

# **First Trimonthly report of the Avifaunal survey carried out in 10 km radius area of Navi Mumbai International Airport (NMIA)**

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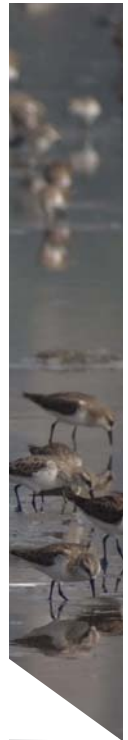
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## Trimonthly report of the bird survey carried out in 10 km radius area of Navi Mumbai International Airport (NMIA)

**Summary:** 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 178 species belonging to 48 families indicates healthy bird diversity in the study area. Tide timing, developmental activities of Jawaharlal Nehru Port Trust (JNPT), stone quarries, hunting 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.

**Keywords:** Navi Mumbai International Airport, Avifauna, bird survey.







## I. Introduction

### Background

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 created 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.

### Brief description of the proposed airport project

The need for a second airport in Mumbai region has become inescapable and imperative, as the existing airport at Mumbai is fast reaching saturation level and scope for further enhancement of passenger and cargo handling facilities, aircraft maintenance and city side facilities is limited. Therefore CIDCO, Navi Mumbai proposes to set up of 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. Ministry of Environment and Forests (MoEF) has given the clearance to this project on the basis of many conditions. One of the conditions (condition number xxxi provided under specific conditions) is that an avifaunal study shall be carried out in consultation with BNHS.

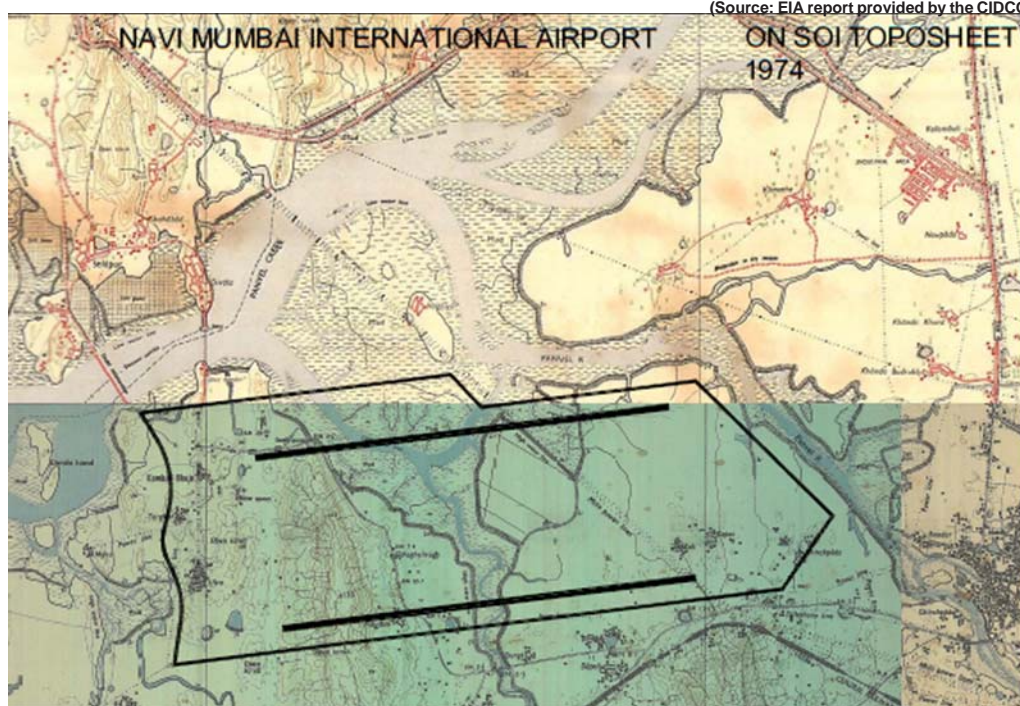


Location of the NMIA site





10 km radius area of NMIA



Proposed NMIA site





## Location and description of site

The site is approachable from Mumbai-Pune Highway via an approach road from Navi Mumbai. The international Airport area will be surrounded by 10 villages, viz. Kambad Bhuje, Ganeshpuri, Ulve, Mulgaon, Vaghiliwada, Owle, Pargaon, Kopar, Koli and Chinchpada.

## II. Literature review of the bird life of Mumbai and adjoining areas

Mumbai is bounded by the Arabian Sea to the west and geographically constituted by the erstwhile seven islands in the south and the suburbs stretching upto Dahisar and Mulund. Mumbai has always been a hot spot for many migratory birds because of the coastal habitat as well as continuity to the Western Ghats region.

