Treron (pompadora) affinis</i>	LC
3	Vangidae	Malabar Woodshrike	<i>Tephrodornis (virgatus) sylvicola</i>	LC
4	Nectariniidae	Vigor's Sunbird	<i>Aethopyga (siparaja) vigorsii</i>	LC
5	Strigidae	Forest Owlet	<i>Athene blewitti</i>	EN
IBA Criteria A3. Biome restricted species				
	AS07 Sino-Himalayan temperate forest		1 out of 183= 0.55%	
1	Muscicapidae	Ultramarine flycatcher	<i>Ficedula superciliaris</i>	LC
	AS08 Sino-Himalayan sub-tropical forest		1 out of 169= 0.59%	
2	Sturnidae	Rosy Starling	<i>Pastor roseus</i>	LC
	AS10 Indian peninsula tropical moist forest		8 out of 55= 14.54%	
3	Columbidae	Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>	VU
4	Cuculidae	Blue-faced Malkoha	<i>Phaenicophaeus viridirostris</i>	LC
5	Strigidae	Forest Owlet	<i>Athene blewitti</i>	EN
6	Trogonidae	Malabar Trogon	<i>Harpactes fasciatus</i>	LC
7	Megalaimidae	White-cheeked Barbet	<i>Psilopogon viridis</i>	LC
8	Muscicapidae	Malabar Whistling Thrush	<i>Myophonus horsfieldii</i>	LC
9	Timaliidae	Indian Scimitar Babbler	<i>Pomatorhinus horsfieldii</i>	LC
10	Corvidae	White Bellied Treepie	<i>Dendrocitta leucogastra</i>	LC
	AS11 Indio-Malayan tropical dry zone		37 out of 78= 47.44%	
11	Accipitridae	White-rumped Vulture	<i>Gyps bengalensis</i>	CR
12	Accipitridae	Indian Vulture	<i>Gyps indicus</i>	CR

	Family	English name	Scientific name	IUCN Red List
13	Accipitridae	White-eyed Buzzard	<i>Butastur teesa</i>	LC
14	Phasianidae	Painted Francolin	<i>Francolinus pictus</i>	LC
15	Phasianidae	Jungle Bush Quail	<i>Perdica asiatica</i>	LC
16	Phasianidae	Indian Peafowl	<i>Pavo cristatus</i>	LC
17	Columbidae	Grey-fronted Green Pigeon	<i>Treron (pompadora) affinis</i>	LC
18	Psittaculidae	Plum-headed Parakeet	<i>Psittacula cyanocephala</i>	LC
19	Cuculidae	Sirkeer Malkoha	<i>Taccocua leschenaultii</i>	LC
20	Strigidae	Dusky Eagle Owl	<i>Bubo coromandus</i>	LC
21	Muscicapidae	Indian Robin	<i>Saxicoloides fulvatus</i>	LC
22	Pycnonotidae	White-Browed Bulbul	<i>Pycnonotus luteolus</i>	LC
23	Vangidae	Common Woodshrike	<i>Tephrodornis pondicerianus</i>	LC
24	Campephagidae	Small Minivet	<i>Pericrocotus cinnamomeus</i>	LC
25	Campephagidae	White-bellied Minivet	<i>Pericrocotus erythropygus</i>	LC
26	Alaudidae	Ashy-crowned Sparrow Lark	<i>Eremopterix griseus</i>	LC
27	Alaudidae	Indian Bushlark	<i>Mirafa erythroptera</i>	LC
28	Picidae	White-naped Woodpecker	<i>Chrysocolaptes festivus</i>	LC
29	Picidae	Lesser Goldenback	<i>Dinopium benghalense</i>	LC
30	Picidae	Yellow-fronted Woodpecker	<i>Dendrocopos mahrattensis</i>	LC
31	Megalaimidae	White-cheeked Barbet	<i>Psilopogon viridis</i>	LC
32	Bucerotidae	Indian Grey Hornbill	<i>Ocyrocus birostris</i>	LC
33	Caprimulgidae	Indian Nightjar	<i>Caprimulgus asiaticus</i>	LC
34	Strigidae	Mottled Wood Owl	<i>Strix ocellata</i>	LC
35	Muscicapidae	Brown Rock Chat	<i>Cercomela fusca</i>	LC
36	Timaliidae	Tawny-bellied Babbler	<i>Dumetia hyperythra</i>	LC
37	Leiothrichidae	Large Grey Babbler	<i>Turdoides malcolmi</i>	LC
38	Leiothrichidae	Jungle Babbler	<i>Turdoides striata</i>	LC
39	Cisticolidae	Rufous-fronted Prinia	<i>Prinia buchanani</i>	LC
40	Cisticolidae	Ashy Prinia	<i>Prinia socialis</i>	LC
41	Cisticolidae	Jungle Prinia	<i>Prinia sylvatica</i>	LC
42	Rhipiduridae	White-browed Fantail	<i>Rhipidura aureola</i>	LC
43	Paridae	White-naped Tit	<i>Machlolophus nuchalis</i>	VU
44	Estrildidae	Green Avadavat	<i>Amandava formosa</i>	VU
45	Sturnidae	Brahminy Starling	<i>Sturnia pagodarum</i>	LC
46	Sturnidae	Bank Myna	<i>Acridotheres ginginianus</i>	LC
47	Artamidae	Ashy Woodswallow	<i>Artamus fuscus</i>	LC
	AS13 Saharo-Sindian desert		2 out of 20 = 10%	
48	Caprimulgidae	Syke's Nightjar	<i>caprimulgus mahrattensis</i>	LC
49	Pycnonotidae	White-eared Bulbul	<i>Pycnonotus leucotis</i>	LC

