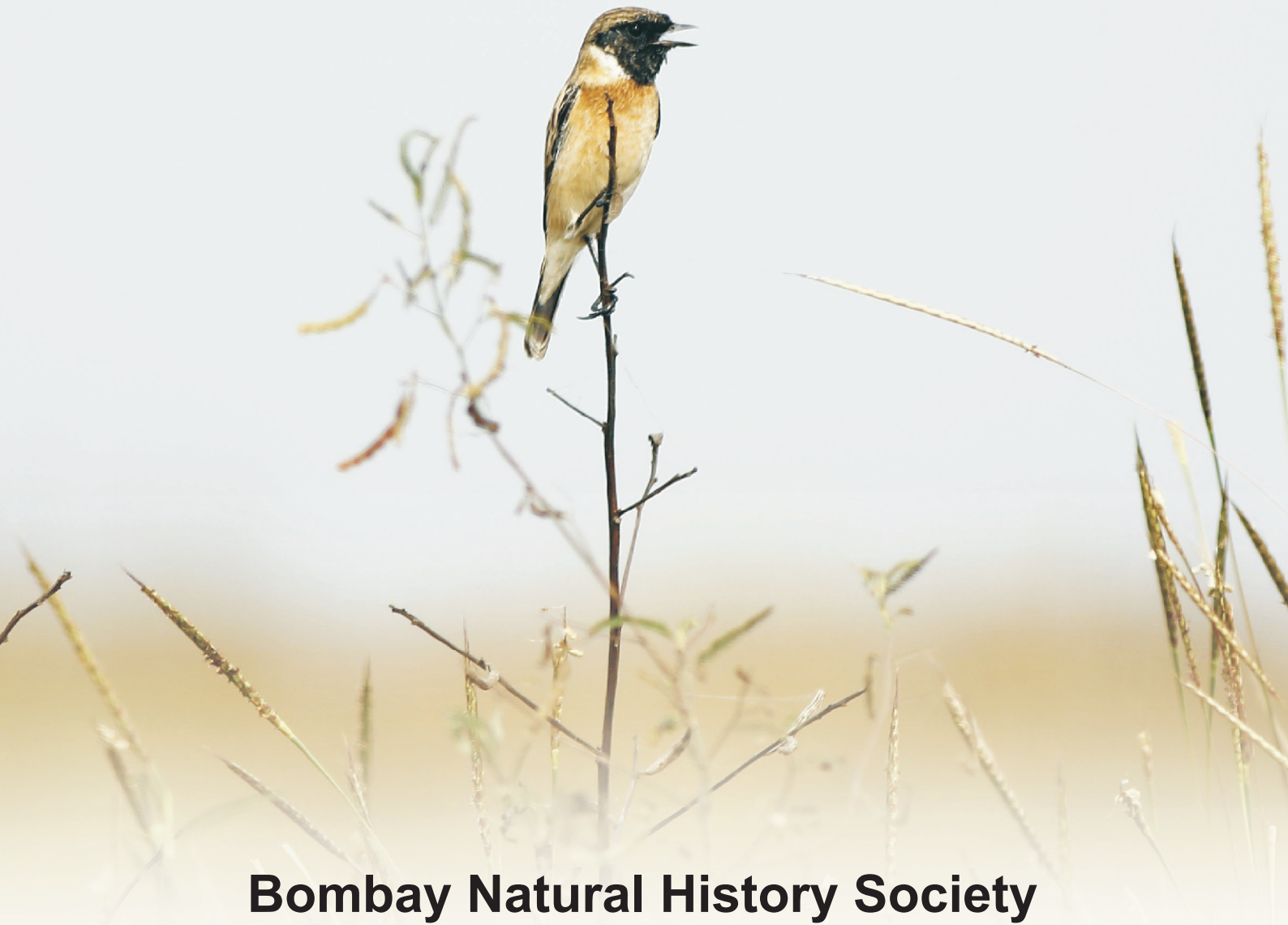


# Baseline survey of birds at proposed Navi Mumbai International Airport (NMIA) area

**TRI-MONTHLY REPORT APRIL-JUNE, 2013**



**Bombay Natural History Society**

# Baseline survey of birds at proposed Navi Mumbai International Airport (NMIA) area

**TRI-MONTHLY REPORT APRIL-JUNE, 2013**

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## Baseline Survey of Avian fauna at and around proposed Navi Mumbai International Airport (NMIA)

### Summary

The avifaunal surveys were carried out from April to June 2013, in 10 km radius area of proposed Navi Mumbai International Airport (NMIA), Navi Mumbai, Maharashtra, India. This report is mainly focussed on the species account of the avian fauna at different sites of the study area. A detailed checklist comprising of the species status and distribution in the study area and the information was compared with the available data in previous research publications.

**Keywords:** Navi Mumbai International Airport, Avifauna, monsoon, Wetland.

#### 1. Abbreviations used

- 1) NMIA - Navi Mumbai International Airport
- 2) BNHS - Bombay Natural History Society
- 3) JNPT - Jawaharlal Nehru Port Trust
- 4) EIA - Environmental Impact Assessment
- 5) DPS NRI complex – Delhi Public school and Non Residential Indian Complex
- 6) Habitats: **P** - Paddy field, **GS** - Mixed habitat of Grassland and Shrub land, **RS** - Rocky Seashore, **W** - Wetland, **MD** - Mudflats, **MC** - Mangrove and Creeks, **NH** - Near human habitation, **F** - forest
- 7) Threat categories: **EN** - Endangered, **VU** - Vulnerable, **NT** - Near threatened
- 8) Type of movements: **R** - Resident, **M** – Migratory
- 9) TSC- Training Ship Chanakya

#### Name of the sites frequently used in the text:

Belpada: Wetland between Sonari and Belapda

TS Chanakya: Wetland behind TS Chanakya

DPS-NRI: Wetland behind NRI complex

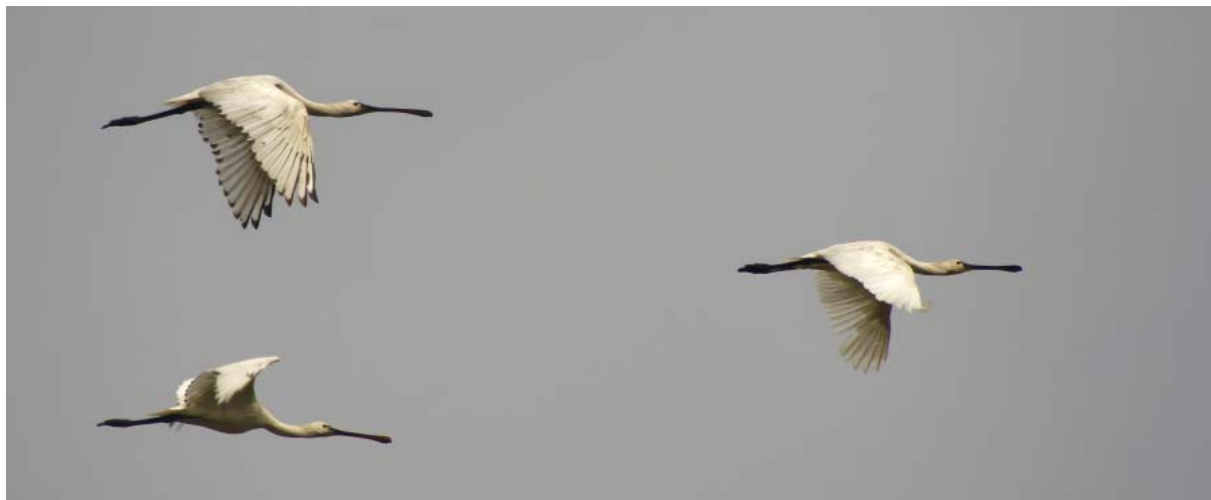
## CHAPTER 1

### INTRODUCTION

Navi Mumbai is a city on the west coast of Maharashtra, India. It was developed in 1972 as a twin city of Mumbai. Navi Mumbai lies on the mainland on the eastern shore of Thane Creek. The city limits stretch from Airoli near Thane in the north, to Uran in the south. When Navi Mumbai was developed in 1970s, City and Industrial Development Corporation (CIDCO) was the authority that looked after the development and maintenance of the city. CIDCO prepared a developmental plan for Navi Mumbai covering 95 villages from Thane and Raigad district.

The existing airport at Mumbai is fast reaching saturation level and the scope for further enhancement of passenger and cargo handling facilities, aircraft maintenance and city side facilities is limited. Hence, the need for a second airport in Mumbai has become inescapable and imperative, Therefore CIDCO, Navi Mumbai proposes to set up a new international airport at Navi Mumbai, Maharashtra. The land required for the project is located in an area of 1160 hectares (2867 acres) accommodating two parallel runways for independent operation. It is proposed to be commissioned in 2014. The Ministry of Environment and Forests (MoEF) has given clearance to this project on the basis of some conditions. One of the conditions (condition no. xxxi provided under specific conditions) is that an avifaunal study should be carried out in consultation with the BNHS.

This study was designed to document bird diversity and species composition in the various habitats in 10 km radius area of NMIA. Thus the total area covered was nearly about 300 sq km. A total of 244 species belonging to 48 families were observed in the study area till date since December 2011. Tide timing, developmental activities, stone quarries and rapid changes in habitat were found to be influential in the distribution of birds. Therefore impact of such factors on the avifauna of the region should be evaluated with help of further systematic studies to avoid future bird hazard problem.



Eurasian Spoonbill

## CHAPTER II

### Study area

In the initial phase of the survey, the area around NMIA falling in the 10-kilometre radius was surveyed, subsequently the study was concentrated on the areas mentioned below, however, excluding the industrial areas and the areas with dense human habitations,

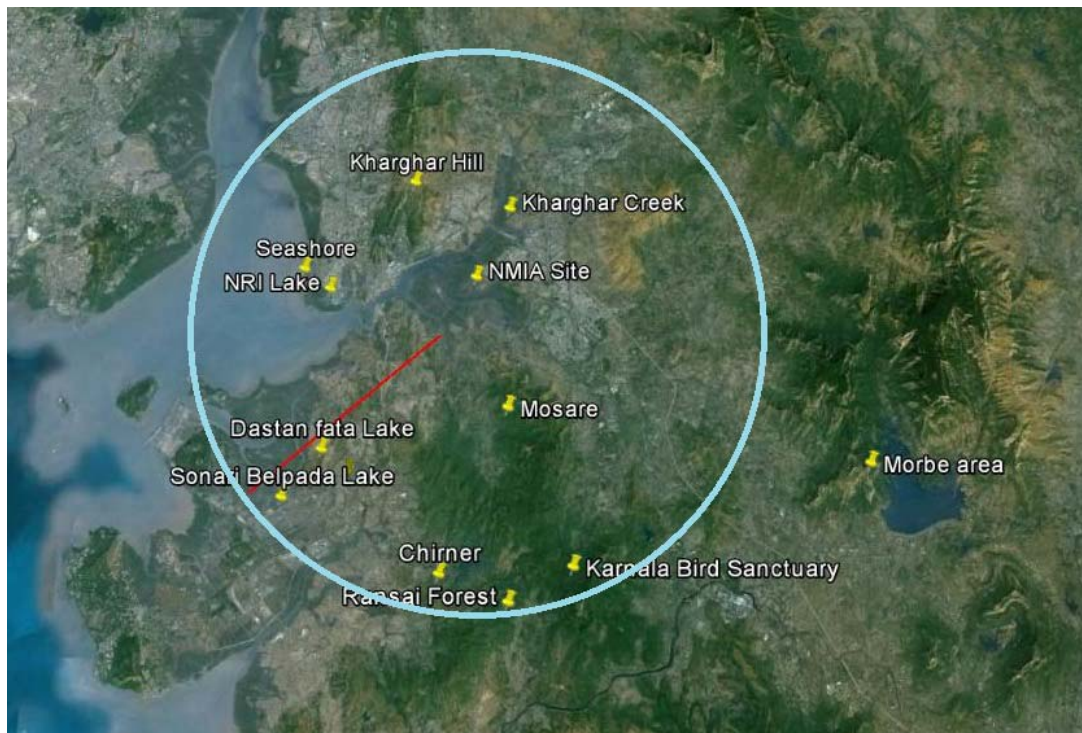
1. **The proposed site of NMIA:** The data was collected from wetlands, creeks, paddy fields, mangrove-covered areas, mudflats, open scrub and shrub-covered land and from near the human habitations. The study area included *Kombadbhuja, Ulve, Dungi, Pargaon, Chinchpada* and *Kopar*; the villages adjacent to the proposed NMIA site, and the creeks at *Gadhi, Ulve, Kalamboli* and *Panvel*.
2. **North-west:** This block includes the land-area primarily covered with grass and shrubs, the seashore area parallel to Palm Beach Road and a part of Airoli Creek, and the water bodies around NRI Complex, DPS School on Palm Beach Road, Belapur Pond and a portion of Parsik Hills.
3. **North-east:** This block includes *Taloja, Panvel, Tembhode, Kewale, Nere* and *Pali* villages, and the area near *Pali* and *Nere* is hilly.
4. **South-west; Uran-Jawaharlal Nehru Port Trust (JNPT) area:** This block includes small wetlands, and mangroves-covered areas near the villages — *Jasai, Sonari-Belpada, Gawhan, Uran, Jaskhar* and *Funde*.
5. **South-east:** This block primarily consists of reserve-forest patches adjoining villages such as *Mosare, Patnoli* and *Ransai*. The southern-moist, mixed-deciduous forest patch was recently added to *Karnala Bird Sanctuary*; NH17 (National Highway 17) cuts through the sanctuary.

BNHS survey team focussed on the following areas to collect information about the distribution and movement of roosting and foraging birds,

1. **Belpada Lake:** The area near village *Sonari-Belpada*, reachable from Panvel-JNPT road, and about 2-3 km from *Jasai* village, the main wetland of *Belpada Lake* is just 500 metres from the toll plaza towards Speedy Container Yard. The lake has the container yard on one side, and a large land-filled area with grass and shrub growth on the other. From the village, the area is covered with salt-pans, and mangroves further with coastal mudflats. These coastal mudflats are used by a variety of waders for foraging during low tide. Such mixed land-areas provides a good diverse habitat to a large variety of birds.
2. **Panvel Creek:** Waders are usually seen on a rock-bed, exposed during low-tide, in Panvel Creek; which borders the proposed site of NMIA near *Kopar* and *Pargaon* villages.
3. **Kharghar Creek;** lies between the railway stations *Kharghar* and *Mansarovar*. It is reachable by road from Sion-Panvel Highway.



4. **Palm Beach Road:** The two important wetlands in this region, one lies behind *NRI Complex* and the second behind *TS Chanakya* on Palm Beach Road. These wetlands are followed by paddy fields, trees, mangroves, finally reaching the seashore towards seaside. The BNHS team observed that a majority of water birds preferred to gather in this area during summers.
5. **Mosare-Patnoli:** The area is on the eastern side of the Panvel-JNPT Road and consists of a rich forest with less human disturbance. A number of raptor species were observed in this area by the survey team.
6. **Ransai-Chirner:** One of the hilly areas, approachable from two sides; from Panvel-JNPT Road as well as from Panvel-Goa Road (for details please see map).
7. **Uran-JNPT Area:** There are many small wetlands scattered across the Uran-JNPT area flocked by waders during low tides. For example, in a wetland near Jaskhar village Black-tailed Godwit *Limosa limosa* were observed by the survey team almost till the end of summer season.
8. **Proposed site of NMIA:** A number of bird species were recorded in the mangroves interspersed by small water bodies at the site, primarily because there was no construction activity in the area at the moment of the survey.



Google earth map of study sites in 10 km radius of proposed NMIA site



## Chapter III

### Methodology

The survey in these areas was conducted using binoculars and digital camera for correct bird identification and to ensure records from each survey site. The birds species were recorded (sighting or call) on the field, and direct observations were made by walking along roads, hills, forest-paths, wetlands, mangroves and creek areas. *Ali & Ripley* (1983), *Grimmett et al* (2000) and *Rasmussen & Anderton* (2005) were used as key handbooks to confirm the identity of the bird-species observed and recorded during the survey. The photographs of unidentified birds are maintained for further studies. The list of birds was categorised by family-names following *Manakadan & Pittie* (2001). The survey team also monitored the known roosting and foraging areas to study the movement of the birds.

The birds were counted using the Estimated Blocks Method, described by *Bibby, et.al.* (2000), for different species according to their congregation size during roosting time. The Total Count Method was used to estimate the count of congregating water birds and waders. Every site was visited every fortnight for the duration of the survey.

The BNHS survey team laid transects to count the birds perching and sheltering in the mangroves and associated plant-species. The count of maximum number of birds sighted in a respective roost site during a particular season was used for preparation of the area chart. These observations were recorded during January 2013 and June 2013. The migratory status of the bird species provided in this report is restricted to the Indian region and to the altitudinal movement of the birds from Himalayas to southern India. The survey team considered winter from October to December, late winter from January to March, summer from April to June and the monsoons from July to September. The species check-list was prepared and the data was compared with earlier records of birds from Mumbai and adjoining areas [*Abdulali* (1981), *Monga* (2003), *Prasad* (2003), *Verma et al.* (2001-02), *Aitken* (1900), *Sinclair* (1898)].

The relative commonness of a species has been reported based on the number of sightings out of ten visits. The species is reported as 'common' if it was sighted for about eight to ten times, 'fairly common' if the sighting was about five to seven times, 'uncommon' for three to four sightings and 'rare' for one to two sightings for ten visits.

1. Little Grebe *Tachybaptus ruficollis* — Common resident and gregarious. Observed in the groups of 4-5 individuals along with other water birds at DPS Lake, Belapur Pond and Belpada Lake sites in study area. The chicks and the juveniles were observed during monsoons at DPS Lake. Seen widely distributed in winters, and in summers it was observed moving towards the wetlands with plenty of water. *Abdulali* (1981) recorded it as occasional species and *Prasad* (2003) reported it as a local migrant while *Monga* (2003) reported it during rains only.
2. Little Cormorant *Phalacrocorax niger* — Resident congregating species, observed at all wetlands such as freshwater lake, mangroves, creek and inland wetland. During summers it was seen congregating at *Panvel Creek*, as many as 400 to 500 individuals, because of drying inland water bodies. It was reported as a resident and common-flocking [*Abdulali* (1981)], a fairly common

resident and a local migrant with breeding records from November to February and April to September [Prasad (2003)], common in all over Mumbai [Monga (2003)], and frequently sighted at open waterbodies at Mahul [Verma et.al. (2001-02)].