“Birds of the southern portion of the Bombay Presidency” was one of the oldest available publications on birds of Mumbai (Butler, 1880). Protection to wild birds in the Bombay Presidency was documented for the first time in the early period of 20<sup>th</sup> century (Anon, 1906). Some of the oldest literature on birds of Mumbai also includes information about Grey Quail *Coturnix communis* near the sea (Bethell, 1912), notes on two young Indian hornbills (Prater, 1922, Ellison, 1923) and crow assemblies (Dalal, 1936). Another attempt of documentation was in the form of “The Common Birds of Bombay” carried out by Aitken (1947).

Series of publications by late Mr. Humayun Abdulali, ex curator, BNHS laid the foundation of systematic study of birds in Mumbai and adjoining areas. His observations, notes and occurrence records enriched the publications of birds of Mumbai. His literature on Koel’s eggs parasitism (Abdulali, 1931), the sun as a mortality factor among young birds (Abdulali, 1939), local movements of Painted Partridge (*Francolinus pictus* Jard. & Selby) around Mumbai (Abdulali, 1943), extension of breeding range of Stilt (*Himantopus h. himantopus*) and some notes on its habits and plumages (Abdulali, 1951), Cattle Egret fishing (Abdulali, 1967b), sparrow ‘helping’ nesting bulbuls (Abdulali, 1980), pigeons *Columba livia* nesting on the ground, notes from Vengurla Rocks (Abdulali, 1983), juvenile plumage of female ??*Chrysocolaptes festivus* and other nesting notes near Mumbai (Abdulali, 1985) are some of the best natural history descriptions available about birds of Mumbai.

Occurrence of birds such as White-cheeked Bulbul (*Molpastes leucogenys*) in Salsette (Sashti) (Abdulali, 1934), Grey-fronted Green Pigeon (*Dendrophasa pompadora affinis*) in Colaba (Abdulali, 1935), swifts and terns at Vengurla Rocks (Abdulali, 1940), Great Black Woodpecker in Mumbai region (Abdulali, 1941), the terns and Edible-nest Swiftlets at Vengurla, west coast of India (1942), Wilson’s Petrel (Abdulali, 1948),



Blue-tailed Bee-eater (*Merops superciliosus javanicus* (Abdulali, 1950a), White-winged Black Tern *Chlidonias leucopterus* (Abdulali, 1950b), Spurfowl *Galloperdix* (Abdulali, 1952a), White-tailed Lapwing *Chettusia leucura* (Abdulali, 1952b), *Cuculus canorus bakeri* (Abdulali, 1954), Grey Junglefowl (Abdulali, 1957), Large Whistling Teal *Dendrocygna bicolor* (Abdulali, 1958), Least Frigate-Bird *Fregata ariel* (Abdulali, 1960), Small Indian Swallow Plover *Glareola lactea* (Abdulali, 1962), Large White-rumped Swift *Apus pacificus leuconyx* (Abdulali, 1963), Painted Partridge *Francolinus pictus* (Abdulali, 1964, 1965a), Finsch's Starling *Sturnus vulgaris poltaratskyi* (Abdulali, 1965b), Black-headed Munia *Lonchura m. malacca* (Abdulali, 1965c), Black-necked Stork *Xenorhynchus asiaticus* (Abdulali, 1967a), Swinhoe's Snipe, *Capella megala* (Abdulali, 1970), Common Grey Hornbill *Tockus birostris* and nesting of Tickell's Flycatcher (Abdulali, 1979), Pink-footed Shearwater *Procellaria carneipes* (Abdulali & Grubh, 1982) and Black-eared Kite *Milvus migrans lineatus* (Abdulali & Sethna, 1982) were documented first time by Mr. Humayun Abdulali. His other notes on Pied Myna and Bank Myna (1953) and extension of range of Little Bittern *Ixobrychus minutus minutus* are an addition to the avifauna of Mumbai area (Abdulali & Grubh, 1966). These were reported first time in Mumbai and adjoining areas by Mr. Abdulali.

Apart from these publications, comprehensive checklist of the birds of Borivli National Park with notes on their status (Abdulali, 1981a, 1986), and checklist of the birds of Maharashtra with notes on their status around Mumbai (Abdulali & Ali (1940), 1981b) are the milestone works carried out by Mr. Humayun Abdulali.