to WG and southern EG (Grimmett et al. 2014). It was recorded for the first time from VNP (Singh et al. 2000) and also mentioned earlier by Parasharya et al. (2004). Ganpule (2016) mentioned that it is a rare resident from Dangs forests.

Vigor's Sunbird *Aethopyga vigorsii* (Sykes, 1832)

Rasmussen & Anderton (2005) have upgraded the WG subspecies to species rank *Aethopyga vigorsii* based on morphological differences. Vigor's sunbird is endemic to WG from south of Narmada up to Goa and in western

Satpura, Khandesh (Grimmett et al. 2014). The species is fairly common in moist deciduous and woodlands of Dangs forests.

Malabar Trogon *Harpactes fasciatus* (Pennant, 1769)

Malabar Trogon is endemic to Indian sub-continent-WG, EG, and Sri Lanka (Grimmett et al. 2014). Ali (1954–55) had collected 11 specimens of Malabar trogon from five different localities of the Dangs forests and considered it common. Today, it is uncommon resident found in moist deciduous forest with bamboo and secondary growth in protected areas of PWS and VNP (Singh et al. 2000; Trivedi & Soni 2006), where human disturbance is minimal. The species has been found sensitive to forest fragmentation (Trivedi & Soni 2006) in the Dangs forests as is the case in southern WG (Raman 2001). The species is common in conservation plot, Mahal trail and Dhuldha in PWS and undisturbed forests in VNP; however, the species is uncommon or infrequent in other parts of the landscape.

Malabar Whistling-thrush *Myophonus horsfieldii* Vigors, 1831

Malabar Whistling-Thrush is resident to WG and associated hills of peninsular India (central India and parts of EG) (Grimmett et al. 2014). This species is post-monsoon and winter visitor in the Dangs forests, mainly near stream banks and moist deciduous forests. Ali (1954–55) recorded it as a resident in Surat-Dangs forests, but it becomes rare in summer season. It is known for its melodious songs and the species is an indicator for change in hydrology (Trivedi & Soni 2006). The species is relatively common throughout the Dangs forests, but easy to find in undisturbed areas in PAs.

White-cheeked Barbet *Psilopogon viridis* (Boddaert, 1783)

White-cheeked Barbet is endemic to and found across WG and associated ranges, southern EG, while Surat-Dangs being the northernmost extent for the species (Grimmett et al. 2014). The species is restricted to moist deciduous forests and is not common. The species is accompanied by common and highly vocal species Brown-headed Barbet *M. zeylanica*, locally known as “Kukroos” owing to its call. Surat-Dangs is the only place to find this species in the Gujarat State (Trivedi & Soni 2006; Ganpule 2016).

Malabar Woodshrike *Tephrodornis sylvicola* Jerdon, 1839

Malabar Woodshrike is endemic to WGs and found

in Surat-Dangs and south-west of WG from south Goa mostly at lower elevations (Birdlife International 2017c). There is a lot of discrepancy in the historical records of this species. Ali (1954–55) had collected a specimen from Waghai, Dangs; and described about its range extension from Gujarat State (page 377), where he had mentioned its name as Large Woodshrike *Tephrodornis gularis*, while on page 738, the species was mentioned as The Large Malabar Wood Shrike *Tephrodornis virgatus sylvicola* Jerdon. He had collected one male individual in breeding plumage, evidently in mating phase. The collected specimen and vocalization pattern positively matched with specimens collected from Travancore and were of *sylvicola* race (full species rank now). Worah (1991) had mentioned both Common Woodshrike and Large Woodshrike in her list, but used *Tephrodornis virgatus* for both the species. Trivedi & Soni (2006) had mentioned Large Woodshrike (*Tephrodornis*) *gularis* but did not report the species from PWS and suggested the species to be locally extinct from the area. It is interesting to note here that *sylvicola* was designated as a separate species by Rasmussen & Anderton (2005). Ganpule (2016) mentioned that the species is a rare vagrant in Gujarat. We believe that the species is still found in the landscape and is probably overlooked and dismissed as the more common *Tephrodornis pondicerianus*.