3. Great Cormorant *Phalacrocorax carbo* — Congregating resident species, observed at all habitats such as freshwater lake, mangroves, creek and inland wetlands. Observed along with Little Cormorant *Phalacrocorax niger* and Indian Cormorant *Phalacrocorax fuscicollis* roosting at different sites with the groups of 15 to 50 individuals. Sometimes 200-300 birds were seen congregating in the mangrove areas in summers. According to Abdulali (1981) it was uncommon in Mumbai region, while Prasad (2003) recorded from Navi Mumbai, not seen by Monga (2003), and frequently sighted at open water bodies at Mahul by Verma et.al. (2001-02).
4. Indian Cormorant or Indian Shag *Phalacrocorax fuscicollis* — Congregating resident. Observed at all water bodies roosting along with other cormorant species. They were observed feeding on fish by moving together; forming a line and pushing fishes to one side for easy catch. In winter, observed in high numbers; as many as 1,000 birds, flying from Panvel Creek to Palm Beach Road. In summers, the population was recorded to be very low as compared to the winter population of the species. It was reported as an uncommon species by Abdulali (1981), and common by Monga (2003), and Prasad (2003) reported breeding during rainy seasons with records from Thane and Dombivali.
5. Eastern Cattle Egret *Bubulcus coromandus* — A common resident bird observed congregating at the proposed site of NMIA, and in the Belpada Area; especially at garbage dumps in the vicinity of these sites. Often seen in small groups of 15-20 individuals but in summers it is observed in large groups of couple of hundreds at a single location. It has been seen usually in flocks [Abdulali (1981)], all over Mumbai and adjoining areas [Monga (2003)], reported as a local migrant [Prasad (2003)], and seen in agricultural land, aquatic grass and marshy places at Mahul [Verma et.al. (2001-02)].
6. Intermediate Egret *Egretta intermedia* — Resident and observed in the study area at all water bodies including seashore, often foraging with other egret species. About 4-5 individuals observed regularly in all water bodies of the study area. During late winters, observed congregating in hundreds at the water bodies in Belpada. Abdulali (1981) reported it as resident and local migrant, mostly seen in mangroves, salt-pans, fields and marshes at Mahul [Verma et.al. (2001-02)]. Breeding was recorded in the months of January and June to August by Prasad (2003).
7. Great Egret *Egretta alba* — Common and observed in all water bodies of the study area, often feeding with other egret species. Highest congregation seen in the Belpada Area during late winters. Reported as an uncommon resident bird [Abdulali (1981)], local migrant with breeding records from Raigad district during April to July [Prasad (2003)], mostly seen in mangroves, salt-pans, fields and marshes at Mahul [Verma et.al. (2001-02)].



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Red wattle Lapwing



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Green Shank



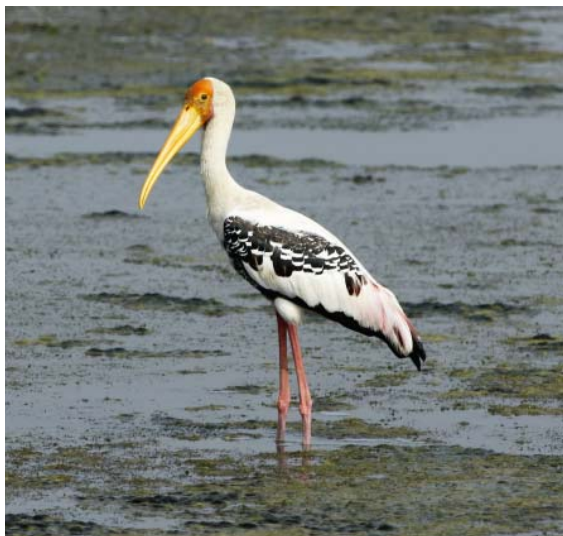
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Little Egret



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Shikra



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Painted Stork



PARVEEN SHAIKH

Asian Open-billed Stork



8. Little Egret *Egretta garzetta* — Common and observed in all water bodies, foraging along with Intermediate Egret *Egretta intermedia* and Great Egret *Egretta alba*. Five to ten individuals observed regularly in all the water bodies of the study area with major congregation of 150-200 birds in *Belpada*. Reported as a common resident [Abdulali (1981)], local migrant with breeding records from *Mumbai*, *Thane* and *Raigad* during April to August [Prasad (2003)], mostly seen in agricultural fields at Mahul [Verma et.al. (2001-02)].
9. Grey Heron *Ardea cinerea* — Somewhat crepuscular and wades circumspectly in shallow waters with neck craned, and bill poised. The BNHS survey team frequently observed at least a couple of individuals at all the wetlands in the study area and congregation of 20-30 birds at *Belpada* during late winters. Reported as an uncommon [Abdulali (1981)], seen throughout Western Maharashtra, resident as well as local migrant with breeding records from Deccan Maharashtra during February and March [Prasad (2003)], and mostly seen in creeks and marshes at Mahul [Verma et.al. (2001-02)].
10. Indian Pond Heron *Ardeola grayii* — Common resident. Observed at all waterbodies; big and small, from lakes to roadside ditches, sea-coast, mangrove swamps, tidal mudflats and often as a solitary bird in the midst of populous towns. It is observed fishing on the edges of the water-body. According to Abdulali (1981) it is a common resident, local migrant with breeding records from Back Bay in Mumbai and *Raigad* during May to September [Prasad (2003)], usually seen in agricultural land, aquatic grass, salt-pans and marshy places at Mahul [Verma et.al. (2001-02)].
11. Purple Heron *Ardea purpurea* — Uncommon and largely crepuscular, solitary in nature and one or two individuals were frequently observed at all wetlands, mainly in mangrove areas. Reported as a resident [Abdulali (1981)], occasional and winter visitor [Prasad (2003)]. The population fluctuates locally and reported as an uncommon bird around Mumbai [Ali & Abdulali (1931), Abdulali (1981), Monga (2001)], and mostly seen in agricultural fields at Mahul [Verma et.al. (2001-02)].
12. Western Reef Egret *Egretta gularis* — uncommon and habits very similar to other egrets and herons, except that it is essentially a bird of the sea-coast, seldom seen inland above tidal influence. Seen at all wetlands in the study area however, the survey team felt that more information would be required about its breeding. Reported as an occasional local migrant [Abdulali (1981)], common resident along the coast [Prasad (2003)], and mostly seen at Mahul creek [Verma et.al. (2001-02)].
13. Black-crowned Night-heron *Nycticorax nycticorax* - Resident and common. It was recorded in the mangroves at Kharghar Creek, Belpada and NMIA Site, often heard during dusk. Previously recorded as an uncommon bird [Abdulali (1981)] with breeding records from June to September [Prasad (2003)].

14. Striated Heron *Butorides striatus* — Resident and common. Observed at NRI Complex Lake, TS Chanakya, NMIA mangroves and Belpada. Often resting in the mangroves or perching on the branches overhanging water. Earlier mentioned as an uncommon species [Abdulali (1981)], common along the coast with breeding records from April to May [Prasad (2003)].
15. Chestnut Bittern *Ixobrychus cinnamomeus* — Resident and occasional. It was observed in thick vegetation along the water-body. Often seen foraging by creeping through the dense vegetation or by standing and waiting on the edges of water; especially at Panvel lake and Belpada. Previously reported as an uncommon species [Abdulali (1981)], a local migrant with breeding records from May to August.
16. Painted Stork *Mycteria leucocephala* — Common and observed roosting in group of 150-200 at Belpada and foraging in all wetlands including on the seashores. After Belpada Lake was dry, the congregation of these birds shifted to the mangroves behind Belpada and NRI Complex Lake. Juveniles were seen at Belpada along with the adults between August and September of 2012 and 2013. According to Abdulali (1981) it was an uncommon flocking species and a local migrant in the study area [Prasad (2003)].
17. Asian Openbill *Anastomus oscitans* — Uncommon resident, observed at Belpada, NRI Complex Lake and a wetland behind TS Chanakya. A couple of individuals were observed during winter and a flock of 30-40 individuals was seen during the monsoons in shallow water puddles at Jasai wetland. Previously reported as an uncommon and a flocking species [Abdulali (1981)], local migrant [Prasad (2003)] and population in Mumbai is increased in numbers from rare to uncommon to an occasional [Prasad (2003)], mostly seen in aquatic grass and Marshes at Mahul [Verma et.al. (2001-02)].
18. Woolly-necked Stork *Ciconia episcopus* — Uncommon resident, observed roosting at the proposed site for NMIA along with the Painted Stork *Mycteria leucocephala* and Oriental White Ibis *Threskiornis melanocephalus*. A few times, about 10 to 12 individuals observed together in a flock in the NMIA area. Earlier reported as occasional and a flocking species [Abdulali (1981)], common resident and local migrant in Deccan Maharashtra for breeding during December to March and return during the monsoons [Prasad (2003)].
19. Black Stork *Ciconia nigra* — Migrant and occasional. In January 2012, one individual was seen in flight at Chirner flying from Ransai dam to a water hole created by abandoned stone mine. Abdulali (1981) mentioned it as an uncommon species in Mumbai region.
20. Oriental White Ibis *Threskiornis melanocephalus* — near threatened, however, observed commonly in all water bodies in the study area in the flocks of four to five individuals each, including the proposed site for NMIA. Seen feeding at seashore, creeks, mudflats and inland water bodies. In summers and monsoons seen in the groups of 25-30 birds on the mudflats interspersed with mangroves. Previously reported as a local migrant and uncommon [Abdulali (1981)], breeding records from Deccan Maharashtra during late winter to summer [Prasad (2003)], usually seen in aquatic grass, creeks and mangroves at Mahul [Verma et.al. (2001-02)].

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Indian Skimmer in the flock of Gulls and other waders

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Mix flock of Waders

21. Eurasian Spoonbill *Platalea leucorodia* — Common resident. Often observed in compact flocks of 10-15 individuals. A group of more than 100 individuals was observed regularly roosting and feeding at *Belpada* in a closely-packed flock. Few tiny flocks were sighted at the waterbodies close to *NRI Complex* and *TS Chankya* when, *Belpada Lake* dried during the summer. Known as occasional, local migrant and flocking species [Abdulali (1981)], uncommon resident and with breeding records from Deccan Maharashtra from January to May [Prasad (2003)]. They were also seen in mixed flock with Painted Storks *Mycteria leucocephala* [Sarkar (2008)], observed mostly feeding while walking and sweeping the partly open bill from side to side.
  
22. Glossy Ibis *Plegadis falcinellus* – Uncommon. It is mostly seen as a solitary bird and 2-4 individuals were sighted at *Belpada* and *TS Chanakya* feeding in shallow waters. During August and September observed in flocks of 60-70 individuals and were seen gathered at adjoining areas of *Jasai* and *Belpada Lake* at *Uran*. Earlier mentioned as occasional and migrant [Abdulali (1981)], common resident and local migrant with breeding records from Deccan Maharashtra [Prasad (2003)]. The population has increased since the 19th century when it was considered rare in the Mumbai region [Ali & Abdulali (1981)]. A flock, with 30-40 individuals busy in feeding, was reported regularly from *Uran* wetlands [Sarkar (2008)], mainly in aquatic grass and marshes at *Mahul* [Verma et.al. (2001-02)].
  
23. Greater Flamingo *Phoenicopterus major* – Uncommon. Winter migrant. Observed often foraging on the seashore during low tide and a small flock of 17 individuals, including a few juveniles was regularly observed at *Belpada* and occasionally at *NRI Complex Lake* in winters. It was reported as a flocking species [Abdulali (1981)], mostly seen in creeks and salt-pans at *Mahul* [Verma et.al. (2001-02)], uncommon in Mumbai [Prasad (2003)] and considered as a common passage migrant by Ali & Abdulali (1981). Although, Abdulali (1981) listed it uncommon, a large flock of these birds was regularly seen at *Sewri*; an eastern suburb of Mumbai, and smaller flocks elsewhere in the city. The population might have increased since the 19th century. A flock of some 10,000 to 20,000 individuals of Greater and Lesser Flamingo was sighted at *Sewri* since 1984 [Woodward (2007)].
  
24. Lesser Flamingo *Phoeniconaias minor* – A common winter visitor. The population has increased around *Mumbai*, as it was previously considered to be a stray winter migrant. Observed in huge flocks of about 5,000-6,000 birds foraging on the seashore of *Palm Beach Road*, mainly during the summers. A few hundreds of birds were observed roosting in the wetland behind *TS Chanakya, Palm Beach Road*. It was reported as stray or vagrant and a flocking species [Abdulali (1981)], large numbers are regular near Mumbai [Prasad (2003)], and between 2000 and 2002 records from *Sewri*, *Uran*, and *Thane* creek in flocks of up to 3,000 birds [Monga (2003)]. Thousands of Flamingos were sighted on the mudflats of *Sewri* during low tide in the month of April in 1984 [Sowrirajan (1994)]. A flock of 20,000 individuals of Greater and Lesser Flamingo was sighted at *Sewri* [Woodward (2007)].



25. Greylag Goose *Anser anser* – A rare winter visitor in the northern subcontinent. In 2000, there were trace-records from *Gorai*, Mumbai of the three bird flying. As per *Ali & Ripley* (1983) it is virtually absent from Deccan Maharashtra and the distribution map in *Grimmett et al.* (1998) shows it wintering in Thane, although this species is not listed in *Abdulali* (1981a) list of Maharashtra species, but a single individual was observed at the wetland in Belpada in October 2013.
26. Ruddy Shelduck *Tadorna ferruginea* — Occasional winter migrant, observed only at *Belpada* and *Uran*, roosting and feeding in the groups of 20-25 individuals each, along with other ducks. Earlier reported as an occasional and flocking species [*Abdulali* (1981)], recorded up to 18 on five occasions around Mumbai between November 11, 2001 and March 3, 2002 at *Uran* in *Raigad* district, and *Vasai* in *Thane* district [*Monga* (2003)].
27. Northern Pintail *Anas acuta* — Winter migrant, common. The BNHS survey team observed it occasionally at the wetland behind *NRI Complex* during October-November, and a flock of 100-120 individuals was observed regularly at *Belpada Lake* feeding along with other water birds. When *Belpada Lake* dried up, these ducks were seen in the *Panvel* and *Kharghar Creek* areas. According to *Abdulali* (1981) it is a flocking species and recorded from *Borivali*; a northern suburb of *Mumbai* [*Prasad* (2003)], mostly seen in salt-pans and open water bodies at *Mahul* [*Verma et.al.* (2001-02)]. *Abdulali & Ali* (1981) reported this species was seen in small numbers.
28. Common Teal *Anas crecca* – A common, winter migrant. The BNHS survey team observed it at *Belpada Lake* in a flock with 500-600 individuals, during November to March. A couple of times, observed it to be disturbed due to hunting attempts by children and activity of stray dogs in the area. It was reported as a flocking species [*Abdulali* (1981)], seen throughout Western Maharashtra and adjoining areas [*Prasad* (2003)], and mostly seen in salt-pans and open water bodies at *Mahul* [*Verma et.al.* (2001-02)].
29. Spot-billed Duck *Anas poecilorhynchais* – A resident duck, commonly seen in small as well as large water bodies. The BNHS survey team often saw them on the waterbodies in *Belpada*, *TS Chanakya*, the proposed site of NMIA and *Kharghar Creek*. Three to four individuals were continuously observed at all wetlands and a maximum number of 40-50 individuals at one place in summer in the NMIA area. Four Juveniles were observed at *NRI Complex Lake* during the monsoons. It was reported as an occasional and flocking species [*Abdulali* (1981)], local migrant [*Prasad* (2003)] with breeding records from Deccan Maharashtra. It was seen in small numbers from *Mumbai* and was observed to be increasing from a straggler [*Monga* (2001)], mostly seen in mangroves and marshes at *Mahul* [*Verma et.al.* (2001-02)].
30. Comb Duck *Sarkidiornis melanotos* — Resident and uncommon. Often seen in flocks [*Abdulali* (1981)], local migrant and less common or possibly absent from South Konkan [*Prasad* (2003)]. This species was observed in small flocks in the marshes and wet grasslands near *Belpada*, *Jasai* and shallow waterbodies in *Uran*.



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Common Redshank



PARVEEN SHAIKH

Terek Sandpiper



PARVEEN SHAIKH

Lesser Sandplover



PARVEEN SHAIKH

Black Shouldered Kite



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Pheasant-tailed Jacana



PARVEEN SHAIKH

Perigrine Falcon

31. Cotton Teal *Nettapus coromandelianus* — Resident and common species seen in flocks [Abdulali (1981)], local migrant in Deccan, uncommon in North Konkan and rare in South Konkan [Prasad (2003)]. This species was observed in flocks of 10-15 individuals at Belpada along with Lesser Whistling-duck *Dendrocygna javanica*. Seen often in the marshy and wet grassland portions of the lake.
32. Eurasian Wigeon *Anas penelope* — A migrant and uncommon. It was observed in a flock of 100-200 individuals at Belpada and NRI Complex Lake along with other migratory ducks. Earlier seen in flocks [Abdulali (1981)], common in Konkan but uncommon in Mumbai [Prasad (2003)].
33. Mallard *Anas platyrhynchos* — A migrant and uncommon. It was observed in a flock of 60-70 at Belpada and NRI Complex Lake along with other migratory ducks. Previously mentioned as a flocking species [Abdulali (1981)], a rare winter visitor [Prasad (2003)].
34. Gadwall *Anas strepera* — A migrant and uncommon. It was observed in a flock at Belpada and NRI Complex Lake along with other migratory ducks. Previously reported as an occasional species seen in flocks [Abdulali (1981)], less common in Konkan [Prasad (2003)].
35. Garganey *Anas querquedula* — A winter migrant, common and observed foraging in wetlands at Belpada, NRI Complex and NMIA areas with highest congregation of about 40 birds. During the late winters when the Belpada Lake dried, the survey team observed the birds shifting to the adjacent creeks. When compared to other duck species, Garganey *Anas querquedula* was observed to be arriving early in September-October and departing very late in May-June. Earlier it is reported as a flocking species [Abdulali (1981)], and sighted regularly in 2008 near wetlands at Uran [Sarkar (2011)].
36. Northern Shoveller *Anas clypeata* — A winter migrant, common and the survey team observed a flock of 20-25 at Belpada and NRI Complex Lake feeding in shallow waters, dabbling on the surface with neck and bill outstretched. In late winters, a group of 250-300 birds was seen at Kharghar and Panvel Creeks. According to earlier records it is a flocking species [Abdulali (1981)], recorded in very small numbers around Mumbai during 2000-02 [Prasad (2003)], however, seen regularly near wetlands at Uran in 2008 [Sarkar (2011)].
37. Lesser Whistling-duck *Dendrocygna javanica* — A resident common bird. The survey team observed it roosting in the weed cover and foraging in open wetlands at Belpada and NRI Complex, Ballaleshwar Wetland in Panvel and Belapur Pond. Chicks were seen during the monsoons. A couple of hundred individuals were seen congregating during summers and moving in search of the water in different wetlands. Previously mentioned as a flocking species [Abdulali (1981)], breeding records from near Mumbai during October-November [Prasad (2003)]. In Mumbai region, the numbers appear to have increased changing the status from uncommon to common [Abdulali (1981)] and fairly good numbers [Monga (2003)]. Sighted a couple of birds in 2008 near the wetlands in Uran [Sarkar (2011)].