Some other publications include literature on pitta and crows (Soman, 1963), pugnacious behaviour of breeding White-browed Fantail Flycatcher at Cumballa Hills, Mumbai (Tyabji, 1964), strange feeding habit of Little Green Bittern (Rao, 1965), Ornithophily: a preliminary study of the reciprocal association between flower birds and bird flowers as observed in and around Mumbai (Kannan, 1966), unusual mating behaviour of the crow (Chandran, 1966), parakeet roosts (Palkhiwalla, 1968), Indian Three-toed Kingfisher *Ceyx erythacus* (Creado, 1969), Black Drongo *Dicrurus adsimilis* fishing (Serrao, 1971), adult birds' concern for young of other birds (Serrao, 1973), Jungle Babblers at Pali Hills, Bandra (Ali, 1974), sandpipers at a suburban marsh (Akhtar, 1977), lack of traffic sense amongst Indian Rollers observed on Mumbai - Goa Highway (Goenka, 1986), biometrics and food of some harriers (Satheesan, et al, 1991) and scavenging by Cattle Egret (Serrao, 1993).

Flamingos, most famous birds of Mumbai were found continuously visiting Sewri in thousands (Sowrirajan, 1994, Ali, 2006, Woodward, 2007). This led to the declaration of the area as an Important Bird Area (IBA) (Islam & Rahmani 2004). Threatened birds such as Darter, Lesser Flamingo, Indian White-backed Vulture, Greater Spotted Eagle, Eastern Imperial Eagle and Black-bellied Tern were observed during a preliminary





survey carried out at Mahul Creek (Verma, *et al* 2004). Due to land filling and development of Jawaharlal Nehru Port at Uran, the habitat in Navi Mumbai has been changed drastically (BUCEROS newsletter special issue, 2010, Sarkar, 2007). The Vigors' Sunbird *Aethopyga vigorsii*, an endemic bird of Northern Western Ghats was observed in Valley Park, Artist Village and some areas of Khargar Hills in Navi Mumbai. Threatened birds such as Greater Spotted Eagle *Aquila clanga* (VU) and Pallid Harrier *Circus macrourus* (NT) were also observed during a biodiversity survey of Navi Mumbai Nature Park carried out by BNHS for CIDCO, Navi Mumbai.

The proposed project area of the international airport is located about 10 km away from Karnala Bird Sanctuary, which is another major birding area in the region (Pande, 2004, Raman, 2004). Large number of birds were also recorded in Uran and Jasai areas (Monga, 2003, Sarkar, 2011, BUCEROS special issue, 2010) of Navi Mumbai.

### III. Study area

Initially the entire 10 km radius area around NMIA was surveyed. Later the study was concentrated in following areas excluding industrial areas and dense human habitations. For details please see maps and table no. 1.

- (1) Proposed site of NMIA – It includes mangroves and backwaters near villages such as Kombadbhuja, Ulve, Dungi, Pargaon, Chinchpada and Kopar, as well as creeks of Khargar, Gadhi, Ulve, Kalamboli and Panvel. Data was collected from wetlands, creeks, paddy fields, mangroves, mudflats, open scrub/shrubland as well as from near human habitation.
- (2) North-West: This includes grass/shrubland and rocky seashore area behind TS Chanakya, water bodies in between NRI Complex-DPS School on Palm Beach Road, Belapur Pond and part of Parsik Hills.
- (3) North-East – This block includes areas of Taloja, Panvel, Tembhode, Kewale, Nere and Pali. Area near Pali and Nere is hilly.
- (4) South-West (Uran-JNPT area): Includes small wetlands and mangroves spread all over the region near the villages Jasai, Belpada, Gawhan, Uran, Jaskhar and Funde.
- (4) South-East (Hilly areas) – This block mainly consists of reserve forest patches in adjoining areas of villages such as Mosare, Patnoli and Ransai, etc. This southern moist mixed deciduous forest patch was recently added to Karnala Bird Sanctuary. National Highway 17 cuts through this Sanctuary.