Indian Scimitar Babbler *Pomatorhinus horsfieldii* Sykes, 1832

Indian Scimitar Babbler is fairly common in the forests of Surat-Dangs, often foraging in parties of two to seven, hunting with mixed-species flock in the bamboo and mixed deciduous forests. The species is endemic to peninsular India (Grimmett et al. 2014). Undisturbed dense mixed deciduous forests in PAs are the best place to find the species.

White-naped Tit *Machlolophus nuchalis* (Jerdon, 1845)

White-naped tit is found in two (disjunct) populations: northwest peninsula (west and north Gujarat and southeastern Rajasthan) and southern peninsula (northwestern Karnataka to northwestern Tamil Nadu) (Jathar & Rehmani 2006). It is globally ‘Vulnerable’, due to natural scarcity and habitat degradation and can be used as an indicator of human disturbance and clearing forests (Birdlife International 2017b). The species is recorded from Girmal locality in PWS by Patel (2017b).

Other noteworthy bird records

Here, we give details of the species referred as forest-interior species and most of which show a documented

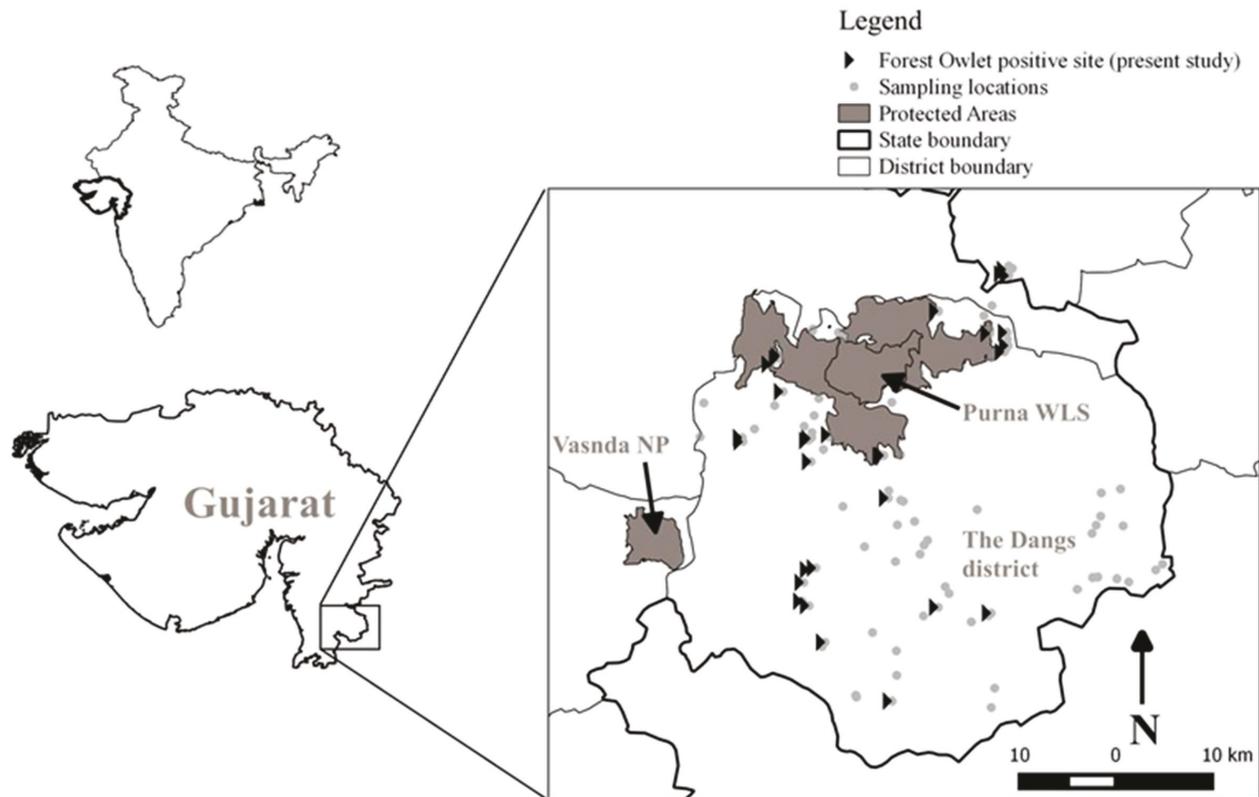


Figure 4. Forest Owlet positive sites in Dangs District.

vulnerability to forest fragmentation, alteration (Worah 1991; Trivedi & Soni 2006).