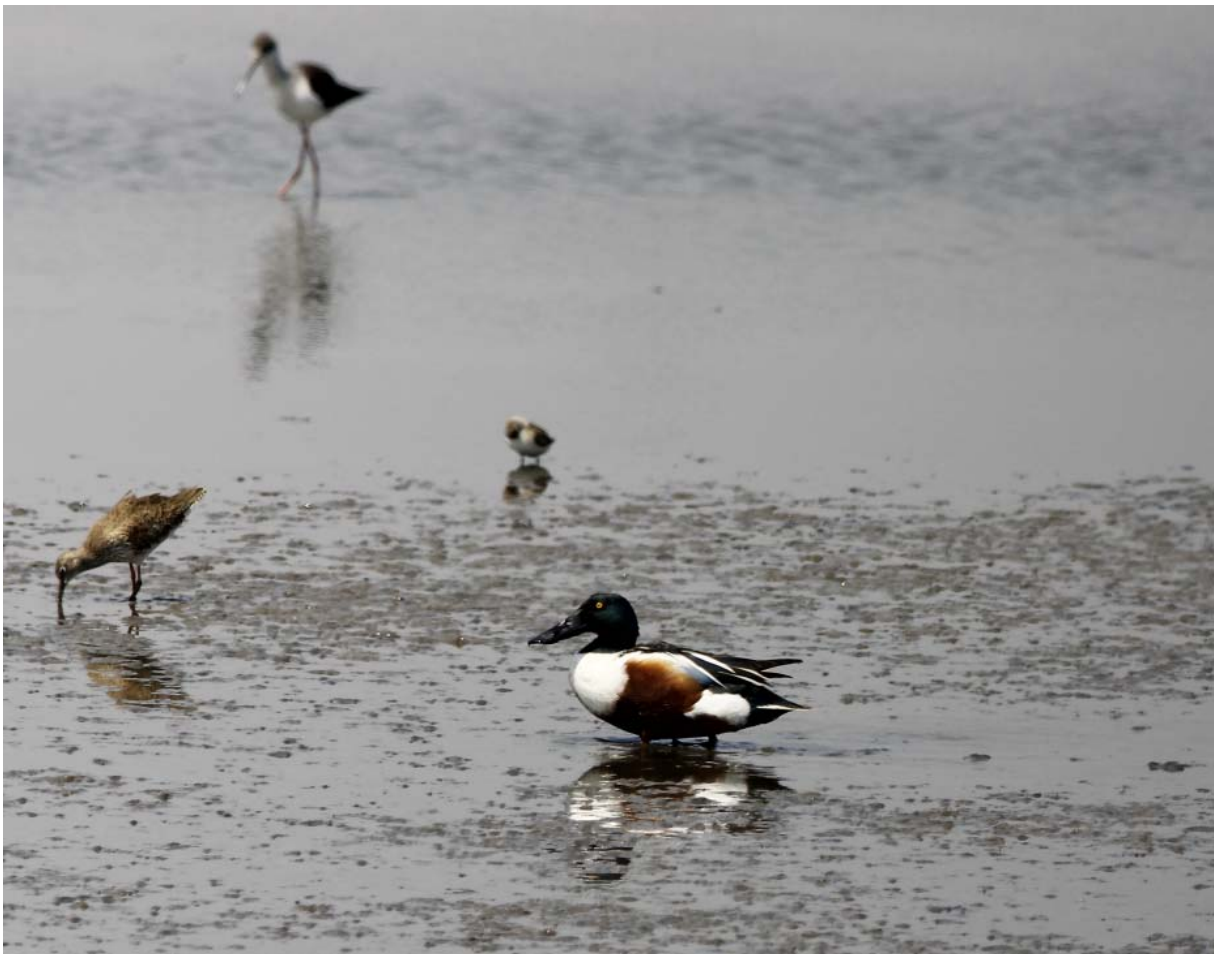
38. Black-shouldered Kite *Elanus caeruleus* — A common resident, local migrant. Observed at all sites mainly at grasslands and open areas, especially perching on the electric poles, trees, and wires, and hovering mid-air to scan the ground for crawling prey-animals. Recorded earlier as occasional [Abdulali (1981)], common resident of Deccan Maharashtra and uncommon in other parts of the west coast [Prasad (2003)], rare and seen in mangroves at Mahul [Verma et.al. (2001-02)].
39. Black Kite *Milvus migrans* — Common resident. The most common raptor observed at all sites in the study area. It was usually seen in the neighbourhood of human habitations and often observed feeding at the garbage dumping sites. In the summer of 2013, the BNHS survey team observed about 100 individuals foraging at a garbage dumping site in Belpada. The birds were foraging on a mudflat created because of drying of a wetland, with their wings spread open, possibly to cool their bodies in the peak heat. About 50-60 individuals were seen roosting on barren trees on the edge of Morbe-Prabalgad Dam in summer. Abdulali (1981) listed as common throughout with breeding records from September to April [Prasad (2003)].
40. Brahminy Kite *Haliastur indus* — Uncommon and local migrant. Observed invariably in the neighbourhood of wetlands and often observed at the proposed site for NMIA, Belpada Lake and the seashore along the Palm Beach Road. A couple of Juveniles were also observed in late winter. It was often chased by the House Crows *Corvus splendens* around the garbage dumping sites. Previously reported as an occasional visitor and resident [Abdulali (1981)], along the west coast [Prasad (2003)], seen in the creeks, marshes and salt-pans at Mahul [Verma et.al. (2001-02)].
41. Black-eared Kite *Milvus migrans lineatus* — A winter migrant and uncommon. We observed a couple of individuals at Belpada sitting on the garbage dump along with a group of Black Kites *Milvus migrans*. It is differentiated from Black Kite with its more prominent white patch at the base of primaries on under-wing. It was previously recorded by Abdulali (1981) as uncommon.
42. Shikra *Accipiter badius* — Common resident. Observed at all sites in the study area, however, it is often seen in tree-groves, and cultivations in the neighbourhood of villages. Usually flies close to ground, shooting upward to alight on a branch. In late winter, a couple of juveniles were observed in Uran area. Earlier recorded as a common resident [Abdulali (1981)], throughout the year with breeding records from March to June [Prasad (2003)], seen primarily in woodlands and mangroves at Mahul [Verma et.al. (2001-02)].
43. White-eyed Buzzard *Butastur teesa* — Uncommon. Resident. Observed often at Sonari-Belpada and Mosare areas, in thin deciduous forest; avoiding humid and densely wooded tracts. Previously recorded as uncommon resident by Abdulali (1981) and local migrant in Deccan Maharashtra by Prasad (2003), and seen in woodland and mangroves at Mahul by Verma et.al. (2001-02).
44. Oriental Honeybuzzard *Pernis ptilorhynchus* — Common. Resident. One or two individuals were observed in the woodland areas of Mosare, Ransai and Chirner, often soaring high in the skies. Earlier reported as occasional [Abdulali (1981)], common throughout Western Maharashtra and local migrant [Prasad (2003)], with breeding records from March to May.





MRUGANK PRABHU

Caspian Tern



PARVEEN SHAIKH

Northern Shoveler

45. Common Buzzard *Buteo buteo* – A rare, winter visitor, it is observed during winter, mostly as a solitary bird, in flight in the forest patches of *Ransai* and *Chirner*. Probably under-recorded near Mumbai [*Abdulali* (1981), *Prasad* (2003)].
46. Long-legged Buzzard *Buteo rufinus* – An uncommon winter migrant. It is a heavy, sluggish bird, often observed singly on the tree tops of the forest areas in *Mosare*, *Ransai* and *Chirner*, or soaring and circling for hours. Recorded as an occasional [*Abdulali* (1981)], a rare winter visitor [*Verma et.al.* (2001-02), *Prasad* (2003)].
47. Western Marsh Harrier *Circus aeruginosus* – A common winter visitor, observed often near the wetlands, flying leisurely, just a few metres above the marsh-vegetation, occasionally dropping to seize its prey. A female and a juvenile were observed at NMIA area during September 2013. Many a times water birds were seen disturbed by the continuous presence this bird. Reported as an occasional migrant [*Abdulali* (1981)], common winter visitor [*Prasad* (2003)], seen in the mangroves, crops, aquatic grasses, marshlands and salt-pans at Mahul [*Verma et.al.* (2001-02)].
48. Crested Serpent-eagle *Spilornis cheela* – Common resident. It is an inhabitant of forested tracts, hills and plains. Often observed in the woodland areas of *Karnala*, *Ransai*, *Chirner*, *Mosare* and *Morbe-Prabalgad*, singly or in pairs, soaring in wide circles at great heights in the sky. Reported earlier as an occasional resident [*Abdulali* (1981)], breeding period during March and April [*Prasad* (2003)].
49. Changeable Hawk Eagle *Nisaetus cirrhatus* – Uncommon resident [*Abdulali* (1981)], with breeding records from November to May [*Prasad* (2003)]. Inhabitant of forested tracts, hills and plains. It was often observed soaring high in the sky at *Karnala*, *Ransai*, *Chirner*, *Mosare* and *Morbe-Prabalgad*.
50. Short-toed Snake-eagle *Circaetus gallicus* – local migrant. Observed as inhabitant of dry plains and foothills. During hunting it frequently seen hovering in mid-air to scan the ground for prey. Listed as an occasional local migrant [*Abdulali* (1981)], uncommon [*Prasad* (2003)], reported as absent from South west coast [*Prasad* (2003)] with breeding records from January to March.
51. Booted Eagle *Hieraaetus pennatus* – Uncommon local migrant. The survey team observed it at all the sites in the study area, soaring high in the sky and taking its prey by ambush or from the ground. Previously listed as an uncommon migrant [*Abdulali* (1981)], common winter visitor to the Deccan Maharashtra, uncommon to rare in the southern coastal Maharashtra [*Prasad* (2003)], seen in mangroves and open fields at Mahul [*Verma et.al.* (2001-02)].
52. Greater Spotted Eagle *Aquila clanga* – A vulnerable species, uncommon winter visitor. The survey team observed it as habitué of wetlands often at Uran and *Mosare* areas. It has slightly broader wings, a marginally shorter; somewhat wedge-shaped tail, more deeply emarginate primary fingers and squarish tips than the Indian Spotted Eagle *Aquila pomarina*. Past reports mentioned it as a common bird [*Abdulali* (1981), *Prasad* (2003)], usually seen in the marshes at Mahul [*Verma et.al.* (2001-02)].

53. Indian Spotted Eagle *Aquila pomarina* – A vulnerable species, local migrant. Its habits are similar to those of Greater spotted Eagle *Aquila clanga* but it is not so much dependent on the water-source. It was observed at *Uran Road* siting on the water pipes, on the edges of marshy areas, searching for prey. It was listed as an uncommon [Abdulali (1981)].
54. White-bellied Sea Eagle *Haliaeetus leucogaster* – Uncommon, resident. Observed along the coast and tidal estuaries as well as soaring high in the forest patch in *Mosare*, close to coast in *Uran*. It has been reported as a resident [Abdulali (1981)], on the coast, north to Mumbai and rare inland [Prasad (2003)].
55. Common Kestrel *Falco tinnunculus* — A winter visitor, it was observed in the grassland and scrub land patches of the study area, especially in the *Uran* area in the winter. Earlier Abdulali (1981) reported it as an occasional and Prasad (2003) mentioned it as a less common in the Mumbai area with breeding records from January to May. Usually seen in the mangroves and open fields at Mahul [Verma et.al. (2001-02)].
56. Osprey *Pandion haliaetus* — A winter migrant. Sighted preying on fishes and waders in all wetland areas including the mangroves. One or two individuals observed throughout the year at *Belpada* and *NRI Complex*, diving with feet-first to capture fish and birds. Abdulali (1981) reported it as a migrant, common throughout Western Maharashtra [Prasad (2003)], mostly seen at creeks in *Mahul* [Verma et.al. (2001-02)].
57. Red Spurfowl *Galloperdix spadicea* — Occasional resident. Observed in deciduous forest patches of *Khargahar Hills*, *Ransai* and *Mosare*. It searches the mulch and dry leaves for food and in monsoon usually seen in groups of three to four individuals. It was mentioned as a flocking species [Abdulali (1981)] and with breeding records from March to June by Prasad (2003).
58. Jungle Bush-quail *Perdica asiatica* – Resident. Common. Seen in the open deciduous forests and dry, stony, grass and scrub jungles. It is a very shy and alert bird and often observed in group of 4-5 individuals in the bushes. It was reported as a bird usually seen in flocks/parties [Abdulali (1981)] with breeding season ill defined [Prasad (2003)].
59. Indian Peafowl *Pavo cristatus* – Uncommon and resident. Observed in *Morbe-Prabalgad*, *Ransai* and *Mosare* areas. Observed as an excessively shy and alert bird, except while calling. Earlier listed as a resident, occasional and observed in flocks/parties [Abdulali (1981)] with breeding records from September to October [Prasad (2003)].
60. Rain Quail *Coturnix coromandelica* — An uncommon local migrant. It is easily spotted when it calls in the breeding season between August and mid-October. Observed in paddy fields and grasslands during monsoons and in the foothills of *Mosare* and *Chirner* forests as well as in *Uran* during winter. Often seen in pairs however, large numbers may concentrate in the paddy fields where the shallow waters provide more food and better cover. Previously reported as a resident and local migrant [Abdulali (1981), Prasad (2003)].





MIRUGANK PRABHU

Common Redshank



MIRUGANK PRABHU

Baya Weaver bird on his nest

61. Barred Buttonquail *Turnix suscitator* – Resident and uncommon. A couple of individuals were sighted at *Chirner* and *Mosare* during the monsoons. It was reported as common [Abdulali (1981)], with breeding records from March to September [Prasad (2003)].
62. Yellow-legged Buttonquail *Turnix tanki* – Occasional and resident, it is observed in the scrub land and on the pathways near *Uran*, *Chirner* and *Mosare* areas in monsoon. Listed earlier as a resident [Abdulali (1981)] and uncommon [Prasad (2003)] with no breeding records.
63. Demoiselle Crane *Grus virgo* — A vagrant or occasional. Two individuals were observed for a single day in January 2013, while they may have used the study area as stop over site. It was recorded as a stray or vagrant and flocking species [Abdulali (1981)] in parts of Maharashtra and not recorded previously in Mumbai and adjoining areas [Prasad (2003)].
64. White-breasted Waterhen *Amaurornis phoenicurus* — Resident and common. Observed primarily on the margins of the lakes and ponds in marshy areas, occasionally crossing the roads in between wetlands in all over the study area. Abdulali (1981) mentioned it as a common, with breeding records from Mumbai during June to September [Prasad (2003)], mostly seen in the mangroves at *Mahul* [Verma et.al. (2001-02)].
65. Purple Swampphen *Porphyrio porphyrio* — Resident and common bird usually observed in lakes with thick vegetation or high eutrophication. Observed foraging at *TS Chanakya*, *Belpada* and *Belapur Pond* in Typha grasses. Few juveniles were observed along with adults in monsoon. Reported as an occasional [Abdulali (1981)], with breeding records from July to September [Prasad (2003)], commonly sighted in wetlands near *Uran* [Sarkar (2011)].
66. Common Moorhen *Gallinula chloropus* — Resident and uncommon. It was observed foraging on the margins of lakes and ponds, especially at *TS Chanakya*, *Belpada* and *Belapur Pond*. Abdulali (1989) listed it as an occasional resident in the Mumbai neighbourhood with no specific breeding records, while Prasad (2003) reported it as a common local migrant; however, less common around Mumbai.
67. Eurasian Coot *Fulica atra* — Common and local migrant. The survey team observed about 1,000 birds during September to December, including juveniles, especially at *Belpada Lake*. From late winter, the local population was observed to be slowly decreasing. Mentioned as an occasional migrant and flocking species [Abdulali (1981)], breeding records from *Mahalaxmi*, Mumbai from July to December [Prasad (2003)].
68. Slaty-breasted Rail *Gallirallus striatus* — Resident and uncommon [Abdulali (1981)]. Observed a couple of individuals on the edges of the *Panvel Creek* at the NMIA site. It is previously recorded as an uncommon species probably due to less records and the breeding records are for August and September [Prasad (2003)].
69. Ruddy-breasted Crake *Porzana fusca* - Resident and uncommon. Three individuals were seen in the mangrove at *Kharghar* in the monsoons. Earlier reported as uncommon [Abdulali (1981)] and a local migrant [Prasad (2003)].

70. Brown Crake *Porzana akool* — A couple of individuals were seen in the shallow waterbodies of Uran area in the monsoons. It was reported as a resident and uncommon [Abdulali (1981)].
71. Bronze-winged Jacana *Metopidius indicus* — Resident and common species, observed in wetlands abounding in floating vegetation such as Water Lily at *Belpada* and *Belapur Pond*. During late winter, the individuals from *Belpada* flew to lakes and ponds with perennial water source such as *Ballaleshwar Lake* in Panvel. Abdulali (1989) reported it as a common species and Prasad (2003) reported it from *Uran, Thane, Kalyan, Panvel* with the breeding records from *Dombivli, Kalyan*, and Panvel between July and September. Seen in open water bodies at Mahul [Verma et.al. (2001-02)].
72. Pheasant-tailed jacana *Hydrophasianus chirurgus* — A common resident, observed in lakes with thick vegetation. Regularly seen at *Belpada* and *Belapur Pond*. The population at water bodies with year-long water availability such as Ballaleshwar lake in Panvel was observed to be increasing during the summers. A couple of floating nests with two eggs were recorded at *Belpada Lake* in August 2013 and a few juveniles were later observed in September in the same year. Abdulali (1989) mentioned it as a common in Mumbai region, Prasad (2003) reported breeding records from Mumbai during July to September.
73. Red-wattled Lapwing *Vanellus Indicus* — A common resident, usually observed in 2-3 individuals in all over the study area. A group of 30-40 individuals was seen at one location in late summer on the edges of the wetlands, puddles. Observed on the road tracts and elevated lands during monsoons. A couple of nests were seen at *Kharghar Creek, Belpada Lake, Belapur Pond* and juveniles were observed in the monsoons. According to Abdulali (1981) it was found throughout while the breeding was recorded from *Uran, Airoli* and Mumbai during March to August [Prasad (2003)], seen in marsh, wetlands, mangroves and salt-pans at Mahul [Verma et.al. (2001-02)].
74. Lesser Sand Plover *Charadrius mongolus* — A migratory species observed congregating and resting in inland water bodies at *Belpada, TS Chanakya* and *NRI Complex Lake* during high tide and seen moving towards seashore for feeding during the low tide. During summers, the survey team observed these birds congregated in thousands at *NRI Complex* and *TS Chanakya* wetlands. Reported as stray or vagrant [Abdulali (1981)], common winter visitor along the coast, rare inland [Prasad (2003)], migration earliest was August [Stairmand (1969)], latest till March [Ali & Abdulali (1939)]. Regular sightings recorded from *Sewri* mudflats; eastern coast of Mumbai [Woodward (2007)] and Mahul [Verma et. al. (2001-02)].
75. Greater Sand Plover *Charadrius leschenaultia* — Common winter migrant, seen on the mudflats, rivers, estuaries and lakes in the flocks of thousands of individuals roosting along with other plovers and sandpipers at *NRI Complex, TS Chanakya* and *Jasai* lakes. The flocks were observed moving to the seashore from the wetlands of *Palm Beach Road* for foraging during the low tide. Earlier, reported as a flocking species [Abdulali (1981)], mainly along the coast, rarely found in inland [Prasad (2003)]. Regular sighting records from *Sewri* mudflats [Woodward (2007)] and Mahul [Verma et. al. (2001-02)].