**Types of habitat used by the birds in study area**



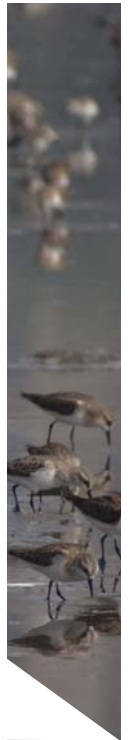
**Mangrove and creeks**



**Paddyfields**



**Rocky seashore**





**Hilly forested area**



**Wetland and marshy areas**



## IV. Methodology

The areas were surveyed using binoculars and digital camera for proper bird records during last week of November 2011 to first week of March. The birds species were recorded (sighting or call) on the field. Direct observations were made by walking along roads, hills, forest paths, wetlands, mangroves and creek areas. Birds were identified following Ali & Ripley (1983), Grimmett *et. al* (2000) and Rasmussen & Anderton (2005). Photographs of unidentified birds were kept for future study. The list of birds was arranged family wise following Manakadan & Pittie (2001). GPS locations were taken for preparation of distribution map and details of the coordinates of the sites visited are given in table no 1.

### Abbreviations used

- 1) 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
- 2) Threat categories: **EN**- Endangered, **VU** - Vulnerable, **NT**- Near threatened
- 3) Type of movements: **R**-Resident, **M**-Migratory
- 4) NMIA – Navi Mumbai International Airport, BNHS - Bombay Natural History Society, JNPT - Jawaharlal Nehru Port Trust, EIA - Environmental Impact Assessment

## V. Results

A total of 178 bird species was recorded during the above mentioned survey. Out of them 125 were resident and 51 were migratory. Four species were found under threatened category. There were 48 bird families representing 176 species, out of which Muscicapidae family shows the highest species richness (22 species), followed by Scolopacidae (15), Accipitridae (13) and Anatidae (9). Good population of small birds as well as raptors in the area indicates healthy bird diversity. Variation in species occurrence and population observed during study period indicates dynamic situation for the avifauna of the study area mainly due to effect of water level and tide timing.

### (A) General observations of resident birds

Three species of cormorants were seen in all wetland areas with congregations at DPS School (Palm Beach Road), Sanjivani School (Kharghar), Ulve Creek and Kalamboli Creek areas. Six species of resident egrets and herons were observed all over the region with large congregations at Belpada Lake, area opposite Sanjivani School and at Kalamboli Creek. A migratory Western Reef Heron was seen at Belpada Lake and Panvel River. Trend to move from shrinking water level of wetlands to adjoining creeks was observed in cormorants and egrets.







**Great Cormorants were observed in many wetlands of the study area**



**Juveniles of Eurasian Spoonbill and Painted Storks at belpada lake**



**Comb Duck and Spot-billed ducks at Dastan phata**



**House Sparrows roosts in Kamothe area**



**Black-winged Stilt were seen almost all wetland areas**

Presence of juveniles of Painted Stork and Eurasian Spoonbill in a wetland near Belpada hinted at a heronry nearby. Asian Openbill was seen only at Dastan Phata. Fourteen species of birds of prey were seen mainly in Mosare-Patnoli-Ransai forest area and at Belpada. Belapur Pond and Dastan Phata was found to be an excellent habitat for birds such as moorhens and jacanas who prefer floating vegetation and shallow lakes. Pigeons and doves were sighted almost all over the study area except Yellow-footed Green Pigeon, which was spotted only at Ransai. A dead Barn Owl was found near the railway track between Kharghar and Mansarovar stations. We could sight malkohas only in forest area of Mosare. Calls of Indian Nightjar and Savanna nightjar were heard in the forest near Chirner road. Lesser Pied Kingfisher was seen only at Kopar village near proposed NMIA. Birds such as Indian Grey Hornbill and barbets which prefer good vegetation and forest areas were seen mainly in Mosare-Patnoli region. Four roosting sites of nearly 500-1000 House Sparrow were seen between Mansarovar station and Sion Panvel Road.





### (B) Migratory birds of the region

**Ducks** – Five species of migratory ducks were observed in wetlands mentioned above. A couple of Ruddy Shelduck were observed at Jasai and Belpada lakes. Flocks of about 20-25 birds of Northern Pintail, Common Teal and Garganey were seen at Belpada. More than 200 Northern Shovellers were observed in Kharghar Creek in January 2012.

**Waders and other Wetland birds** - Migratory birds such as Marsh Sandpiper and Wood Sandpiper were observed in good numbers at Dastan Phata and Belpada Lake. Terns such as Whiskered, White-cheeked and Caspian were also observed in many wetland areas. Large flock of more than 300 Common Redshank were seen continuously using Kharghar Creek for roosting. Thousands of Teminck's Stint, Curlew Sandpiper and Lesser Sandplover were observed behind NRI Complex for the entire study period. Nearly 50 Eurasian Curlew were seen near NRI Complex and more than 100 Terek Sandpiper in Kharghar Creek. Flocks of hundreds of Black-headed and Brown-headed Gull were seen at DPS Lake and NRI Complex. Greater Flamingo was seen at Belpada Pond and its two juveniles were seen behind NRI Complex. A single Black Stork was observed flying over the Ransai forest and settled at Ransai dam, only once.