Brown Wood Owl *Strix leptogrammica* Temminck, 1832

Brown Wood Owl is widely distributed in the Himalaya, northeastern India, WG and EG (Grimmett et al. 1998); however, the species is noteworthy because it is only found in the forests of southern Gujarat State (Ganpule 2016). The species is fairly common, but tends to be missed due to its nocturnal and skulking nature. We (NJ 2012–2013, NJ and KP 2015–16) have confirmed the presence of the species from Roopgard Fort, Bardipada, Bheskatri, Kalibel, Ahwa, Malegaon and localities across the Dangs landscape by using call play-back method. There have been a few organic sightings (NJ 2012–2013) of this species too.

Black Eagle *Ictinaetus malaiensis* (Temminck, 1822)

There have been very few sightings of Black Eagle from Dangs. In 1995, two individuals were reported from VNP (Santharam 1995). In 2001, the species was spotted twice from PWS (Trivedi 2006). NJ photographed one individual from a forest near Mahal village on 19 December 2012 (Jambu 2013). No other sighting has

been reported from the district. It is a rare resident of the district and more data is needed to understand its population trend.

Greater Racket-tailed Drongo *Dicrurus paradiseus* (Linnaeus, 1766)

Greater Racket-tailed Drongo is a widely distributed species (Grimmett et al. 2014); however, it is noteworthy because it is fairly common in the Dangs forests and plays a very critical role in mixed-species flocks (Trivedi & Soni 2006). The species is very active and mimic various bird calls to join hunting parties. The species plays a key role in maintaining avian diversity and controlling insect populations by forming mixed-species flocks.

Rufous Woodpecker *Micropternus brachyurus* (Vieillot, 1818)

Rufous Woodpecker is known for its peculiar habit of nesting in the nests of *Crematogaster* ants (Ali 1969). It was reported previously from Dangs (Ali 1954–1955; Worah 1991; Trivedi 2003; Bhatt 2004) but not elsewhere from Gujarat. The species can be found in bamboos with mixed deciduous forests and sometimes in a mixed-species flock. This is another species, which is likely to

go locally extinct as it is sensitive to habitat degradation. Its distribution is very patchy and there have been very few sightings from PWS in the last couple of years. The species can be sighted in the conservation plot of PWS.

Lesser Yellownape *Picus chlorolophus* Vieillot, 1818

Lesser Yellownape is widely distributed species, but in Gujarat State, it is found only from Surat-Dangs (Ganpule 2016). The species was reported earlier by Ali (1954–1955), Worah (1991), Bhatt (2004), and Trivedi (2003) from Dangs District. It is a rare resident to the Dangs forests and inhabits moist deciduous forests with bamboo (Ganpule 2016). We could not sight any individual during our surveys in PWS. This species faces a high risk of extinction from the forests of Dangs.

Bar-winged Flycatcher-Shrike *Hemipus picatus* (Sykes, 1832)

Bar-winged Flycatcher-Shrike is a widely distributed species in southern Asia from the Himalaya and hills of southern India and Indonesia. It is mainly insectivorous and often found with mixed-species flock hunting groups in the mixed canopy. The species is recorded from PWS (Ali 1954–55; Worah 1991; Trivedi 2003) and VNP (Shah 2017). It is a rare resident in the Dangs forests and best place to find this species is the Conservation Plot in Bardipada locality. The species is noteworthy because the genus *Hemipus* is considered to be sensitive to forest degradation (Johns 1986; Castelletta et al. 2000).

White-rumped Shama *Copsychus malabaricus* (Scopoli, 1786)

It was previously reported as a resident of Dangs by Ali (1954–1955) and Worah (1991) and from VNP by Singh et al. (2000). The species has a patchy distribution in India (Grimmett et al. 1998) and belongs to the terrestrial insectivore guild. The species is noteworthy because it is susceptible to forest fragmentation (Raman 2001) and resident only to Surat-Dangs in Gujarat State (Ganpule 2016). The species is fairly common in VNP and Conservation Plot, Mahal camp site and Roopgarh fort of PWS.