MRUGANK PRABHU

Pied Avocet



MRUGANK PRABHU

Little Cormorant



MRUGANK PRABHU

Greylag Goose



PARVEEN SHAIKH

Indian Pond Heron



MRUGANK PRABHU

Lesser Sandplover



PARVEEN SHAIKH

Black-winged Stilt

76. Little Ringed Plover *Charadrius dubius* — Resident and common. Usually seen on the mudflats, shingle banks and sand-pits along rivers, estuaries and lakes. Scattered individuals run about in short spurts with a swift mincing gait, stopping abruptly to pick up food material in the characteristics plover-manner [Ali & Ripley (1983)] on the seashore during low tide. The birds are observed returning in flocks during the high tide to the waterbodies in *NRI Complex*, *TS Chanakya* and *Belpada* for roosting. Reported as an occasional bird [Abdulali (1981)], common throughout Western Maharashtra [Prasad (2003)] with breeding records from *Aksa* beach, and *Madh* in Mumbai during December to June and seen in marsh, salt-pans and creeks at Mahul [Verma et.al. (2001-02)], regularly sighted at Sewri mudflats [Woodward (2007)].
77. Pacific Golden Plover *Pluvialis fulva* — Migrant, common. The survey team observed these birds at rocky seashore in winter and at Panvel Creek of NMIA area in a flock of 40-50 individuals feeding during the low tide, in the summer season. The roosting flock moved to the waterbodies in *NRI Complex* and *TS Chanakya* in the summer season. In April of 2013 all the birds were observed in breeding plumage. It was mentioned as an occasional and flocking species [Abdulali (1981)], along the coast [Prasad (2003)].
78. Kentish Plover *Charadrius alexandrinus* — A migratory species. The survey team reported them from all wetlands — marsh, salt-pans and creeks across the study area. It was often seen running short distance and picking up the food-matter on the edges of the wetlands. Previously reported from Mahul [Verma et.al. (2001-02)].
79. Grey Plover *Pluvialis squatarola* — A winter migrant and uncommon. The survey team observed a few birds at the waterbodies in *NRI Complex* and *TS Chanakya* in a flock of 40-50 individuals, foraging on the seashore during low tide and roosting in inland water bodies during the high tide. During the peak summer in May, the team observed the birds in breeding plumage. Earlier recorded as occasional [Abdulali (1981)], along the coast [Prasad (2003)]. In the 19th century it was apparently less common, Vidal (1980) saw it at *Malvan*, *Sindhudurg* district of southern *Konkan* in Maharashtra, Sinclair (1898) did not see it at all in the north *Konkan* around Mumbai and Aitken (1900) remarked that it is unlikely that it would be seen in Mumbai.
80. Common Snipe *Gallinago gallinago* — A migrant, common. The survey team observed them as solitary birds, and often in grassland, marshy and paddy fields – in shallow waters to be specific, and along the edges of waterbodies. More than 50 birds were observed at *Belpada Lake* during February to April in 2013. Reported as a flocking species [Abdulali (1981)], mainly seen in Deccan Maharashtra [Prasad (2003)]. Earliest date of migration-record for the species is September 11, 1923 [Trevenen (1923)] and the latest record is of May 4, 1939 [Ali & Abdulali (1939)].
81. Greater Painted Snipe *Rostratula benghalensis* — Resident and common. It was seen in the paddy fields and on the edges of Belpada Lake in Uran. Previously recorded as occasional [Abdulali (1981)], probably under-recorded and population fluctuation is probably due to local migration. The breeding records are from late-September to early-May [Prasad (2003)].

82. Common Redshank *Tringa tetanus* — A winter visitor, common. Observed at all the sites usually foraging as a solitary bird or in a closed group of about 5-10 birds each, in shallow waters. A group of 250-300 individuals was seen roosting in wetlands interspersed by mangroves at *Kharghar Creek* and *Panvel Creek*. About 30 to 40 birds were observed in July-August of 2013 as the overwintering population in the whole study area. Reported as a flocking species [Abdulali (1981)], more common along the west coastline [Prasad (2003)]. The earliest date of migration recorded was July 29, and the latest record is of May 25, 1939 in Mumbai [Ali & Abdulali (1939)], seen in marsh, salt pan and creeks at Mahul [Verma et.al. (2001-02)].
83. Wood Sandpiper *Tringa glareola* – A common winter visitor. Observed solitary on the edges of the waterbodies, foraging in all the wetlands of the study area. It is listed as common throughout Western Maharashtra [Prasad (2003)].
84. Common Sandpiper *Tringa hypoleucos* — A common winter migrant. One of the earliest immigrants of the study area and seen as a solitary bird at all the sites in the study area. The survey team observed as the birds were continuously foraging on the edges of water bodies and in shallow waters. Reported earlier as a common winter visitor [Abdulali (1981)], [Prasad (2003)], these birds generally arrive in early August and remain until mid-May [Ali & Abdulali (1939)] and seen in the marsh, salt pans and creeks at Mahul [Verma et.al. (2001-02)].
85. Common Greenshank *Tringa nebularia* — A Common winter visitor. Observed in the shallow areas of inland as well as coastal wetlands. It is spread across the study area. Usually solitary in nature, it is often observed along with Common Redshank *Tringa tetanus*. In late winters, observed to be forming small groups. It was reported as an occasional [Abdulali (1981)], common [Prasad (2003)] and less common near Mumbai [Ali & Abdulali (1939), Monga (2001)]. Earliest date of migration-record is August 8, and latest record is for June 18, 1939 in Mumbai [Ali & Abdulali (1939)], seen in the marsh, salt pans and creeks at Mahul [Verma et.al. (2001-02)].
86. Terek Sandpiper *Xenus cinereus* – A common winter visitor. Observed a flock with 15-20 individuals foraging in mudflats and during high tide resting in the mangroves at NMIA and Kharghar Creek. Mentioned as occasional along the coast [Prasad (2003)].
87. Green Sandpiper *Tringa ochropus* – A common winter visitor. Observed solitary on the edge of the waterbody, foraging in all wetlands of the study area. Listed as common, found throughout Western Maharashtra [Prasad (2003)].
88. Marsh Sandpiper *Tringa stagnatilis* — An uncommon winter visitor, it is often seen along the edges of freshwater ponds, in estuaries and tidal mudflats. In the study area, it was seen more often at the waterbodies at *NRI Complex*, *Belpada* and *TS Chanakya*. A flock of 50-60 scattered individuals was observed while feeding continuously in waterbodies at *Belpada* and at the seashore. Earlier reports mentioned it as an occasional [Abdulali (1981)], and apparently decreased in numbers near Mumbai, where as Ali and Abdulali (1939) have recorded it as a common species, Monga (2001) listed it as present in 'small numbers'.

PARVEEN SHAIKH



Common Kingfisher

MRUGANK PRABHU



Black-capped Kingfisher



89. Black-tailed Godwit *Limosa limosa* — A near threatened species, yet a common winter migrant, it was observed at all wetlands, in large congregations of about 200-250 individuals; especially at *Belpada Lake* and the wetland opposite *Sanjivani Sachool* in *Kharghar*. They were also observed in large, close-packed flocks in association with other waders. Seen feeding continuously. The birds depart after attaining breeding plumage in April, the survey team also reported that these birds arrive early and depart early from the study area with a few individuals overwintering. Earlier reported as an occasional flocking species by *Abdulali* (1939), reported from Raigad district by *Prasad* (2003), and seen in the marsh, salt pans and creeks at Mahul [*Verma et.al.* (2001-02)].
  
90. Eurasian Curlew *Numenius arquata* — A near threatened yet common in the study area. Observed roosting in flocks of 100-150 individuals at the *NRI Complex Lake*. They move to the seashore during the low tide and seen probing into soft ooze for food. During summers the whole population was seen roosting at the wetland in *TS Chanakya* area. Observed till June and the overwintering population of 30-40 individuals was seen during the monsoons of 2013 in the mudflats interspersed with mangroves at *Uran*. Previously reported as an occasional migrant and a flocking species [*Abdulali* (1981)], common winter visitor along the west coast [*Prasad* (2003)], apparently some birds are present in the Konkan all year round [*Keswal* (1886)], and seen in the marsh, salt pans and creeks at Mahul [*Verma et.al.* (2001-02)].
  
91. Ruddy Turnstone *Arenaria interpres* — A winter visitor, uncommon. Mainly observed on the rocky seashores and mudflats near *Palm Beach Road* during winter, occasionally foraging along with the fishermen. About 30-40 individuals observed in breeding plumage in late summer at *NRI Complex Lake*, the wetland behind *TS Chanakya* and at the *Panvel Creek*. It was listed as a flocking species by *Abdulali* (1981) and *Prasad* (2003).
  
92. Temminck's Stint *Calidris temminckii* — An uncommon winter visitor, often observed along with other waders at all wetlands in the study area. The flock spread itself for feeding on the seashore during the low tide and returned to the inland water bodies during the high tide for roosting. About 100-150 birds observed flocking as well as roosting at *NRI Complex Lake* and the wetland in *TS Chanakya* in late winter. Listed as a flocking species seen on the west coast [*Abdulali* (1981), *Prasad* (2003)] reported as less common near Mumbai [*Monga* (2001)], seen in the marsh, salt pans and creeks at Mahul [*Verma et.al.* (2001-02)].
  
93. Little Stint *Calidris minuta* — A common winter visitor, often observed with other small waders at all wetlands of the study area. A flock was seen foraging on the seashore during the low tide and returning to the inland waterbodies for roosting during the high tide. Reported as a flocking species [*Abdulali* (1981)], seen sporadic in southern Maharashtra west coast [*Prasad* (2003)] and seen in the marsh, salt pans and creeks at Mahul [*Verma et.al.* (2001-02)].
  
94. Curlew Sandpiper *Calidris ferruginea* — A common winter migrant, observed congregating in huge flocks of thousand individuals along with other waders such as Lesser Sand Plover *Charadrius mongolus* and Broad-billed Sandpiper *Limicola falcinellus* in the waterbodies at *NRI*

*Complex* and *TS Chanakya* during high tide, and disperse on the seashore for feeding during the low tide. Arriving in late September and departing in April-May. Striking chestnut-red coloured head and under parts helps these birds stand out in a huge wader congregation during summers. Reported as a flocking species [Abdulali (1981)], common on the coasts and rare inland [Prasad (2003)], near Mumbai Ali & Abdulali (1981) reported it as 'common but overlooked'. Seen at *Dativare*, *Nala Sopara* [Monga (2003)], and *Mahul Creek* [Verma et.al. (2001-02)].

95. Broad-billed Sandpiper *Limicola falcinellus* — An uncommon winter migrant, observed in flocks of hundred individuals roosting at the water bodies near *NRI Complex* and *TS Chanakya* during the high tide. These birds were seen dispersing on the seashore for foraging during the low tide. Usually found in the huge congregation of other waders, this bird's downward kinked bill and supercilium with split before eyes were the distinct features used as the identification characteristics. Reported as an occasional flocking species [Abdulali (1981)], uncommon winter visitor along the west coast but probably under-recorded [Prasad (2003)].
96. Ruff *Philomachus pugnax* — A common winter migrant. It was frequently observed along with the other waders at *Uran* and *NRI Complex Lake*. A flock of 40-50 individuals was seen foraging regularly at *Jasai* and *Belpada* wetlands. It was reported as occasional and a passage migrant [Prasad (2003)].
97. Dunlin *Calidris alpina* — Winter migratory. Observed in a flock at *Uran*, *Belpada*, *NMIA* and *TS Chanakya* along with the other migratory waders. It was observed feeding on the shore and roosting in inland wetlands. It was recorded as a fairly uncommon winter visitor along the coast and less common inland [Prasad (2003)].
98. Whimbrel *Numenius phaeopus* — Uncommon winter migrant. It was observed at *NRI Complex Lake*, *Uran* and *Belpada* mangroves. A couple of individuals were seen overwintering in the study area and observed in monsoons, along the coast [Prasad (2003)].
99. Black-winged Stilt *Himantopus himantopus* — A common resident, this is the most frequently observed species at all wetlands of the study area. Commonly seen in shallow waters in the groups of 20-25 scattered individuals. Reported as a local migrant and flocking species with breeding records from western Maharashtra [Abdulali (1981), Prasad (2003)]. Breeding recorded at Mumbai from May to July [Monga (2003)], seen in the marsh, salt pans and creek at Mahul [Verma et.al. (2001-02)].
100. Pied Avocet *Recurvirostra avosetta* — A winter migrant and uncommon. The survey team observed them in flocks of 30-35 individuals, scattered and foraging continuously in shallow waters. During summer, observed in a group of 400-500 birds in *Belpada* and *NRI Complex* area. A few times, the survey team has observed a Osprey catching it easily, may be because of its distinct pied colour when compared to other waders. The population was reported to be very less in 2013 as compared to 2012. Previously reported as a winter migrant [Abdulali (1981)], occasional and flocking species [Prasad (2003)], common along the coast; rare inland and seen in open waterbodies at Mahul [Verma et.al. (2001-02)]. Sighted about 100-200 individuals consistently in *Uran* area by Sarkar (2011).

PARVEEN SHAIKH



Sanderling

PARVEEN SHAIKH



Common Snipe

101. Gull-billed Tern *Gelochelidon nilotica* — Uncommon and winter migrant. Observed roosting in flocks at the waterbodies in *NRI Complex* and *TS Chanakya* during late-winter months. A few individuals were observed at *Belpada*, *NMIA Area*, and *Panvel Creek*. During low tide these birds were seen moving towards the seashore for foraging. In summer, the survey team observed the birds congregating with other waders at *NRI Complex Lake* and the wetland behind *TS Chanakya*. Earlier mentioned as a local migrant, and common flocking species [Abdulali (1981)], of the west coast [Prasad (2003)], apparently declining near Mumbai [Monga (2001)], usually seen in the marsh, salt pans and creek at Mahul [Verma et.al. (2001-02)].
102. Caspian Tern *Sterna caspia* — A winter migrant and common. It could be easily identified by its large size and red bill. Observed foraging mainly at seashore as well as in all the wetlands in the study area, and roosting primarily at *NRI Complex Lake* along with other waders. Seen roosting in the wetland near *TS Chanakya* on *Palm Beach Road* during summers. Previously reported as an occasional visitor [Abdulali (1981)], common on the coast; uncommon inland [Prasad (2003)], seen mainly at Mahul Creek [Verma et.al. (2001-02)].
103. Saunders' Tern *Sterna saundersi* — A rare winter migrant. Observed two individuals in a group of terns in late summer, in April 2012. It has been reported from *Dharamtar Creek*, *Raigad* district. Two individuals were shot on April 10, 1967 [Navarro (1968a)] at Ratnagiri 'which Mr. Hume discriminated as (saundersi), was collected in October 1879' [Vidal (1880)].
104. Whiskered Tern *Chlidonias hybridus* — A common winter visitor, observed in almost all wetlands including *NRI Complex Lake*, *Belpada*, *TS Chanakya*, the proposed site for NMIA and right up to the seashore. Often seen foraging at all waterbodies and when not hunting seen resting on a rock or mud bank along with other terns and gulls. Seen in breeding plumage of grey breast and black body in summer. The Black-bellied Tern *Sterna acuticauda* can be differentiated by its long-orange bill and deeply forked tail unlike Whiskered Tern *Chlidonias hybridus*. Mentioned earlier as an occasional local migrant and a flocking species [Abdulali (1981)], non-breeding visitors throughout Western Maharashtra [Prasad (2003)], seen at Mahul Creek [Verma et.al. (2001-02)].
105. River Tern *Sterna aurantia* — Uncommon local migrant, observed at all wetlands of the study area, often seen fishing and resting on a rock or mud bank along with other terns and gulls. During summer 15-20 individuals were seen congregating at a wetland in the *Palm Beach Road* area and foraging at *Panvel Creek* and *Kharghar Creek*. Earlier reports mention it as an occasional local migrant [Abdulali (1981)] and a common resident [Prasad (2003)].
106. White-cheeked Tern *Sterna repressa* — Uncommon winter migrant. The survey team observed two individuals in a group of terns at the wetland behind TS Chanakya on the Balm Beach Road in April 2012. Reported earlier as a passage migrant and under-recorded on passage but must be common judging by the number of birds passing through Goa [Prasad (2003), Lainer (1999)]. Records near *Bombay US Club*, *Karanja beach*, Uran in Raigad district, Mumbai, Ratnagiri [Vidal (1880), Anon (1909), Abdulali (1942), Lainer (2003)]. It can be identified by the ivory-coloured



- tip on the bill as described by *Ali & Ripley* (1983). Breeding records from *Vengurla Rocks*; possible breeding, chicks of all ages in September 2001 [*Pande* (2002)], most of the eggs and mummified remains collected in Ratnagiri of this species [*Abdulali* (1940)].
107. Brown-headed Gull *Larus brunnicephalus* — A common winter migrant. The survey team saw flocks with as many as 200-250 individuals at the wetland near *DPS School*, on *Palm Beach Road* and occasionally at the wetlands in *Uran*. In summer, observed roosting at water bodies behind *NRI Complex* and *TS Chanakya* on the *Palm Beach Road*, during the high tide and later moved to the seashore during the low tide. Earlier listed as a common flocking species [*Abdulali* (1981)], on the coast; fairly uncommon inland [*Prasad* (2003)] and seen at Mahul creek [*Verma et.al.* (2001-02)].
  108. Black-headed Gull *Larus ridibundus* — A common winter migrant, frequently observed roosting at the waterbodies near *NRI Complex* and *TS Chanakya* during high tide and visiting the adjoining seashore for foraging during the low tide. It was always seen roosting along with Brown-headed Gull *Larus brunnicephalus* and Caspian Tern *Sterna caspia*. Mentioned earlier as a common and flocking species [*Abdulali* (1981)], on the coast; uncommon inland [*Prasad* (2003)], but near Mumbai this is the most common Gull [*Monga* (2001), *Ali & Abdulali* (1939) and *Verma et.al.* (2001-02)].
  109. Heuglin's Gull *Larus heuglini* — A rare winter migrant. A couple of individuals observed on the mudflats of Airoli Creek during the low tide. It could be easily distinguished because of its size in a scattered flock of Black-headed Gull *Larus ridibundus* and Brown-headed Gull *Larus brunnicephalus*. Reported as an occasional migrant [*Abdulali* (1981)], common winter visitor along the coastline in Maharashtra [*Prasad* (2003)].
  110. Slender-billed Gull *Larus genei* — A common winter visitor. About 30-40 individuals observed at *TS Chanakya* and *NRI Complex Lake* during summers along with other Gulls, dancing in mud and feeding. Previously reported as uncommon along the coast and is recorded only near Mumbai but it is found along the coast right up to Goa [*Prasad* (2003)].
  111. Palash Gull *Larus ichthyæetus* — Uncommon winter visitor. Observed in late-monsoon and early-winter at *NRI Complex Lake* and in *Uran*. Earlier reported as uncommon across coastal Maharashtra [*Prasad* (2003)], occasional migrant [*Abdulali* (1981)].
  112. Indian Skimmer *Rynchops albicollis* — A local winter migrant. Three individuals were observed from October to March at two sites in *Uran* and *NRI Complex Lake*. Usually seen roosting with the flock of Gull-billed Tern *Gelochelidon nilotica* and Caspian Tern *Sterna caspia*, while feeding by skimming the water surface with the lower mandible. It has not been reported by *Abdulali* (1939), while mentioned as rare resident and local migrant by *Prasad* (2003) and recorded from near Mumbai at *Dativare*, in Thane district (November 7, 2001 [birdsofmumbai@yahoo.com](mailto:birdsofmumbai@yahoo.com)).

MRUGANK PRABHU



Malabar Lark

MRUGANK PRABHU



Yellow-eyed babbler

113. Blue Rock Pigeon *Columba livia* — A resident and very common bird observed across the study area. Well adapted to the urban life. Groups of 30-40 individuals often observed foraging at garbage dumps, open grasslands, mangroves, and rooftops of the buildings. Many a times, flocks of 100-120 birds were seen in the grasslands and open lands. It was mentioned as a flocking and common species [Abdulali (1981), Prasad (2003)].
114. Yellow-footed Green-pigeon *Treron phoenicoptera* – Uncommon, resident and an arboreal species and it rarely descends to the ground. Observed primarily in the forests of *Karnala*, *Ransai*, *Morbe-Prabalgad* and *Mosare*. Commonly seen perching on the trees during the dawn and dusk and feeding throughout the day on fruiting trees such as *Ficus* sp. It is reported as the bird seen in flocks/parties [Abdulali (1981)], and the breeding is reported to be between February and May [Prasad (2003)].
115. Little Brown Dove *Streptopelia senegalensis* – Common and resident, it is observed in dry, scrub lands. Often seen in the neighbourhood of villages and on pathways in the forest patches of *Mosare*, *Ransai* and *Chirner*. Also seen along the edges of the mangroves and grasslands. It was reported as resident and common [Abdulali (1981), Prasad (2003)].
116. Eurasian Collared Dove *Streptopelia decaocto* – Uncommon resident. It is observed in dry, scrub lands, however, often spotted it in the woodland and mangroves at Mahul [Verma *et.al.* (2001-02)]. It was often observed near villages and foothills of dry deciduous forests. In summer mainly observed in forest patches of *Mosare*, *Ransai* and *Chirner*. It has been reported as a local migrant and occasional [Abdulali (1981)], common resident [Prasad (2003)].
117. Spotted Dove *Streptopelia chinensis* – Common and resident. It was often observed in the forest patches, and during winter seen in all open areas including scrub lands. Earlier reported as a bird of forest and cultivated lands and reported as a resident and common [Abdulali (1981), Prasad (2003)], usually sighted in woodland and mangroves at Mahul [Verma *et.al.* (2001-02)].
118. Rose-ringed Parakeet *Psittacula krameri* – A resident and common bird, seen as one of the most familiar birds in the forests, big cities, towns and in the vicinity of villages. Often seen in flocks on fruiting trees in the forests of *Mosare*, *Ransai* and *Chirner*. Reported earlier as a bird found in parties/flocks [Abdulali (1981), Prasad (2003)] in woodlands and mangroves at Mahul [Verma *et.al.* (2001-02)] in the Mumbai region.
119. Plum-headed Parakeet *Psittacula cyanocephala* – Common resident. The survey team spotted it in the forest patches of the study area. With a distinct red-coloured head and smaller size than the Rose-ringed Parakeet *Psittacula krameri*, it is easy to identify them. It was often seen in flocks on the fruiting trees in the forests of *Mosare*, *Ransai* and *Chirner*. Reported earlier as occasional and observed in flocks/parties [Abdulali (1981), Prasad (2003)] seen in woodlands at Mahul [Verma *et.al.* (2001-02)].



120. Asian Koel *Eudynamys scolopaceus* – Resident, common and an arboreal bird. Frequently observed in urban gardens, groves and in large leafy trees at all the sites in the study area. It becomes increasingly noisy as the monsoons approach. Reported earlier as common [Abdulali (1981)], [Prasad (2003)] usually sighted in woodland and mangroves at Mahul [Verma et.al. (2001-02)].
121. Greater Coucal (Southern Coucal) *Centropus sinensis* — Resident and common, this is largely a terrestrial bird and observed across the study area in the forests, scrub-lands, bushes and grasslands. Reported as common [Abdulali (1981)], throughout Western Maharashtra [Prasad (2003)] with breeding records from January to September, sighted in the woodlands and mangroves at Mahul [Verma et.al. (2001-02)].
122. Common Hawk Cuckoo *Hierococcyx varius* — Observed in all over the study area in forest, groves and fruit orchards. It becomes increasingly obstreperous with the advancing hot weather. Earlier documented as occasional [Abdulali (1981)], a common resident and a local migrant [Prasad (2003)].
123. Blue-faced Malkoha *Phaenicophaeus viridirostris* – Resident and occasional bird, usually seen creeping through the thickets and clammers actively among the branches of low trees. Mentioned earlier as a resident [Abdulali (1981)] uncommon, rare [Prasad (2003)], a poor flier and was observed moving from one thicket to another near the villages and in the forests of Ransai, Mosare and Chirner.
124. Sirkeer Malkoha *Phaenicophaeus leschenaultia* – resident and occasional. A terrestrial bird stalking among the thickets, much like Coucal, in search of food. Primarily reported as an occasional visitor. Recorded earlier as a local migrant [Abdulali (1981)], uncommon with breeding season from March to June [Prasad (2003)].
125. Common Barn-Owl *Tyto alba* — A common resident. A common, nocturnal, urban bird seen mainly in the deserted buildings of the town and cities, and old structures. The survey team found a carcass of the Common Barn Owl *Tyto alba* on the edge of the railway line at Kharghar area; the bird died possibly because of electrocution, in February 2012. Earlier listed as occasional [Abdulali (1981)], common throughout Western Maharashtra [Prasad (2003)] and usually sighted in plantations at Mahul [Verma et.al. (2001-02)].
126. Spotted Owlet *Athene brama* — A resident and common. Chiefly crepuscular and nocturnal bird. It was observed in groves, forest and on the trees near human habitation at all sites in the survey area. The survey team observed it spending time in the hollows in old trees or sitting huddled together on a secluded branch or electric wire. It was reported earlier as a resident and common [Abdulali (1981)], throughout Western Maharashtra [Prasad (2003)], usually sighted in woodland and mangroves at Mahul [Verma et.al. (2001-02)].
127. Indian Eagle-Owl *Bubo bengalensis* – A rare resident. Observed in the shade of a rocky projection near Uran area. It is primarily a nocturnal bird and inhabits well-wooded but open areas. It was mentioned as a resident and occasional [Abdulali (1981)], and uncommon [Prasad (2003)].

MRUGANK PRABHU



Purple rumped sunbird

PARVEEN SHAIKH



Wire-tailed Swallow

128. Indian Little Nightjar *Caprimulgus asiaticus* – A common resident, this is the bird of scrub-land, stony areas, groves in the neighbourhood of cultivation and human habitation and forest patches. During the day time it roosts under the shelter of a bush and get active during the night. Observed in its typical moth-like flight and heard its call — *chak chak urr* — at *Chirner* and *Uran* area. Previously recorded as a local migrant and resident [*Abdulali* (1981), *Prasad* (2003)].
129. Indian Jungle Nightjar *Caprimulgus indicus* – Uncommon resident. Observed mainly on the edge of *Ransai* forest and *Karnala* during dusk. Breeding season in India is January to June [*Rasmussen* (2005)].
130. Little or House Swift *Apus affinis* – Resident and common. These birds observed at all sites in the study area, often inhabit old buildings, forts, dwelling houses and other constructions. They are observed flying with great speed, almost incessantly throughout the day, mainly along the water edges. Earlier listed as a resident, commonly seen in flocks [*Abdulali* (1981)], throughout Western Maharashtra [*Prasad* (2003)].
131. Asian Palm Swift *Cypsiurus balasiensis* – Resident and common. These birds observed primarily on Toddy Palms at all sites in the study area, including the human habitations and the forest patches of *Mosare* and *Chirner*. The rigid folds and furrows of Toddy leaves provide suitable site for nesting and roosting. Previously seen in flocks [*Abdulali* (1981)] as an uncommon bird [*Prasad* (2003)].
132. Lesser Pied Kingfisher *Ceryle rudis* – Uncommon resident. Observed near water bodies at all sites in the study area, continuously hovering and then diving in water for the catch. It was reported as a local migrant and in groups [*Abdulali* (1981)] and a common resident [*Prasad* (2003)].
133. White-breasted Kingfisher *Halcyon smyrnensis* – Common resident, dependent on water. It was seen at the ponds, puddles, rain filled ditches, near the shore, mangroves, forest areas and on the wires across the study area. Previously listed as a resident and common [*Abdulali* (1981)], throughout Western Maharashtra [*Prasad* (2003)], usually near waterbodies at *Mahul* [*Verma et.al.* (2001-02)].
134. Common Kingfisher *Alcedo atthis* — Resident and common. Observed near waterbodies at all sites in the study area, continuously sitting on a tiny branch and searching for the prey and then diving in water for the catch. *Abdulali* (1981) reported it as a common throughout Western Maharashtra [*Prasad* (2003)].
135. Black-capped Kingfisher *Halcyon pileata* – Uncommon and local migrant. This is a bird of the sea-coast and tidal rivers. It was observed at *NRI Complex Lake* and on the seashores in the study area. It was seen sitting in the mangroves and then hunting in the tidal pool. It is largely dependent on the presence of water source; chiefly salt or brackish water, for its food. Previously recorded as a local migrant and uncommon [*Abdulali* (1981)], uncommon along coast [*Prasad* (2003)].

136. Oriental Dwarf Kingfisher *Ceyx erithaca* – Uncommon local migrant. A forest dweller, it was observed at Karnala Bird Sanctuary and *Chirner* forest, feeding near a seasonal stream in the forest. It has been reported as a breeding migrant [Prasad (2003)] and uncommon [Abdulali (1981)].
137. Little Green Bee-eater *Merops orientalis* – Common resident. The survey team observed these birds in all habitats in the study area including open forest, in the neighbourhood of cultivation, mangroves and forest clearings. Earlier it was reported as a local migrant and some breed in Western Maharashtra and found commonly in flocks [Abdulali (1981), Prasad (2003)] and mainly seen in plantations at Mahul [Verma et.al. (2001-02)].
138. Blue-tailed Bee-eater *Merops philippinus* – A winter migrant. The survey team observed it on the wooded tracts and roosting in the mangroves near Kharghar Creek during winter season. Many a times, about 25-30 birds were seen on wires, and in late winter, the team saw them taking dust-bath in smaller groups. It was reported as a passage migrant and occasionally in flocks [Abdulali (1981), Prasad (2003)].
139. Blue-cheeked Bee-eater *Merops persicus* – A common passage migrant. A flock comprising over 100 individuals was observed during early winter at Belpada and Uran, feeding in the grasslands and mangroves, and resting on transmission lines. A maximum number of individuals were observed in October 2013. It was reported as a passage migrant, commonly observed in flocks [Abdulali (1981)].
140. European Roller *Coracias garrulous* – An occasional passage migrant. Occasionally observed in the Uran area, resting on electric transmission lines along the roadside during September and October 2013. It was recorded as an uncommon passage migrant and winter visitor [Abdulali (1981)].
141. Indian Roller *Coracias benghalensis* – Uncommon and local migrant. Seen as inhabitant of cultivated area and light deciduous forest, it was observed very often sitting on the wires on the road side at TS Chanakya, Belpada and roosting in the forest patches of *Chirner* and *Ransai*. Earlier listed as a local migrant and occasional [Abdulali (1981)], less common in Mumbai [Prasad (2003)], seen in plantation and crop-fields at Mahul [Verma et.al. (2001-02)].
142. Common Hoopoe *Upupa epops* – Common winter visitor. It was observed as an inhabitant of open forest, plains, neighbourhood of cultivated land and groves. Observed at TS Chanakya, Belpada, Mosare and *Chirner*. Earlier reported as an uncommon [Abdulali (1981)], winter migrant [Prasad (2003)], seen in the mangroves, grassland areas at Mahul [Verma et.al. (2001-02)].
143. Indian Grey Hornbill *Ocyrceros birostris* – Uncommon resident. This is an arboreal bird and was observed in the forest patches of *Karnala*, *Morbe-Prabalgad*, *Ransai* and *Mosare*, commonly seen on Fig trees along with other frugivorous birds. Previously reported as a resident and occasional [Abdulali (1981), Prasad (2003)].



144. Coppersmith Barbet *Megalaima haemacephala* – Common and resident, an arboreal bird, the survey team saw it on fruiting trees, especially the various species of Fig, in the outlying forest or in a noisy city. Reported previously as a resident and occasional [Abdulali (1981)], common throughout Western Maharashtra [Prasad (2003)], usually seen in plantation areas at Mahul [Verma et.al. (2001-02)].
145. Brown-headed Barbet or Large Green Barbet *Megalaima zeylonica* - Resident and common. Arboreal and frugivorous bird and was observed singly on fruiting trees in all the forest areas in the study area. The bird's typical call can be heard in all forest patches. It was listed as a common [Abdulali (1981)], throughout Western Ghats [Prasad (2003)].
146. White-cheeked Barbet *Megalaima viridis* – A common resident, observed exclusively in moist deciduous forest in *Mosare, Chirner, Karnala* and *Ransai*. Mentioned earlier as rare and occasional [Abdulali (1981)] and a common resident [Prasad (2003)].
147. Indian Pitta *Pitta brachyura* – A local migrant, resident. Observed roosting on the trees and hopping like a Thrush over dead leaves in the forests at *Ransai, Karnala, Morbe-Prabalgad* and *Mosare*. Reported earlier as an occasional, passage migrant [Abdulali (1981), Prasad (2003)].
148. Eurasian Wryneck *Jynx torquilla* – A winter migrant. It is closely related to woodpeckers in appearance and behaviour. Observed at *Mosare* and *Belpada Lake*. Reported earlier as an occasional [Abdulali (1981)] and uncommon winter visitor [Prasad (2003)].
149. Rufous Woodpecker *Celeus brachyurus* – A resident and common, it was observed at *Morbe-Prabalgad, Chirner, and Ransai*. Recorded earlier as a forest bird found around Mumbai [Abdulali (1981)] and fairly common resident in Konkan [Prasad (2003)].
150. Black-rumped woodpecker *Dinopium benghalense* — Resident and common. Observed in the *Karnala* and *Ransai* forest-patches, especially in summer observed feeding on the flower nectar. Reported as a resident around Mumbai by Abdulali (1981) and Prasad (2003).
151. Common Flameback *Dinopium javanense* — Resident and uncommon. Observed at *Ransai, Karnala* and *Mosare*. Mentioned earlier as a bird mostly found in the moist deciduous forest by Abdulali (1981) and rare by Prasad (2003).
152. Yellow-fronted Pied Woodpecker *Dendrocopos mahrattensis* – Uncommon resident. Inhabitant of scrub-land and deciduous forest, often observed in *Ransai, Morbe-Prabalgad* and *Mosare*, tapping on the bark and digging into rotten wood to feed on insects. Reported as a resident and occasional [Abdulali (1981)], common throughout Western Maharashtra [Prasad (2003)].
153. Heart-spotted Woodpecker *Hemicircus canente* – A common resident, it is an inhabitant of scrub-land and deciduous forest. It was observed along with the mixed hunting parties of insectivorous birds at *Karnala Bird Sanctuary*. Earlier reported as a common bird in dry deciduous forest patches in Mumbai and adjoining areas by Abdulali (1981) and Prasad (2003).
154. Ashy-crowned Sparrowlark *Eremopterix griseus* — Resident and common [Abdulali (1981)] throughout Western Maharashtra [Prasad (2003)], inhabitant of grassland and barren-land and was observed at *TS Chanakya* and *Belpada* along with the other lark species.

155. Rufous-tailed Finch-Lark *Ammomanes phoenicura* — Resident and common, often seen in a group of 3-4 birds at the proposed site for NMIA and *Belpada* as an inhabitant of the stony, scrub and bush land, ploughed fields and in the neighbourhood of cultivation. Reported earlier as a resident by *Abdulali* (1981) and *Prasad* (2003).
156. Malabar Lark *Galerida malabarica* — Resident and common. Inhabitant of stony scrubs and bush land, ploughed fields and in the neighbourhood of cultivation, it was often seen in small groups of a few individuals at the NMIA site and *Belpada* area. Reported earlier as uncommon [*Abdulali* (1981)] and fairly common in Western Ghats [*Prasad* (2003)].
157. Citrine Wagtail *Motacilla citreola* – A common winter migrant. Always observed near marshland and waterbodies of in the study area. Earlier mentioned as a common flocking species [*Abdulali* (1981)], seen in aquatic grasses near waterbodies at Mahul [*Verma et.al.* (2001-02)], throughout Western Maharashtra [*Prasad* (2003)].
158. Yellow Wagtail *Motacilla flava* – A common winter migrant. Inhabitant of grass covered areas of the wetlands, running in short spurts with brisk mincing steps and picking up insects near marshland and grass covered edges of the lakes in the study area. Sometimes found in the flock of about 30-40 individuals near *Belpada Lake* and on the edge of the seashore along the *Palm Beach Road*. Seen commonly in flocks [*Abdulali* (1981)], seen in mangroves and open fields at Mahul [*Verma et.al.* (2001-02)], and throughout Western Maharashtra [*Prasad* (2003)].
159. Grey Wagtail *Motacilla cinerea* – A common winter migrant., inhabitant of wetlands near grass and water. Few individuals were commonly seen feeding at the garbage dumps and on the edges of mangroves. Reported earlier as common [*Abdulali* (1981)] at Mahul [*Verma et.al.* (2001-02)] and throughout Western Maharashtra [*Prasad* (2003)].
160. White Wagtail *Motacilla alba* – Common winter migrant. Inhabitant of water vicinity near grass and water. Two to four individuals were always observed near marshland and the waterbodies with high vegetation. Earlier recorded as a common flocking bird [*Abdulali* (1981)], seen at Mahul [*Verma et.al.* (2001-02)] and throughout Western Maharashtra [*Prasad* (2003)].
161. Large Pied Wagtail *Motacilla maderaspatensis* – Uncommon resident species. One or two individuals observed near marshland and the waterbodies with high vegetation in the study area. Previously recorded as uncommon [*Abdulali* (1981)], unrecorded in Mumbai and uncommon in north Konkan [*Prasad* (2003)], commonly seen near the aquatic grasses, salt-pans and dry area at Mahul [*Verma et.al.* (2001-02)].
162. Tree Pipit *Anthus trivialis* – A common winter migrant. Observed running on ground in search of food in the paddy fields and grasslands across the study area. Earlier listed as occasional flocking bird [*Abdulali* (1981)], throughout Western Maharashtra [*Prasad* (2003)].
163. Paddy-field Pipit *Anthus rufulus* - Resident and common. Couple of individuals observed at all the sites in the study area. It is an inhabitant of open fields, grassland, grazing land and scrub-land. This species was often observed at *Belpada*, NMIA site and TS Chanakya. Earlier mentioned as common [*Abdulali* (1981)], seen near grass and water at Mahul [*Verma et.al.* (2001-02)], throughout Western Maharashtra [*Prasad* (2003)].

164. Wire-tailed Swallow *Hirundo smithii* – A common resident. Atypical of the swallows, it is more confined to the neighbourhood of water and observed across the study area. The survey team occasionally saw juveniles perching on wires. Mentioned earlier as occasionally in a flock [Abdulali (1981)], and common throughout Western Maharashtra ([Prasad (2003)]).
165. Barn Swallow *Hirundo rustica* – A common winter visitor. Roosts in large congregation amongst reed-beds and thickets standing in water, and observed perching on electric wires and foraging in paddy fields, garbage dumps in the study area. Mentioned earlier as occasional [Abdulali (1981)], common throughout Western Maharashtra [Prasad (2003)].
166. Common Woodshrike *Tephrodornis pondicerianus* – Resident and common. Inhabitant of scrub-land and bush habitat, light deciduous forest and groves, observed at all forest areas in the study area. In summer, mainly seen in dry deciduous forest patches. Earlier reported as common [Abdulali (1981)], throughout Western Maharashtra [Prasad (2003)].
167. Large Cuckooshrike *Coracina macei* – Resident and uncommon. It is an arboreal bird and -inhabitant of deciduous forest, mainly observed in the forest patches of *Chirner*, *Ransai*, *Mosare* and *Morbe-Prabalgad*. It was reported as occasional [Abdulali (1981)] uncommon and local migrant [Prasad (2003)].
168. Black-headed Cuckooshrike *Coracina melanoptera* – Resident and uncommon. Observed once in summer at *Ransai* forest and was seen along with Red-vented Bulbul *Pycnonotus cafer*. Previously reported as common by Abdulali (1981), and uncommon and local migrant by Prasad (2003).
169. Small Minivet *Pericrocotus cinnamomeus* – Resident and common. Observed 4-5 birds in summer at *Ransai* and *Chirner* forest. Earlier mentioned as common in flocks [Abdulali (1981)], throughout Western Maharashtra [Prasad (2003)].
170. Orange Minivet *Pericrocotus flammeus* – Resident and uncommon. A forest species and observed in *Ransai*, *Karnala* and *Chirner*, often observed in pairs along with other species in mixed hunting parties. Mentioned earlier, as resident and occasional [Abdulali (1981)], fairly uncommon resident of the Konkan and Ghats [Prasad (2003)].
171. Common Iora *Aegithina tiphia* – Common resident. Observed in all the forest-areas in the study area, and near human habitations. It is also noticed easily by its typical whistling call. According to Abdulali (1981) it was a common bird found throughout Western Maharashtra [Prasad (2003)].
172. Gold-fronted Chloropsis *Chlorops urifrons* – Resident and common. A very well camouflaged bird in the forest. The survey team observed one to three individuals on fruiting trees in all the forest patches in the study area. Mentioned earlier as occasional [Abdulali (1981)], local migrant, probably under recorded [Prasad (2003)] in Mumbai and adjoining areas.
173. Red-vented Bulbul *Pycnonotus cafer* – A common resident. Observed at all sites, in all kinds of habitats from forests, mangroves and groves, in the neighbourhood of cultivations to the roadside bushes and trees. Previously reported as common [Abdulali (1981)], throughout Western Maharashtra [Prasad (2003)].