Bonelli's Eagle *Aquila fasciata* (Vieillot, 1822)

During the vulture census in Dangs, on 3 April 2016, we observed one individual flying, carrying nesting material in its claws. Don Hills are the best habitat for the raptors and probably the species breeds in this locality. Another observation was made during DBF 2018 from Girmal range of PWS on 11 February 2018. Ganpule (2016) has mentioned the species to be a rare resident

but is widely distributed with isolated records across the Gujarat State.

Oriental Dwarf Kingfisher *Ceyx erithaca* (Linnaeus, 1758)

Oriental Dwarf Kingfisher is a summer visitor to Himalayan foothills and resident in southwestern India (Grimmett et al. 2014). The species was not recorded from Gujarat until 2014. The first record was made from VNP in Gujarat State (Jat 2015) and later Mistri et al. (2017) reported that the species is possibly breeding visitor in monsoon. Records of the species are mainly from VNP and nearest forests in Surat-Dangs landscape. This might be because of good road connectivity to VNP during the monsoon season whereas PWS is almost cut-off from the main road network due to heavy rain. Also, forest areas are closed in the monsoon seasons for the visitors, making it likely that even though the species is monsoon visitor to PWS, birdwatchers are missing it due to inaccessibility to the slippery and risky stream.

Black-capped Kingfisher *Halcyon pileata* (Boddaert, 1783)

Black-capped Kingfisher was collected only from Sakalpatal, Surat-Dangs by Ali (1954–55). It was not noted elsewhere in Gujarat earlier. Based on the three sightings from Surat-Dangs in 2017 and 2018 (December, January, and March) (Theba 2017b; Khan 2018; Patel 2018a), it is possible that the species is a winter visitor to the landscape. Ganpule (2016) mentioned that the species is an uncommon-to-rare resident and local migrant.

Blue-faced Malkoha *Phaenicophaeus viridirostris* (Jerdon 1840)

One individual of this species was observed by a team member from the group led by NJ in DBF 2016. The individual was sighted in the bamboo thickets nearby the starting point of the trail near Bheskatri range office. On 6 March 1948, Abdulali (1953) shot one individual, but lost the specimen at Pandwa during his ornithological survey. He confirmed the identification through few collected feathers. There has been no other record of the bird from Dangs. One individual has been recorded by Monga & Naorji (1983) from the forests of Rajpipla from South Gujarat and one historical record from Vadodara (Ali 1954–55). Ganpule (2016) has considered the species as a vagrant and could be occurring in southern Gujarat forests.



PRESUMED LOCALLY EXTINCT SPECIES

Red Spurfowl *Galloperdix spadicea* (Gmelin JF, 1789)

Members of the Phasianidae family are highly preferred as a game bird across the WG, especially in the tribal country. Red Spurfowl is highly susceptible to habitat loss and was reported as locally extinct from PWS by Trivedi and Soni (2006). Although, two individuals were observed near Kalibel Village and Sarvar Village by KP on 2 February 2016 and 12 March 2016, respectively. NJ has also sighted the species many times in Savardakasad, Bardipada, Dhulda, and Singhana during the survey of 2012–2013. The species is also recorded from VNP (call heard and recorded) by Patel (2018b), four individuals by Joshi (2014), three individuals by Joshi (2012), and two individuals by Gazdar (2019) who mentioned that “The birds were clearly seen, their features noted and differences with similar species, such as Grey Junglefowl, ruled out”. The species still exists in the Surat-Dangs forests in low numbers, but definitely not extinct.

Jungle Bush Quail *Perdicula asiatica* (Latham, 1790)

Jungle Bush Quail has been reported locally extinct from PWS (Trivedi & Soni 2006). The species was also not spotted during field surveys by authors (2012–2018); however, the species was reported on the eBird platform from three different localities of the landscape (Pankaj 2016; Theba 2017a,b). The species faces high hunting pressure and predation of its nests by feral dogs and cats. The species might be extremely rare and recovering, but still highly susceptible to hunting.

White-spotted Fantail *Rhipidura albogularis* (Lesson R, 1831)

This fantail species used to be considered as subspecies of White-throated Fantail *Rhipidura albicollis*. Trivedi & Soni (2006) has also mentioned this species as *Rhipidura albicollis* and stated it to be possibly extinct from PWS. Grimmett et al. (2016) have considered White-spotted Fantail as a distinct species. Contrary to Trivedi & Soni (2006)'s speculation, the species has been reported from various parts of PWS and Dangs in past years and is a common resident of the landscape (Sullivan et al. 2009).