174. Red-whiskered Bulbul *Pycnonotus jocosus* – A resident and common. It was observed perching on the trees in all the forests of the study area. Also seen taking cover under small bushes and thickets alongside the forest trails. Earlier reported as common [Abdulali (1981)], throughout Western Maharashtra [Prasad (2003)].
175. White-eared Bulbul *Pycnonotus leucotis* – A common resident, it was often observed at the mangroves on side of Kharghar Creek and NMIA site in all the seasons. As per previous records it was uncommon and resident [Abdulali (1981), Praad (2003)], seen in mangroves at Mahul [Verma et.al. (2001-02)].
176. White-browed Bulbul *Pycnonotus luteolus* – A common resident, observed as a solitary bird, primarily seen in the late summer when bushes shed their leaves at Mosare, Ransai, Chirner forests and adjoining orchards. Previously listed as occasional [Abdulali (1981), Prasad (2003)].
177. Bay-backed Shrike *Lanius vittatus* – A local migrant and uncommon, it is an inhabitant of shrub-land, groves and cultivations. It was observed in bushes, on wires, perching on trees and in the mangroves at all sites in the study area. Listed earlier as uncommon and local migrant by Abdulali (1981) and Prasad (2003).
178. Long-tailed Shrike *Lanius schach* - Common and resident, observed in bushes, on wires, perching on trees and in the mangroves at all sites in the study area. According to Abdulali (1981) it was a common bird found throughout Mumbai, as local migrant [Prasad (2003)]. It is an inhabitant of shrub-land, groves and cultivations and mangroves at Mahul [Verma et.al. (2001-02)].
179. Southern Grey Shrike *Lanius meridionalis* — Common and resident. Inhabitant of shrub-land, groves and cultivation land, observed in bushes, on wires, perching on trees and in the mangroves at all sites in the study area. Breeding records from January to July [Prasad (2003)].
180. Orange-headed Thrush *Zoothera citrinat* – Common resident. It was observed at Kharghar Hills, NRI Complex, Ransai, Mosare and Chirner areas. Earlier reported as a stray/vagrant [Abdulali (1981)], uncommon resident with breeding season from June to August [Prasad (2003)].
181. Jungle Babbler *Turdoides striatus* — Resident and common. Inhabitant of dry, open area, scrub-land and shrub-land. It was observed at all sites in the study area. Often seen in the groups of 2-8 birds moving from one bush to other and from one tree to another. Earlier seen as commonly in flocks [Abdulali (1981), Prasad (2003)].
182. Tawny-bellied Babbler *Turdoides hyperythra* — Resident and uncommon. It was observed as a ground dwelling bird in bushes at all the forest sites of the study area. Previously reported as an occasional in flock [Abdulali (1981), Prasad (2003)] throughout in suitable habitat.
183. Yellow-eyed Babbler *Chrysomma sinense* — Resident and common. Inhabitant of the forests. Observed in all the forest-areas in the study area. Commonly seen in flocks by Abdulali (1981), throughout Western Maharashtra [Prasad (2003)].



184. Indian Scimitar-babbler *Pomatorhinus [schisticeps] horsfieldii* – Uncommon and local migrant. Inhabitant of the forests. Observed a few individuals at *Mosare* and *Ransai*. Earlier mentioned as a resident and occasional [*Abdulali* (1981)] in the Western Ghats [*Prasad* (2003)].
185. Puff-throated Babbler *Pellorneum ruficeps* – Uncommon and resident. Inhabitant of the forest-lands, and observed in all the forests in the study area. Very cryptic, ground dwelling bird, seen in the litter on the forest ground. Reported earlier as a resident and commonly seen in a flock [*Abdulali* (1981)], mainly in Western Ghats and Konkan with breeding records in April to mid-September [*Prasad* (2003)].
186. Brown-cheeked Fulvetta *Alcippe poioicephala* – A common winter visitor. 10-15 individuals were seen at *Chirner* and *Ransai* forest patches, adjacent to Karnala Wildlife Sanctuary. Mentioned earlier as uncommon migratory bird of the Western Ghats [*Prasad* (2003)].
187. Black Redstart *Phoenicurus ochruros* – Uncommon winter migrant. Solitary male and females were seen in the bushes in open grasslands and plantation areas. Reported earlier as occasional [*Abdulali* (1981)].
188. Malabar Whistling-thrush *Myophonus horsfieldi* – Uncommon, local migrant. A forest species and observed at *Morbe-Prabalgad*, *Ransai*, *Mosare* and *Karnala*. It was identified with its typical call. Earlier mentioned as a resident [*Abdulali* (1981)], uncommon and local migrant in Western Ghats [*Prasad* (2003)].
189. Oriental Magpie-robin *Copsychus saularis* – A very common and resident bird, observed at all the sites in the study area. In summer, found in pairs and continuously calling for the mate, especially in the plantation areas. *Abdulali* (1981) reported it throughout Mumbai with breeding season records between March and June [*Prasad* (2003)].
190. Common Stonechat *Saxicola torquatus* – A common winter migrant, inhabitant of the grassland, it was observed often sitting on small branches of bushes and foraging on insects in the grasslands in Belpada area, TS Chanakya and NMIA site. At least 2-3 birds were identified in every transect of one kilometre in the grasslands and the mangroves. Previously listed as occasional [*Abdulali* (1981)], throughout Western Maharashtra [*Prasad* (2003)].
191. Pied Bushchat *Saxicola caprata* – A common resident, inhabitant of the grassland and observed often at Belpada, TS Chanakya and NMIA site. Earlier reported as occasional [*Abdulali* (1981)], common throughout Western Maharashtra [*Prasad* (2003)], a resident and local migrant seen in the mangroves at Mahul [*Verma et.al.* (2001-02)]
192. Isabelline Wheatear *Oenanthe isabellina* – Migrant and uncommon. Inhabitant of the grassland and scrub-land. One or two individuals observed in the grasslands of Belpada, TS Chanakya and NMIA site. *Abdulali* (1981) and *Prasad* (2003) reported it as a rare winter visitor.

193. Indian Black Robin *Saxicoloides fulicatus* — resident and common. The survey team observed it as a very common bird across the study area. In summers, the male and female were seen together in the forest patches. *Abdulali* (1981) and *Prasad* (2003) mentioned it as uncommon, however, was usually seen in bushes at Mahul by *Verma et.al.* (2001-02).
194. White-rumped Shama *Copsychus saularis* - Resident and occasional, it is a forest species. Observed in the forest areas of Karnala, *Mosare* and *Morbe-Prabalgad*. Occasionally observed in the evergreen patches of the forest and in mix hunting parties along with other birds at Karnala. It was reported as occasional [*Abdulali* (1981)], uncommon local resident of the Western Ghats and Konkan with breeding records between April and June, and September [*Prasad* (2003)].
195. Bluethroat *Luscinia svecica* - Common winter visitor, the survey team observed a couple of birds in all the mangroves and grasslands around the wetlands at NMIA site, TS Chanakya and Belpada. Listed as common [*Abdulali* (1981)], seen in mangroves at Mahul [*Verma et.al.* (2001-02)], throughout Western Maharashtra ([*Prasad* (2003)]).
196. Blue Rockthrush *Monticola solitaries* — A migrant and occasional [*Abdulali* (1981)]. A couple of individuals observed in and around Karnala, Belpada and *Morbe-Prabalgad* usually around the rocky patches.
197. Zitting Cisticola *Cisticola juncidis* — A resident and local migrant, it was often sighted during the winter in shrub-lands of Belpada and NMIA. Often heard at all the grasslands and scrub-lands in the study area. Earlier reported as an occasional species [*Abdulali* (1981)], apparently less common in south-Konkan with breeding records from June to October [*Prasad* (2003)].
198. Plain Prinia *Prinia inornata* — Resident. Common. Inhabitant of the grassland, mangroves and scrub-land. Commonly observed across the study area, but more often at NMIA site, Kharghar Creek, TS Chanakya and NRI Complex Lake, especially among the mangroves and associated plants along with the other species of Prinias. In late summer, the survey team could easily hear the breeding calls in the mangrove areas. Recorded earlier as common resident [*Abdulali* (1981)] and breeding records in August to October [*Prasad* (2003)].
199. Ashy Prinia *Prinia socialis* — A common resident. Typical inhabitant of the grasslands and mangroves. Commonly observed across the study area and frequently at NMIA site, Kharghar Creek and TS Chanakya. It was heard and observed in the mangroves and associated plants in late summer. Previously reported as a common resident [*Abdulali* (1981)] and breeding records in July to October [*Prasad* (2003)].
200. Grey-breasted Prinia *Prinia hodgsonii* — Uncommon resident. Inhabitant of grassland, it was commonly observed at all the sites, but frequently observed at NRI Complex Lake, NMIA site and Belpada in winters. In the summer, it was observed at the foothills of forest patches with less population as compared to the Plain Prinia *Prinia inornata* and Ashy Prinia *Prinia socialis*. Previously listed as common [*Abdulali* (1981)] and breeding season is recorded from July to October [*Prasad* (2003)].

201. Clamorous Reed-warbler or Indian Great Reed-warbler *Acrocephalus [stentoreus] bruniscens* – A common resident, inhabitant of the mangroves. It was commonly observed at all sites of study area. Its' call was often heard in the mangroves and associated plants around the creeks and other wetlands. Many a times the survey team saw it foraging on garbage dumps. Previously seen in the mangroves at Mahul [Verma et.al. (2001-02)] and reported as a migratory species, however, it was noted that some birds breed in Mumbai [Abdulali (1981)].
202. Common Tailorbird *Orthotomus sutorius* – A very common resident. It was observed and heard across the study area. It was seen singly or in pairs, often singing on the trees and in small bushes. Listed as a common resident [Abdulali (1981)] and breeding season recorded from May to October [Prasad (2003)].
203. Lesser Whitethroat *Sylvia curruca* – An uncommon winter migrant. The survey team observed it in all the grasslands, mangroves and at the foot hills of forest patches. It was reported as occasional [Abdulali (1981)], possibly less common in north Konkan, apparently absent from south Konkan [Prasad (2003)], seen in the woodland and the mangroves of Mahul [Verma et.al. (2001-02)].
204. Red-breasted Flycatcher *Ficedula parva* – A common winter migrant. Observed in the mangroves, woodlands, scrublands. Previously reported as occasional [Abdulali (1981)], uncommon to rare in the Konkan [Prasad (2003)].
205. Asian Brown Flycatcher *Muscicapa dauurica* – An uncommon winter migrant. One or two individuals were seen occasionally in the mangroves of Kharghar and NMIA site. It was recorded as occasional [Abdulali (1981)] and uncommon winter visitor [Prasad (2003)].
206. White-browed Fantail-flycatcher *Rhipidura albicollis* – A common resident, it is frequently observed in mix hunting parties of small insectivorous birds. It flits from one sprig of leaves to another or from one tree to another, waltzing and pirouetting amongst branches. Observed across the study area. Listed as common species [Abdulali (1981)] and breeding records from April to July [Prasad (2003)].
207. Grey Headed Canary Flycatcher *Culicicapa ceylonensis* – A winter migrant. Uncommon. Observed at Karnala, Ransai, Morbe-Prabalgad and Chirner. An inhabitant of the bushes and thickets in the deciduous forest it was observed in mix hunting parties along with other flycatchers. Occasionally seen in gardens on the city outskirts. Earlier reported as occasional [Abdulali (1981)], a common winter visitor to the Western Ghats and Konkan ([Prasad (2003)]).
208. Asian Paradise-flycatcher *Terpsiphone paradise* – A local migrant and resident. Inhabitant of the shady groves, light deciduous forest and the bamboo clad ravines. It was observed singly and in pairs in all the forests of the study area. The sighting of this species was very frequent in the summer in the forest patches of Karnala, Chirner and Morbe-Prabalgad and adjoining fruit orchards. Earlier mentioned as a migrant but some pairs breed in Mumbai [Abdulali (1981)], throughout Western Maharashtra [Prasad (2003)].

209. Tickell's Blue Flycatcher *Cyornis tickelliae* – A common local migrant, it was observed with its typical habit of often flicking its tail — in thickets, on low branches or on lianas; the woody climbers, in the forest patches of *Morbe-Prabalgad*, Karnala and *Chirner*. Listed as occasional [Abdulali (1981)], common throughout Western Maharashtra with breeding season recorded from May to August [Prasad (2003)].
210. Black-naped Monarch *Hypothym zurea* - Resident and uncommon. It is found chiefly in the middle and lower storey of vegetation. Often observed in mixed foraging parties of other insectivorous birds in the forest areas of *Morbe-Prabalgad*, *Ransai*, Karnala and *Mosare*. Previously reported as occasional [Abdulali (1981)], with breeding records from May to July [Prasad (2003)].
211. Great Tit *Parus major* — Resident and common. A very active bird, it was usually observed in mix hunting parties, usually seen upside down on branch, in search of food. Observed primarily on Fig trees in the forest, near human habitation as well as in the cultivations at Uran. Earlier listed as occasional [Abdulali (1981)], less common in north-Konkan and the breeding season is recorded from June to August [Prasad (2003)].
212. Thick-billed Flowerpecker *Dicaeum agile* — Resident and uncommon. Inhabitant of the orchards, forest plantation and groves near villages. Observed calling continuously from top of the trees at *Karnala*, *Ransai*, *Morbe-Prabalgad*, *Mosare* and *Chirner*. Abdulali (1981) mentioned it as occasional, with breeding season recorded from late February to May [Prasad (2003)].
213. Purple Sunbird *Cinnyr siatica* - Resident and common. Observed at all the sites of study area as an inhabitant of the cultivations, groves, plantations, thin forest and orchards. Often observed feeding on flower nectar along with other Sunbirds, single or in pairs usually, in the orchards near *Chirner*. During the summer, along with other nectar feeding birds, it was attracted to the flowering plants and trees in the forest and adjoining villages. Earlier reported as a common bird [Abdulali (1981)], with breeding period reported between January and June ([Prasad (2003)]).
214. Purple-rumped Sunbird *Leptocoma zeylonica* — Resident and common. Observed at all the sites of study area as an inhabitant of cultivated land, groves, plantations, thin forest, mangroves and orchards. It was often observed feeding on the flower nectar along with other species of sunbirds. It is less abundant than the Purple Sunbird *Cinnyr siatica*, Abdulali (1981) listed it as a common, with breeding records from January to June [Prasad (2003)].
215. Small Sunbird *Leptocoma minima* — Resident but uncommon, it is smaller than other species of sunbirds. Inhabitant of the forest, adjoining plantation and orchard, it was observed actively feeding on nectar in the Mango and Cashew orchards at *Chirner*. Abdulali (1981) mentioned it as an uncommon resident.
216. Vigors' Sunbird *Aethopyga vigorsii* — Resident and common. This species was observed only in the forest areas and the adjoining plantation/orchards. It is less abundant as compare to the



- Purple Sunbird *Cinnyr siatica* and the Purple-rumped Sunbird *Leptocoma zeylonica*. The survey team often saw it in groups at *Ransai*, *Chirner*, *Karnala* and *Mosare*, feeding on the nectar of the flowering plants. During summer 25-30 birds were seen feeding on four to five flowering trees during late morning at *Chirner*. According to *Abdulali* (1981) it is a common resident of Mumbai area.
217. Red-headed Bunting *Emberiza bruniceps* – Uncommon winter migrant. Observed in flocks in grasslands at *Belpada* and NMIA site as an inhabitant of grassland, cultivated land and fields which are interspersed with bushes and Babul *Vachellia nilotica*. It was often observed in dry paddy fields, close to the study sites. Seen occasionally in flocks by *Abdulali* (1981), and uncommon [*Prasad* (2003)].
  218. Black-headed Bunting *Emberiza melanocephala* – Uncommon winter migrant. Inhabitant of the grasslands, cultivations and fields, interspersed with bushes and Babul *Vachellia nilotica*. The survey team observed about 400-500 birds in a flock at *Belpada* and NMIA site feeding in the grasslands and roosting in the nearby mangroves. Earlier seen commonly in flocks by *Abdulali* (1981), reported as rare in south Konkan by *Prasad* (2003).
  219. Indian Silverbill *Euodice malabarica* - Common resident. Observed across the study area, an inhabitant of the grasslands and scrub-lands, it was usually seen at *Belpada* and *TS Chanakya*. Previously listed as less common in South Konkan with breeding records from March to November [*Prasad* (2003)].
  220. Red Avadavat *Amandava amandava* — Common resident. A flock of 40-50 individuals was observed at *Belpada*, NMIA and *TS Chanakya* during the summer of 2013. Inhabitant of the grassland and shrub-land often observed feeding on the ground and perching of grasses and shrubs. Earlier reported as locally distributed, with breeding records from May to October [*Prasad* (2003)], occasionally in flocks [*Abdulali* (1981)].
  221. Black-headed Munia *Lonchura malacca* — Common resident and local migrant. Observed in the grassland, scrub-land and cultivated land of the study area. Often observed at NMIA, *Belpada* and *Kharghar Creek*, perching on the vegetation around the water body as well as on mangroves, and mangroves-associated plants. Nesting was observed in small shrubs in August and September; with breeding records are from July to August, occasionally in flocks [*Abdulali* (1981)], inhabitant of woodland at *Mahul* [*Verma et.al.* (2001-02)].
  222. Scaly-breasted Munia *Lonchura punctulata* - Resident and common. Observed at grassland, scrub-land and cultivated land. Often saw at NMIA site, *Belpada* and *Kharghar Creek*, observed perching on the vegetation around the waterbody as well as on mangroves. Pairs were observed while nesting at NMIA site and *Belpada* between August and September. It was reported as a flocking species by *Abdulali* (1981), inhabitant of woodland at *Mahul* [*Verma et.al.* (2001-02)].
  223. White-rumped Munia *Lonchura striata* — Uncommon resident of Western Ghats and breeding records from March to December [*Prasad* (2003)], forest-dwelling species and observed perching on the tress at *Ransai*, *Mosare* and *Karnala*. Usually found in small groups of 7-8 individuals.

224. House Sparrow *Passer domesticus* — Resident and common. Often observed near human habitation, across the study area, but mainly seen on road side, near cultivations, groves and in villages. In winters, about 100 to 500 of them were seen roosting on the outskirts of human habitations across the study area. It has been reported as a common resident bird [Abdulali (1981)], seen in the mangroves and woodland at Mahul [Verma et.al. (2001-02)], appears to have declined drastically in numbers in certain urban localities [Prasad (2003)].
225. Baya Weaver *Ploceus philippinus* — A common local migrant. It was observed in flocks at Belpada and TS Chanakya. The nests were found on palm trees at many places in the study area. The nest preparation was observed post-monsoons in the months of August and September. About 500-600 birds were seen foraging in the open paddy fields and roosting in the mangroves at proposed site for NMIA. Previously recorded as a flocking species [Abdulali (1981)], throughout Western Maharashtra and a local migrant, the breeding records are from July to mid October [Prasad (2003)].
226. Black-breasted Weaver *Ploceus benghalensis* — Uncommon resident. Few individuals were observed in small flocks, foraging and perching in the marshy areas of Belpada and TS Chanakya. Earlier reported as uncommon by Abdulali (1981) and rare by Prasad (2003).
227. Yellow-throated Sparrow *Petronia xanthocollis* — Resident. Common. In winters, these birds were seen in all open grasslands and mangroves. In summers, it was seen primarily in dry deciduous forest patches of the study area. Mentioned earlier as seen in small flocks [Abdulali (1981)], throughout Western Maharashtra [Prasad (2003)].
228. Rosy Starling *Sturnus roseus* — A common winter migrant. Observed at all sites of the study area during winters, with flock-size ranging from 10 to 200 individuals. Usually seen feeding in the mangroves and perching together on adjoining trees. In early winter a number of juveniles were observed in flocks, perching on the transmission lines. Mentioned earlier as seen in flocks [Abdulali (1981)] and observed in the mangroves at Mahul [Verma et.al. (2001-02)].
229. Brahminy Starling *Temenuchus pagodarum* — A common local migrant. Observed across the study area, often in small flocks perching and feeding near TS Chanakya and NRI Complex Lake. Observed commonly in flocks [Abdulali (1981)], local migrant but observed less common in the Konkan with breeding records from May to July [Prasad (2003)].
230. Grey-headed Starling *Temenuchus malabarica* — Uncommon and local migrant. An arboreal species. A couple of individuals observed in the forest patches and the plantations near TS Chanakya on Palm Beach Road. Earlier reported as a common migrant, with some pairs breeding in Maharashtra and occasionally observed in flocks [Abdulali (1981)], a resident species seen in the mangroves at Mahul [Verma et.al. (2001-02)].
231. Malabar White-headed Starling *Temenuchus blythii* — Uncommon local migrant. An arboreal species. About 12 individuals observed only in a patch of agricultural land near TS Chanakya on Palm Beach Road near Talave village. According to Abdulali (1981) it is occasionally seen flocking.

232. Asian Pied Starling *Gracupica contral* - Resident and common. Prefers the neighbourhood of the villages, towns and cities where garbage dumps offer attractive food. Often seen across the study area sitting on transmission wires, feeding on garbage and perching on the trees. It was reported as a common resident [Abdulali (1981)], with breeding season extending from June to July [Prasad (2003)].
233. Common Myna *Acridotheres tristis* — Resident and very common urban bird and was sighted everywhere in the study area, near villages and human habitation, feeding on garbage along with crows, kites and egrets. Earlier listed as common and resident [Abdulali (1981)] with breeding records from May to July [Prasad (2003)].
234. Jungle Myna *Acridotheres fuscus* — Resident and uncommon, it is a forest species. It was observed in all the forest patches of the study area. They were observed in vegetation surrounding the villages near the forest patches. In winters, seen feeding on garbage dumps at Belapada and in summers, mainly feeding on nectar. Mentioned earlier as occasionally flocking [Abdulali (1981)], and breeding recorded between March and August [Prasad (2003)],
235. Eurasian Golden Oriole *Oriolus oriolus* — A common resident. A typical arboreal bird and dweller of well wooded forests and large trees around villages and cultivations. It was observed and heard in all the forest patches of the study area, and a few times, in the garden plantations. It was reported as a local migrant but some breed here [Abdulali (1981)], with breeding records are from April to July [Prasad (2003)].
236. Black-hooded Oriole *Oriolus xanthornus* – A winter migrant. Typical arboreal bird and dweller of well wooded forest and large trees. It can be easily identified by its typical loud calls. It was observed and heard in all the forest patches of the study area. Abdulali (1981) reported it as a vagrant and Prasad (2003) as a local migrant with breeding records from May to July.
237. Black Drongo *Dicrurus macrocercus* – A very common resident, observed across and in the neighbourhood of the study area, perching on the wires, grazing cattle, trees and small bushes. In Belpada, when the grasslands and fields were ablaze, Black Drongos *Dicrurus macrocercus* were seen catching the insects while escaping the fire. Reported earlier as a common species [Abdulali (1981)], throughout Western Maharashtra and local migrant with breeding records from late-April to August [Prasad (2003)].
238. Ashy Drongo *Dicrurus leucophaeus* — Migrant and common [Abdulali (1981)], it is very similar to Black Drongo *Dicrurus macrocercus* but it is an inhabitant of forests, with a particular ash-coloured plumage. Often observed feeding on insects in all the forest patches of the study area.
239. Bronze Drongo *Dicrurus aeneus* – A common winter visitor. Observed in the mix hunting parties along with wood shrikes and flycatchers in Karnala bird Sanctuary and Morbe-Prabalgad during winters. Earlier it was reported as a rare winter visitor to the Western Ghats and Konkan but more common around Mumbai [Prasad (2003)], local migrant [Abdulali (1981)].

240. White-bellied Drongo *Dicrurus caerulescens* — Uncommon resident, it is a bird of deciduous forests. It was often observed feeding on insects in the forest patches of the study area. In the summer of 2013 one individual was seen nesting on Red silk Cotton Tree *Bombax ceiba* in *Ransai* forest. Earlier reported as an uncommon species [Abdulali (1981)], with breeding records from March to May [Prasad (2003)].
241. Greater Racket-tailed Drongo *Dicrurus paradiseus* — Resident and uncommon. Typical forest inhabitant and mainly seen in moist deciduous forest. It could be easily identified with its large repertoire of loud metallic calls. Observed at *Karnala, Morbe-Prabalgad, Mosare* and *Ransai*, mainly in mix hunting parties along with other birds. Earlier reported as occasional [Abdulali (1981)] near Mumbai, with breeding records from April to August [Prasad (2003)].
242. House Crow *Corvus splendens* — Resident and commonly in flocks [Abdulali (1981)], seen in mangroves, grasslands and woodland at Mahul [Verma et.al. (2001-02)] with breeding recorded from mid-February to December [Prasad (2003)]. A typical urban bird, it was observed across the study area, and large roosting sites at *Mosare, Parsik Hills*. It was seen feeding on a range of items from garbage, molluscs and fishes at seashore, to nectar in forest patches, to the chicks of other birds.
243. Jungle Crow *Corvus macrorhynchos* — Resident and common It was observed across the study area, more often along with the House crows feeding on the garbage. More abundant at Belpada and NMIA site. It was reported as a common throughout Western Maharashtra and breeding period recorded from late-November to June [Prasad (2003)], seen in the mangroves and woodland at Mahul [Verma et.al. (2001-02)].
244. Rufous Treepie *Dendrocitta vagabunda* – Common and resident [Abdulali (1981)]. It is an omnivorous forest bird, usually seen in mix hunting parties with other birds at *Mosare, Morbe-Prabalgad, Ransai* and *Karnala*. Listed as an occasional species by Abdulali (1981), common throughout Mumbai, with breeding records from April to July [Prasad (2003)].

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## Checklist of birds observed in Study area from December 2011-till date

Sr. no.	Common/scientific names	Habitat	WPA schedule	IUCN status	R/M	Sites
<b>Family Podicipedidae</b>						
1.	Little Grebe <i>Tachybaptus ruficollis</i>	W	IV	LC	R	Dastan Phata, DPS Lake, Belapur pond
<b>Family Phalacrocoracidae</b>						
2.	Little Cormorant <i>Phalacrocorax niger</i>	W	IV	LC	R	All wetland areas
3.	Great Cormorant <i>Phalacrocorax carbo</i>	W	IV	LC	R	Ulve
4.	Indian Cormorant or Indian Shag <i>Phalacrocorax fuscicollis</i>	W	IV	LC	R	All wetland areas
<b>Family Ardeidae</b>						
5.	Eastern Cattle Egret <i>Bubulcus coromandus</i>	W/P	IV	LC	R	All wetland areas
6.	Intermediate Egret <i>Egretta intermedia</i>	W/P	IV	LC	R	All wetland areas
7.	Great Egret <i>Egretta alba</i>	W	IV	LC	R	All wetland areas
8.	Little Egret <i>Egretta garzetta</i>	W/P/C	IV	LC	R	All wetland areas
9.	Grey Heron <i>Ardea cinerea</i>	W/C	IV	LC	R	All wetland areas
10.	Indian Pond Heron <i>Ardeola grayii</i>	W	IV	LC	R	All wetland areas
11.	Purple Heron <i>Ardea purpurea</i>	W/C	IV	LC	R	All wetland areas
12.	Western Reef Egret <i>Egretta gularis</i>	W/MD	IV	LC	M	Dastan Phata, Nere, Sonari-Belpada
13.	Black-crowned Night-heron <i>Nycticorax nycticorax</i>	W	IV	LC	R	Kharghar Creek, Panvel Creek
14.	Striated Heron <i>Butorides striatus</i>	W	IV	LC	R	Uran
15.	Chestnut Bittern <i>Ixobrychus cinnamomeus</i>	W	IV	LC	R	Panvel Lake
<b>Family Ciconiidae</b>						
16.	Painted Stork <i>Mycteria leucocephala</i>	W	IV	NT	R	Sonari-Belpada, Kopar, wetlands at Palm Beach Road
17.	Asian Openbill <i>Anastomus oscitans</i>	W	IV	LC	R	Dastan Phata
18.	Woolly-necked Stork <i>Ciconia episcopus</i>	W	IV	LC	R	Dastan Phata, Mosare
19.	Black Stork <i>Ciconia nigra</i>	W	IV	LC	M	Ransai dam
<b>Family Threskiornithidae</b>						
20.	Oriental White Ibis <i>Threskiornis melanocephalus</i>	W/C	IV	NT	R	All wetlands and mangroves
21.	Eurasian Spoonbill <i>Platalea leucorodia</i>	W	I	LC	R	Jasai, Sanjivani School, Sonari-Belpada

## Checklist of birds observed in Study area from December 2011-till date

Sr. no.	Common/scientific names	Habitat	WPA schedule	IUCN status	R/M	Sites
22.	Glossy Ibis <i>Plegadis falcinellus</i>	W	IV	LC	M	Karal
<b>Family Phoenicopteridae</b>						
23.	Greater Flamingo <i>Phoenicopterus major</i>	W	I	LC	M	Sonari-Belpada, NRI
24.	Lesser Flamingo <i>Phoeniconaias minor</i>	W	I	NT	M	Wetlands and Seashore of Palm Beach Road
<b>Family Anatidae</b>						
25.	Greylag Goose <i>Anser anser</i>	W	IV	LC	M	Sonari-Belpada
26.	Ruddy Shelduck <i>Tadorna ferruginea</i>	W	IV	LC	M	Jasai, Sanjivani School, Sonari-Belpada
27.	Northern Pintail <i>Anas acuta</i>	W	IV	LC	M	Sonari-Belpada
28.	Common Teal <i>Anas crecca</i>	W	IV	LC	M	Sonari-Belpada
29.	Spot-billed Duck <i>Anas poecilorhyncha</i>	W/C	IV	LC	R	All
30.	Mallard <i>Anas platyrhynchos</i>	W	IV	LC	M	NRI
31.	Garganey <i>Anas querquedula</i>	W	IV	LC	M	Sonari-Belpada
32.	Northern Shoveller <i>Anas clypeata</i>	W/C	IV	LC	M	Kharghar Creek
33.	Comb Duck <i>Sarkidiornis melanotos</i>	W	IV	LC	R	Dastan Phata
34.	Lesser Whistling-duck <i>Dendrocygna javanica</i>	W	IV	LC	R	Dastan Phata, Belapur pond, Sonari-Belpada, Palm Beach road
35.	Cotton Teal <i>Nettapus coromandelianus</i>	W	IV	LC	R	Dastan Phata, Belapur pond
36.	Common Pochard <i>Aythya ferina</i>	W	IV	LC	M	Belpada
37.	Eurasian Wigeon <i>Anas penelope</i>	W	IV	LC	M	Belpada
<b>Family Accipitridae</b>						
38.	Black-shouldered Kite <i>Elanus caeruleus</i>	All	I	LC	R	All areas
39.	Black Kite <i>Milvus migrans</i>	All	I	LC	R	All areas
40.	Brahminy Kite <i>Haliastur indus</i>	W/P	I	LC	R	Sonari-Belpada, Dastan Phata
41.	Black-eared Kite <i>Milvus milvus lineatus</i>	W	I	LC	M	Sonari-Belpada
42.	Shikra <i>Accipiter badius</i>	All	I	LC	R	All areas
43.	White-eyed Buzzard <i>Butastur teesa</i>	F	I	LC	R	Jasai
44.	Oriental Honeybuzzard <i>Pernis ptilorhynchus</i>	F	I	LC	R	Mosare
45.	Common Buzzard <i>Buteo buteo</i>	F	I	LC	R	Ransai, Chirner
46.	Long-legged Buzzard <i>Buteo rufinus</i>	F	I	LC	R	Mosare
47.	Western Marsh Harrier <i>Circus aeruginosus</i>	W	I	LC	M	All areas
48.	Crested Serpent-eagle <i>Spilornis cheela</i>	F	I	LC	R	Ransai, Mosare

## Checklist of birds observed in Study area from December 2011-till date

Sr. no.	Common/scientific names	Habitat	WPA schedule	IUCN status	R/M	Sites
49.	Changeable Hawk Eagle <i>Nisaetus cirrhatus</i>	F	I	LC	R	Ransai
50.	Short-toed Snake-eagle <i>Circaetus gallicus</i>	GS	I	LC	R	Chirner road
51.	Booted Eagle <i>Hieraaetus pennatus</i>	F	I	LC	M	Mosare
52.	Greater Spotted Eagle <i>Aquila clanga</i>	F	I	VU	M	Sonari-Belpada, Mosare
53.	Indian Spotted Eagle <i>Aquila pomarina</i>		I	VU	R	Sonari-Belpada
54.	White-bellied Sea Eagle <i>Haliaeetus leucogaster</i>		I	LC	R	Uran
<b>Family Falconidae</b>						
55.	Common Kestrel <i>Falco tinnunculus</i>	GS	IV	LC	R	Chirner road
<b>Family Pandionidae</b>						
56.	Osprey <i>Pandion haliaetus</i>	W/C	I	LC	R	Kharghar Creek, Sonari-Belpada
<b>Family Phasianidae</b>						
57.	Red Spurfowl <i>Galloperdix spadicea</i>	F	-	LC	R	Kharghar hills
58.	Jungle Bush-quail <i>Perdica asiatica</i>	F	-	LC	R	Ransai, Chirner Road
59.	Indian Peafowl <i>Pavo cristatus</i>	F	I	LC	R	Nere
60.	Rain Quail <i>Coturnix coromandelica</i>	P	-	LC	R	Chirner
<b>Family Turnicidae</b>						
61.	Barred Buttonquail <i>Turnix suscitator</i>	P	-	LC	R	Chirner
62.	Yellow-legged buttonquail <i>Turnix tanki</i>	P	-	LC	R	Chirner
<b>Family Gruidae</b>						
63.	Demoiselle Crane <i>Grus virgo</i>	W		LC	M	Belpada
<b>Family Rallidae</b>						
64.	White-breasted Waterhen <i>Amaurornis phoenicurus</i>	W/C	IV	LC	R	Dastan Phata, Pargaon
65.	Purple Swampphen <i>Porphyrio porphyrio</i>	W	IV	LC	R	Dastan Phata, Pargaon
66.	Common Moorhen <i>Gallinula chloropus</i>	W	IV	LC	R	Belapur pond, Dastan Phata
67.	Eurasian Coot <i>Fulica atra</i>	W	IV	LC	R	Belapur pond, Dastan Phata
68.	Slaty-breasted Rail <i>Gallirallus striatus</i>	W/C	IV	LC	R	Kharghar Creek, Panvel Creek
69.	Ruddy-breasted Crake <i>Porzana fusca</i>	W/C	IV	LC	R	Kharghar Creek, Panvel Creek
70.	Brown Crake <i>Porzana akool</i>	W/C	IV	LC	R	Chirner, Uran
<b>Family Jacanidae</b>						
71.	Bronze-winged Jacana <i>Metopidius indicus</i>	W	IV	LC	R	Belapur pond, Dastan Phata

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Sr. no.	Common/scientific names	Habitat	WPA schedule	IUCN status	R/M	Sites
72.	Pheasant-tailed jacana <i>Hydrophasianus chirurgus</i>	W	IV	LC	R	Belapur pond, Dastan Phata
<b>Family Charadriidae</b>						
73.	Red-wattled Lapwing <i>Vanellus Indicus</i>	ALL	IV	LC	R	All areas
74.	Lesser Sand Plover <i>Charadrius mongolus</i>	W/MD	IV	LC	M	All mudflats in study area
75.	Greater Sand Plover <i>Charadrius leschenaultia</i>	W/MD	IV	LC	M	Behind NRI Complex
76.	Little Ringed Plover <i>Charadrius dubius</i>	W/MD	IV	LC	R	All wetlands
77.	Pacific Golden Plover <i>Pluvialis fulva</i>	W/MD	IV	LC	M	Behind TS Chanakya, Panvel Creek
78.	Kentish Plover <i>Charadrius alexandrinus</i>	W/MD	IV	LC	M	All wetlands
79.	Grey Plover <i>Pluvialis squatarola</i>	W/MD	IV	LC	M	Sonari-Belpada, wetlands of Palm Beach Road area
<b>Family Scolopacidae</b>						
80.	Common Snipe <i>Gallinago gallinago</i>	W	IV	LC	R	Sonari-Belpada, Dastan Phata
81.	Common Redshank <i>Tringa totanus</i>	W/MC	IV	LC	M	All (congregation at Kharghar Creek)
82.	Greater Painted Snipe <i>Rostratula benghalensis</i>	W	IV	LC	R	Sonari-Belpada, Dastan Phata
83.	Wood Sandpiper <i>Tringa glareola</i>	W/MC	IV	LC	M	All wetlands
84.	Common Sandpiper <i>Tringa hypoleucos</i>	W/MC		LC	R	All wetlands
85.	Common Greenshank <i>Tringa nebularia</i>	W/RS	IV	LC	M	Seashore of Palm Beach Road, Sonari-Belpada
86.	Terek Sandpiper <i>Xenus cinereus</i>	W/MC	IV	LC	M	Kharghar Creek, Kopar
87.	Green Sandpiper <i>Tringa ochropus</i>	W/MC	IV	LC	M	Sonari-Belpada
88.	Marsh Sandpiper <i>Tringa stagnatilis</i>	W		LC	M	All wetlands (more at Belpada)
89.	Black-tailed Godwit <i>Limosa limosa</i>	W	IV	NT	M	Sonari-Belpada, Sanjivani School
90.	Eurasian Curlew <i>Numenius arquata</i>	W	IV	NT	M	Behind NRI Complex
91.	Ruddy Turnstone <i>Arenaria interpres</i>	RS	IV	LC	M	Behind TS Chanakya
92.	Temminck's Stint <i>Calidris temminckii</i>	W		LC	M	All (Large congregation behind NRI Complex)
93.	Little Stint <i>Calidris minuta</i>	W	IV	LC	M	All wetland areas