Indian Yellow Tit *Machlolophus aplonotus* (Blyth, 1847)

Parus aplonotus was first described by Blyth (1847). Later, it was treated as a subspecies *Machlolophus xanthogenys aplonotus* (Baker 1922). After that, Ripley (1961) and Ali & Ripley (1983) kept it under the original genus *Parus*, under four subspecies of *Parus xanthogenys*, namely, *xanthogenys*, *aplonotus*, *travancoreensis*, &

spilonotus and Grimmett et al. (1998) also called it as subspecies *Parus xanthogenys aplonotus*. Inskipp et al. (1996) and Kazmierczak & van Perlo (2000), however, treated it as *Parus xanthogenys*. Based on different vocalization, Rasmussen & Anderton (2005) treated it as a separate species *Parus aplonotus* from its conspecific *Parus xanthogenys*. Trivedi & Soni (2006) stated that *Parus xanthogenys*, which is now recognized as *Parus aplonotus* is locally extinct from the PWS, Dangs. The species was reported during the surveys in 2015–16, DBF (2016, 2017) and also from eBird records from 2014–19 (More 2014; Sahajrao 2019).

AN UNUSUAL RECORD

Masked Shrike *Lanius nubicus* (Lichtenstein MHK, 1823)

A vagrant record of Masked Shrike was recorded from Govaldev forest area (close to PWS) by Hiren Bharti on 18 December 2016. The individual was sighted on multiple occasions, identified and confirmed from multiple photographs. The species was last seen from the locality on 8 January 2017 (Bharti 2017).

NEEDS CONFIRMATION

Blue-bearded Bee-eater *Nyctyornis athertoni* (Jardine & Selby, 1828)

On 8 April 1946, during the survey in Gujarat, Salim Ali heard a distinctive guttural *korr-r-r* call from the foothills of the moist deciduous forest of Medha near Songadh (now Tapi District) (Ali 1954–55). Forest of Medha is continuous with northern forests of Dangs; however, no confirmatory sighting of the species has been reported till date. Further investigation is necessary.

Stork-billed kingfisher *Pelargopsis capensis* (Linnaeus, 1766)

Ali (1954–55) had collected four specimens from three localities from Surat-Dangs; however, he also mentioned that the species is not common in forest streams. There is no record of this species then after and was considered extinct by Trivedi & Soni (2006). Tribes of Dangs forests used sustainable way of fishing earlier using bamboo nets; however, recently we have observed that they also use dynamite blastings for fishing. This change in fishing practice could be the possible reason for the species rarity in the Dangs forests; however, we suspect that the species might be vagrant and only visits during the monsoon. Ganpule (2016) mentioned that the species is rare resident and that the current status is unknown, also probably very rare now in the forests from north to south Gujarat and further study is required.

White-bellied Treepie *Dendrocitta leucogastra* Gould, 1833

White-bellied Treepie is endemic species, mainly found in WG (Grimmett et al. 2014). It has also been reported from the Surat Dangs and southern part of EG in Andhra Pradesh (Jathar & Rehmani 2006). There is a very old record from Chikalda, Gujarat (McMaster 1871) for this species. Ganpule (2016) mentioned the species as a vagrant. We did not find any recent sighting records. Further investigation is needed to confirm its presence from the landscape.

POSSIBLE OCCURRENCE**Sri Lanka Frogmouth *Batrachostomus moniliger* Blyth, 1849**

Sri Lankan Frogmouth was reported from the southern Western Ghats (Ali 1935; Vijayan 1979; Sugathan 1981; Kannan 1994; Kumara & Singh 2006). Borges (1986) recorded it from Kanara, northern Karnataka and later Giri (2002) extended its northern range further up to Radhanagari WS. Kasambe (2012) extended its range up to Sanjay Gandhi National Park and also suspected that the species could be found up to Surat-Dangs. A sighting of Hodgson's Frogmouth *Batrachostomus hodgsoni* from Shoolpaneshwar was reported by Pilo et al. (1996). But Ganpule (2016) states that how it was separated from Sri Lanka Frogmouth was not reported in that paper and its inclusion is debatable, and this sighting is believed to be of Sri Lanka Frogmouth. But it is interesting to note here that the bird sighting in the debate was caught and examined by the authors (Desai 1996). Dangs forms a promising habitat for frogmouth and we recommend investigating for this species in Surat-Dangs, especially in southern part of the landscape. During our survey, we did not focus on this species and have not listed in this checklist.