## Checklist of birds observed in Study area from December 2011-till date

Sr. no.	Common/scientific names	Habitat	WPA schedule	IUCN status	R/M	Sites
94.	Curlew Sandpiper <i>Calidris ferruginea</i>	W	IV	LC	M	Sonari-Belpada, Dastan Phata, Sanjivani school (congregation of 2,000 birds behind NRI Complex)
95.	Broad-billed Sandpiper	W	IV	LC	M	Belpada, NRI Lake, TS Chanakya.
96.	Ruff <i>Philomachus pugnax</i>	W	IV	LC	M	Sonari-Belpada, Dastan Phata
97.	Dunlin <i>Calidris alpina</i>	W	IV	LC	M	Seashore of Palm Beach Road
98.	Whimbrel <i>Numenius phaeopus</i>	W	IV	LC		Sonari-Belpada
<b>Family Recurvirostridae</b>						
99.	Black-winged Stilt <i>Himantopus himantopus</i>	W	IV	LC	R	All wetland areas
100.	Pied Avocet <i>Recurvirostra avosetta</i>	W	IV	LC	M	Jasai, NRI area
<b>Family Laridae</b>						
101.	Gull-billed Tern <i>Gelochelidon nilotica</i>	W	IV	LC	M	All wetland areas
102.	Caspian Tern <i>Sterna caspia</i>	W/C	IV	LC	M	Wetlands of Kamothe, Panvel, Palm Beach Road
103.	Saunders' Tern <i>Sterna saundersi</i>	W/C	IV	LC	M	Wetlands of Palm Beach Road
104.	Whiskered Tern <i>Chlidonias hybridus</i>	W/C	IV	LC	M	Wetlands of Palm Beach Road, Panvel Creek
105.	River Tern <i>Sterna aurantia</i>	W/C	IV	NT	M	Wetlands of Sonari-Belpada, Palm Beach Road, Panvel Creek
106.	White-cheeked Tern <i>Sterna repressa</i>	W	IV	LC	M	Jasai
107.	Slender-billed Tern <i>Larus genei</i>	W	IV	LC	M	NRI, TS Chanakya
108.	Brown-headed Gull <i>Larus brunnicephalus</i>	W	IV	LC	M	All wetland areas (more than 200 at DPS lake)
109.	Black-headed Gull <i>Larus ridibundus</i>	W	IV	LC	M	All wetland areas
110.	Heuglin's Gull <i>Larus heuglini</i>	W	IV	LC	M	Airoli
111.	Palash Gull <i>Larus ichthyiaetus</i>	W	IV	LC	M	Sea shore
<b>Family Rynchopidae</b>						
112.	Indian Skimmer <i>Rynchops albicollis</i> (VU)	W	IV	VU	R	NRI area

## Checklist of birds observed in Study area from December 2011-till date

Sr. no.	Common/scientific names	Habitat	WPA schedule	IUCN status	R/M	Sites
<b>Family Columbidae</b>						
113.	Rock Pigeon <i>Columba livia</i>	All/NH		LC	R	All areas
114.	Yellow-footed Green-pigeon <i>Treron phoenicoptera</i>	F	IV	LC	R	Ransai
115.	Little Brown Dove <i>Streptopelia senegalensis</i>	All	IV	LC	R	All areas
116.	Eurasian Collared Dove <i>Streptopelia decaocto</i>	GS	IV	LC	R	Uran
117.	Spotted Dove <i>Streptopelia chinensis</i>	All	IV	LC	R	All areas
<b>Family Psittacidae</b>						
118.	Rose-ringed Parakeet <i>Psittacula krameri</i>	All	IV	LC	R	All areas
119.	Plum-headed Parakeet <i>Psittacula cyanocephala</i>	F	IV	LC	R	Ransai
<b>Family Cuculidae</b>						
120.	Asian Koel <i>Eudynamis scolopaceus</i>	All	IV	LC	R	All areas
121.	Greater Coucal (Southern Coucal) <i>Centropus sinensis</i>	All	IV	LC	R	All areas
122.	Common Hawk Cuckoo <i>Hierococcyx varius</i>	All	IV	LC	R	Mosare, Ransai
123.	Blue-faced Malkoha <i>Phaenicophaeus viridirostris</i>	All	IV	LC	R	Mosare
124.	Sirkeer Malkoha <i>Phaenicophaeus leschenaultia</i>	All	IV	LC	R	Mosare
<b>Family Tytonidae</b>						
125.	Common Barn-Owl <i>Tyto alba</i>	NH	IV	LC	R	Kharghar
<b>Family Strigidae</b>						
126.	Spotted Owlet <i>Athene brama</i>	F/NH	IV	LC	R	Mosare, Ransai
127.	Indian Eagle-Owl <i>Bubo bengalensis</i>	Rocky cliffs		IV	LC	R Jasai
<b>Family Caprimulgidae</b>						
128.	Indian Little Nightjar <i>Caprimulgus asiaticus</i>	A/GS	IV	LC	R	Ransai
129.	Indian Jungle Nightjar <i>Caprimulgus indicus</i>	F	IV	LC	R	Ransai
<b>Family Apodidae</b>						
130.	Little or House Swift <i>Apus affinis</i>	All		LC	R	All areas
131.	Asian Palm Swift <i>Cypsiurus balasiensis</i>	F/NH		LC	R	All areas
<b>Family Alcedinidae</b>						
132.	Lesser Pied Kingfisher <i>Ceryle rudis</i>	W	IV	LC	R	Kopar
133.	White-breasted Kingfisher <i>Halcyon smyrnensis</i>	All	IV	LC	R	All areas
134.	Common Kingfisher <i>Alcedo atthis</i>	W	IV	LC	R	All areas
135.	Black-capped Kingfisher <i>Halcyon pileata</i>	W/F	IV	LC	R	Ransai
136.	Oriental Dwarf Kingfisher <i>Ceyx erithaca</i>	F	IV	LC	M	Ransai

## Checklist of birds observed in Study area from December 2011-till date

Sr. no.	Common/scientific names	Habitat	WPA schedule	IUCN status	R/M	Sites
<b>Family Meropidae</b>						
137.	Little Green Bee-eater <i>Merops orientalis</i>	All		LC	R	All areas
138.	Blue-tailed Bee-eater <i>Merops philippinus</i>	F/MC		LC	R	Kharghar Creek, Mosare
139.	Blue-cheeked Bee-eater <i>Merops persicus</i>	GS/W		LC	R	Belpada & Uran
<b>Family Coraciidae</b>						
140.	Indian Roller <i>Coracias benghalensis</i>	All	IV	LC	R	All areas
141.	European Roller <i>Coracias garrulous</i>	All	IV	LC	M	Uran
<b>Family Upupidae</b>						
142.	Common Hoopoe <i>Upupa epops</i>	MC/GS		LC	M	All areas
<b>Family Bucerotidae</b>						
143.	Indian Grey Hornbill <i>Ocyrceros birostris</i>	F	I	LC	R	Mosare, Ransai
<b>Family Capitonidae</b>						
144.	Coppersmith Barbet <i>Megalaima haemacephala</i>	F	IV	LC	R	Mosare, Ransai
145.	Brown-headed Barbet <i>Megalaima zeylonica</i>	F	IV	LC	R	Mosare, Ransai
146.	White-cheeked Barbet <i>Megalaima viridis</i>	F	IV	LC	R	Patnoli, Chirner
<b>Family Pittidae</b>						
147.	Indian Pitta <i>Pitta brachyura</i>	F	IV	LC	R	Mosare
<b>Family Picidae</b>						
148.	Eurasian Wryneck <i>Jynx torquilla</i>	F	IV	LC	R	Mosare
149.	Rufous Woodpecker <i>Celeus brachyurus</i>	F	IV	LC	R	Patnoli, Chirner
150.	Black-rumped woodpecker <i>Dinopium benghalense</i>	F	IV	LC	R	Ransai
151.	Common Flameback <i>Dinopium javanense</i>	F	IV	LC	R	Ransai
152.	Yellow-fronted Pied Woodpecker <i>Dendrocopos mahrattensis</i>	F	IV	LC	R	Mosare, Nere
153.	Heart-spotted Woodpecker <i>Hemicircus canente</i>	F	IV	LC	R	Karnala
<b>Family Alaudidae</b>						
154.	Ashy-crowned Sparrowlark <i>Eremopterix griseus</i>	GS	IV	LC	R	Uran
155.	Rufous-tailed Finch-Lark <i>Ammomanes phoenicura</i>	All	IV	LC	R	All areas
156.	Malabar Lark <i>Galerida malabarica</i>	ALL	IV	LC	R	All areas
<b>Family Motacillidae</b>						
157.	Citrine Wagtail <i>Motacilla citreola</i>	W/M	IV	LC	M	All areas
158.	Yellow Wagtail <i>Motacilla flava</i>	W/M	IV	LC	M	All areas
159.	Grey Wagtail <i>Motacilla cinerea</i>	W	IV	LC	M	All areas
160.	White Wagtail <i>Motacilla alba</i>	W	IV	LC	M	All areas

## Checklist of birds observed in Study area from December 2011-till date

Sr. no.	Common/scientific names	Habitat	WPA	IUCN	R/M	Sites
			schedule	status		
161.	Large Pied Wagtail <i>Motacilla maderaspatensis</i>	W	IV	LC	R	All areas
162.	Tree Pipit <i>Anthus trivialis</i>	P/GS	IV	LC	M	All areas
163.	Paddyfield Pipit <i>Anthus rufulus</i>	ALL	IV	LC	R	All areas
<b>Family Hirundinidae</b>						
164.	Wire-tailed Swallow <i>Hirundo smithii</i>	All		LC	R	All areas
165.	Barn Swallow <i>Hirundo rustica</i>	W		LC	R	All areas
<b>Family Campephagidae</b>						
166.	Common Woodshrike <i>Tephrodornis pondicerianus</i>	F	IV	LC	R	Mosare
167.	Large Cuckooshrike <i>Coracina macei</i>	F	IV	LC	R	Patnoli
168.	Black-headed Cuckooshrike <i>Coracina melanoptera</i>	F	IV	LC	R	Ransai
169.	Small Minivet <i>Pericrocotus cinnamomeus</i>	F	IV	LC	R	Mosare
170.	Scarlet Minivet <i>Pericrocotus flammeus</i>	F	IV	LC	R	Ransai
<b>Family Irenidae</b>						
171.	Common Iora <i>Aegithina tiphia</i>	F	IV	LC	R	Ransai
172.	Gold-fronted Chloropsis <i>Chloropsis aurifrons</i>	F	IV	LC	R	Ransai, Mosare
<b>Family Pycnonotidae</b>						
173.	Red-vented Bulbul <i>Pycnonotus cafer</i>	All	IV	LC	R	All areas
174.	Red-whiskered Bulbul <i>Pycnonotus jocosus</i>	F/MC	IV	LC	R	All areas
175.	White-eared Bulbul <i>Pycnonotus leucotis</i>	MC	IV	LC	R	All areas
176.	White-browed Bulbul <i>Pycnonotus luteolus</i>	F	IV	LC	R	Chirner
<b>Family Laniidae</b>						
177.	Bay-backed Shrike <i>Lanius vittatus</i>	All		LC	R	All areas
178.	Long-tailed Shrike <i>Lanius schach</i>	All		LC	R	All areas
179.	Southern Grey Shrike <i>Lanius meridionalis</i>	GS		LC	R	Chirner road
<b>Family Muscicapidae</b>						
180.	Orange-headed Thrush <i>Zoothera citrina</i>	F	IV	LC	R	Ransai
181.	Jungle Babbler <i>Turdoides striatus</i>	F	IV	LC	R	Ransai, Mosare, Patnoli
182.	Tawny-bellied Babbler <i>Turdoides hyperythra</i>	F	IV	LC	R	Mosare, Patnoli
183.	Yellow-eyed Babbler <i>Chrysomma sinense</i>	F	IV	LC	R	Chirner
184.	Indian Scimitar-babbler <i>Pomatorhinus [schisticeps] horsfieldii</i>	F	IV	LC	R	Chirner, Mosare
185.	Puff-throated Babbler <i>Pellorneum ruficeps</i>	F	IV	LC	R	Mosare, Patnoli
186.	Brown-cheeked Fulvetta <i>Alcippe poiocephala</i>	F	IV	LC	R	Ransai
187.	Black Redstart <i>Phoenicurus ochruros</i>	GS	IV	LC	M	Mosare



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Sr. no.	Common/scientific names	Habitat	WPA schedule	IUCN status	R/M	Sites
188.	Malabar Whistling-thrush <i>Myophonus horsfieldi</i>	F	IV	LC	M	Ransai
189.	Oriental Magpie-robin <i>Copsychus saularis</i>	All	IV	LC	R	All areas
190.	Common Stonechat <i>Saxicola torquatus</i>	All	IV	LC	M	All areas
191.	Pied Bushchat <i>Saxicola caprata</i>	All	IV	LC	R	Uran
192.	Isabelline Wheatear <i>Oenanthe isabellina</i>	GS	IV	LC	M	TS Chanakya
193.	Indian Black Robin <i>Saxicoloides fulicatus</i>	All	IV	LC	R	All areas
194.	White-rumped Shama <i>Copsychus saularis</i>	F	IV	LC	R	Ransai
195.	Bluethroat <i>Luscinia svecica</i>	MC	IV	LC	M	Sonari-Belpada, Kharghar Creek, Pargaon
196.	Blue Rockthrush <i>Monticola solitaries</i>	GS	IV	LC	M	Uran
197.	Zitting Cisticola <i>Cisticola juncidis</i>	MC	IV	LC	R	Kopar
198.	Plain Prinia <i>Prinia inornata</i>	All	IV	LC	R	All areas
199.	Ashy Prinia <i>Prinia socialis</i>	All	IV	LC	R	All areas
200.	Grey-breasted Prinia <i>Prinia hodgsonii</i>	All	IV	LC	R	Mosare
201.	Clamorous Reed-warbler or Indian Great Reed-warbler <i>Acrocephalus [stentoreus] bruniscens</i>	MS	IV	LC	M	All creeks and mangrove areas
202.	Common Tailorbird <i>Orthotomus sutorius</i>	All		LC	R	All areas
203.	Lesser Whitethroat <i>Sylvia curruca</i>	GS	IV	LC	M	Uran
204.	Red-breasted Flycatcher <i>Ficedula parva</i>	GS/F	IV	LC	M	Nere
205.	Asian Brown Flycatcher <i>Muscicapa dauurica</i>	MC	IV	LC	M	Kopar
206.	White-browed Fantail-flycatcher <i>Rhipidura albicollis</i>	MC	IV	LC	M	Khargahr Creek
207.	Grey Headed Canary Flycatcher	F	IV	LC		Ransai
208.	Asian Paradise-flycatcher <i>Terpsiphone paradise</i>	F	IV	LC		Ransai, Karnala, Morbe, Chirner
209.	Tickell's Blue Flycatcher <i>Cyornis tickelliae</i>	F	IV	LC		Ransai, Karnala, Morbe
210.	Black-naped Monarch <i>Hypothymis azurea</i>	F	IV	LC		Karnala, Morbe
<b>Family Paridae</b>						
211.	Great Tit <i>Parus major</i>	F	IV	LC	R	Uran
<b>Family Dicaeidae</b>						
212.	Thick-billed Flowerpecker <i>Dicaeum agile</i>	F	IV	LC	R	Ransai, Karnala, Chirner, Morbe.
<b>Family Nectariniidae</b>						
213.	Purple Sunbird <i>Cinnyris asiatica</i>	All	IV	LC	R	Uran
214.	Purple-rumped Sunbird <i>Leptocoma zeylonica</i>	GS	IV	LC	R	Uran
215.	Small Sunbird <i>Leptocoma minima</i>	F			R	Ransai

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216.	Vigors' Sunbird <i>Aethopyga vigorsii</i>	F			R	Ransai
<b>Family Emberizidae</b>						
217.	Red-headed Bunting <i>Emberiza bruniceps</i>	GS	IV	LC	M	Pargaon
218.	Black-headed Bunting <i>Emberiza melanocephala</i>	GS	IV	LC	M	Pargaon, Kharghar Creek
<b>Family – Estrildidae</b>						
219.	Indian Silverbill <i>Euodice malabarica</i>	P	IV	LC	R	All areas
220.	Red Avadavat <i>Amandava amandava</i>	W/MC	IV	LC	R	Sonari-Belpada, TS Chanakya
221.	Black-headed Munia <i>Lonchura Malacca</i>	MC	IV	LC	R	Kharghar Creek, TS Chanakya
222.	Scaly-breasted Munia <i>Lonchura punctulata</i>	MC/F	IV	LC	R	Kharghar Creek, TS Chanakya, Mosare
223.	White-rumped Munia <i>Lonchura striata</i>	F	IV	LC	R	Mosare
<b>Family Passeridae</b>						
224.	House Sparrow <i>Passer domesticus</i>	All	IV	LC	R	All areas
225.	Baya Weaver <i>Ploceus philippinus</i>	All	IV	LC	R	All areas
226.	Black-breasted Weaver <i>Ploceus benghalensis</i>	All	IV	LC	R	All areas
227.	Yellow-throated Sparrow <i>Petronia xanthocollis</i>	F/GS	IV	LC	R	Uran, Mosare
<b>Family Sturnidae</b>						
228.	Rosy Starling <i>Sturnus roseus</i>	All	IV	LC	M	Sonari-Belpada, Nhava, Kharghar Creek, Pargaon, Kopar
229.	Brahminy Starling <i>Temenuchus pagodarum</i>	GS	IV	LC	R	Uran
230.	Grey-headed Starling <i>Temenuchus malabarica</i>	GS	IV	LC	R	Behind TS Chanakya
231.	Malabar White-headed Starling <i>Temenuchus blythii</i>	GS	IV	LC	R	Behind TS Chanakya
232.	Asian Pied Starling <i>Gracupica contra</i>	GS	IV	LC	R	All areas
233.	Common Myna <i>Acridotheres tristis</i>	All	IV	LC	R	All areas
234.	Jungle Myna <i>Acridotheres fuscus</i>	All	IV	LC	R	Mosare
<b>Family Oriolidae</b>						
235.	Eurasian Golden Oriole <i>Oriolus oriolus</i>	All	IV	LC	R	All areas
236.	Black-hooded Oriole <i>Oriolus xanthornus</i>	F	IV	LC	R	Ransai
<b>Family Dicruridae</b>						
237.	Black Drongo <i>Dicrurus macrocercus</i>	All	IV	LC	R	All areas
238.	Ashy Drongo <i>Dicrurus leucophaeus</i>	F	IV	LC	R	Ransai
239.	White-bellied Drongo <i>Dicrurus caerulescens</i>	F	IV	LC	R	Ransai, Patnoli

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240.	Greater Racket-tailed Drongo <i>Dicrurus paradiseus</i>	F	IV	LC	R	Ransai, Patnoli, Karnala
241.	Bronze Drongo <i>Dicrurus aeneus</i> <b>Family Corvidae</b>	F	IV	LC	M	Karnala
242.	House Crow <i>Corvus splendens</i>	All	V	LC	R	All areas
243.	Jungle Crow <i>Corvus macrorhynchos</i>	All	IV	LC	R	All areas
244.	Rufous Treepie <i>Dendrocitta vagabunda</i>	F	IV	LC	R	Mosare