Important bird areas in Surat-Dangs landscape

Even though, rich in the avian diversity, small and isolated PAs (here in the landscape, 24km² VNP and 160km² PWS) are not viable as per the island biogeography concept (Saunders et al. 1991). Trivedi (2003) suggested increasing PAs to a total of around 500km² (addition of at least 200km² to PWS (Worah 1991) and a corridor between PWS and VNP as one unit) in the landscape. Worah (1991) also suggested identifying even small forest patches that can act as refugia for avian diversity that may help in their dispersal pattern (Raman 2001).

Most Important bird areas in the landscape today are the two designated PAs, PWS and VNP. These PAs are relatively safeguarded and well preserved compared to

reserve forests and other parts of the landscape. Another area, a reserve forest, near Gadad Village in the eastern part of the Dangs District, is a vulture breeding site and should be immediately declared as a sanctuary. This area hosts the last stronghold and a breeding population of Long-billed Vulture in the entire district. Also, the area holds one of the last forest patches of wild mangoes. Distribution of the endangered Forest Owlet is not limited to the PAs but widely distributed in Dangs District (Figure 4). Probably, the second-largest population of the species in the country is highly vulnerable to hunting, habitat loss and anthropogenic pressures, but can act as a stronghold for long-term conservation. It is important to declare the areas, where the species is distributed, as PAs or IBA for future conservation measures.

All previous surveys largely focused in and around the PAs, except for the surveys conducted by Ali (1954–55) and Shull (1962). Worah (1991) also suggested that it is necessary to carry out intensive survey in unexplored forest patches in southern Dangs to determine which areas need to be included within the PA network. We have identified 19 localities based on species observed and species collected by Ali (1954–55) and Shull (1962) in Surat-Dangs and plotted them on a map (Figure 5). Here, we have used global position system (GPS) coordinates of the village as locality, as exact locations of the sightings and collection is not mentioned by Ali (1954–55) and Shull (1962). Based on their data, a locality is deemed species rich (SR) if more number of species were collected and/or observed from it. Surprisingly, many SR localities (Mheshkatri, Mahal, Sarwar, and Waghai) are today designated as PAs—PWS and VNP (Figure 5)—but other localities such as Pandva, Galkund, and Malegaon in the south and Medha in the north have almost similar diversity and abundance as the PAs today, but have not been explored in recent years. Based on this, we highly recommend future studies in the identified SR localities outside PAs to evaluate their conservation priority, based on the presence and abundance of endemic and threatened species.

DISCUSSION

According to official records, the numbers of Bengal Tigers recorded from Dangs during different censuses were seven in 1979, nine in 1989, five in 1993, and one in 1997. Since 1997, there are no records of resident population from the landscape (Suchindra 2014). Over the last 75 years, similar to Bengal Tiger, Dangs has seen the local extirpation of many charismatic mammalian

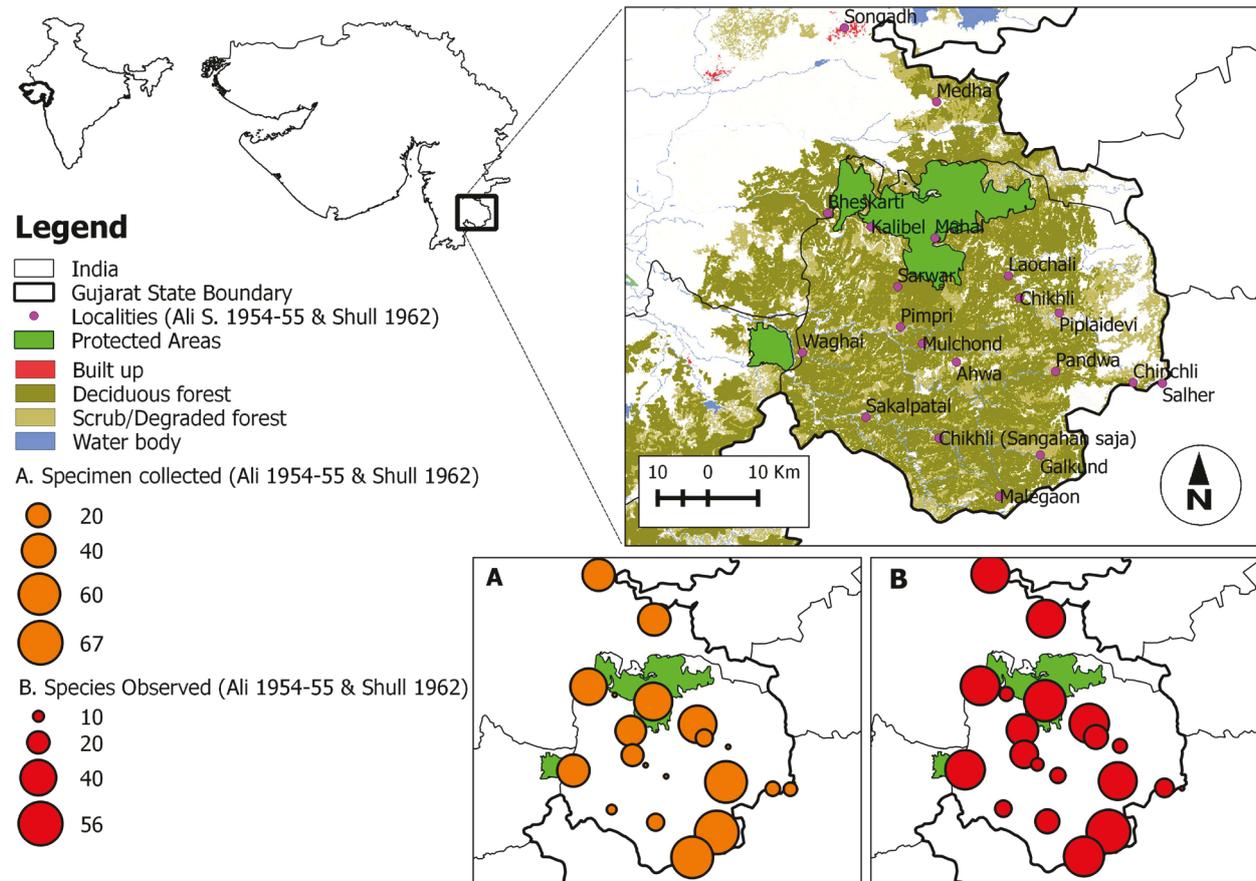


Figure 5. Localities, specimen collected, and species observed from Surat-Dangs by Ali (1954–55) and Shull (1962).

species too, which includes Sloth Bear, Dhole, Sambar Deer, Smooth-coated Otter, Gaur, Dangs Giant Squirrel (race endemic to Dang), and a reptilian species Marsh Crocodile (Worah 1991; Singh et al. 2000). The remaining large-bodied mammalian species, Four-horned Antelope, Barking Deer, and Chital, are highly sparse and in low densities (Suchindra 2014). Due to depletion of mammal population, birds became a prime choice of hunting for locals (Chowdhary 2016). Hunting birds and small mammals with rubber slingshot and traps is still common. Also, cattle grazing in the protected area, teak monoculture by the forest department and illegal trade of *Psittacula spp.* pose a considerable threat to the avifauna in the landscape.

Apart from the studies done by Ali (1954–55) and Shull (1962), other studies were focused on the two protected areas (PWS and VNP) of the district. Future studies need to be focused on SR localities identified in the landscape. Also, survey during monsoon season has been ignored and future surveys might lead to interesting sightings (e.g., rails, crakes). The landscape also holds promising premise for raptor ecology studies. Future studies are

needed to understand population dynamics of species that are threatened and endemic to the landscape. We suggest updating the checklist at least every two or three years, which will help add more species to the checklist and determine the exact status of the species in the landscape.

Re-report of the bird species from the landscape suggest that there must be special investigation for other species, including mammals which has been reported as locally extinct. They might be present in very low density, are sparse and highly elusive to have come across any researchers/naturalists to re-report them. Advanced methodology such as camera trap (for large bodied mammals), live trap (for small mammals) and genetic tools using non-invasive samples such as scat (Thatte et al. 2018) and shed hairs (Khan et al. 2020), which are reliable and affordable to generate data, can be used to identify species' presence. Recent report of Madras Tree Shrew *Anathana ellioti* (Patel et al. 2020) and new records of Blanford's Wood Rat *Madromys blanfordi* (Patel et al. 2018) from the landscape suggest that there could be higher diversity of small mammals than

previously reported and could be contributing to diet of 45 species of carnivorous birds (especially for Owls) in the landscape. Diversity of avifauna, small mammals and presence of large carnivores could help in identifying new potential PAs in more ecological sense.

Long-term and regular monitoring of diversity and population can help to improve the wildlife population. Furthermore, citizen science initiative such as DBF has proved to be a successful exercise to monitor avian diversity of the area and to spread awareness among Dangi people. It has also led to the alternative livelihood option for locals in the form of eco-tourism. Locals trained as bird guides will enhance the sense of ownership for supporting wildlife monitoring and its protection.

Surat-Dangs forests fulfills criteria A1, A2, & A3 of BirdLife International necessary for the declaration of Important Bird Area. Designation of IBA will be a very crucial and much-needed accolade to Surat-Dangs, which will pave the possible way for many future conservation endeavors.

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