**Birds on rocky seashore** – 10-15 Ruddy Turnstone and Pacific Golden Plover were seen on rocky seashore behind TS Chanakya near Palm Beach Road, Nerul.

**Blue-tailed Bee-eaters** – Flock of more than 30 birds was observed roosting at Kharghar Creek.

**Harriers** – Eurasian Marsh Harrier was seen in all areas, especially in marshy wetlands.

**Buntings** – Large flocks of more than 500-1000 Black-headed Buntings were observed at Pargaon and Kopar in proposed NMIA site. These birds were using grasslands for feeding at daytime and mangroves for roosting after dark.

**Passerines** – Red-breasted Flycatcher, Black Redstart and Blue Rock-thrush were seen in open areas of Panvel and Uran.

**Starlings** – Rosy Starlings were seen mainly in mangrove areas all over the region.

**Wagtails** – Four types of wagtails, viz. Citrine, Yellow, White and Grey were seen in all wetland areas of the study area.



Ruddy Turnstone at rocky seashore behind TS Chanakya, Palm beach road





**Black-headed Gulls**



**Blue-tailed Bee-eater at  
Kharghar creek**



**Eurasian Marsh Harrier one of the  
common migratory birds of prey**



**Rosy Starlings feeding on garbage**





Some of the migratory birds of the study area



Bluethroat



Blue Rock Thrush



Pacific Golden Plover



Common Stonechat



Black Stork



Marsh Sandpiper



## VI. Roosting areas and movement and of birds

Tide timing, ongoing activities of JNPT, stone quarries and rapid changes in habitat were found to be influencing the in distribution of birds. For study of congregation and movement of birds, from each block as mentioned in the study area, we selected following sites.

- 1) NMIA site – 200 Terek Sandpiper, 400 Common Redshank, 100 Black-tailed Godwit and 300 Northern Shoveler were seen in Gadhi River and Kharghar Creek. The birds usually dispersed during low tide in nearby mangroves and mudflats.
- 2) North-West (Behind NRI complex) – About 2,000 each of Lesser Sandplover, Curlew Sandpiper and Teminck's Stint were seen roosting in backwaters behind NRI Complex, Palm Beach Road, Sea Woods Darave. During low tide these birds were seen flying away from the site to different mudflats in all directions and return during high tide.
- 3) North-East (Opposite Sanjivani International School) – This site is located on the boundary of Kharghar and Taloja. Hundreds of cormorants, egrets and Black-tailed Godwit were observed in water bodies spread over one sq km area in front of Sanjivani International School.
- 4) South-East (Mosare-Patnoli-Ransai area) – This block is situated in biogeographic province of Malabar Plains region (Pande, 2006), on one of the many western spurs of North Sahyadri Range. Terrain of the area is rugged and comprises of valleys and steep hills on either side. Good number of birds of prey seen soaring in the area of Mosare-Patnoli-Ransai villages. Birds like Yellow-footed Green-pigeon also seen feeding on Ficus trees at Ransai, which returned to Karnala Bird Sanctuary.
- 5) South-West (Belpada Lake) – This site is located on the way to Uran near Jasai village, 500 m right of the toll plaza. Nearly 70 Eurasian Spoonbill, 40 Painted Stork, hundreds of herons was observed in breeding plumage and along with juveniles. Black-tailed Godwit, Temminck's Stint, terns and ducks were seen in large number till March 2012. After drying up of the lake, birds such as Painted Stork, Oriental White Ibis were found flying a couple of km away to nearby areas including NMIA site. Painted Storks observed in many areas such as Kombadbhuja, Pargaon, behind NRI Complex, Sanjivani School, JNPT area were found returning to Belpada Lake in the evening for roosting purpose. Based on such observations, we assume that same population of birds might be visiting all areas.
- 6) Large flocks of House Crow were seen roosting at Parsik Hills of Belapur, Mosare-Patnoli and Tembhode area.







**Good number of migratory ducks such as Garganey and Northern Shoveler were observed at Belpada**



**Common Redshanks at Kharghar creek**



**Terek Sandpipers at Kharghar creek**



**Hundreds of Black-headed Buntings were observed using open grassland area at daytime**



**Black-headed Buntings were observed in mangroves for roosting after dark**



**Short-toed Snake-eagle Soaring at Uran area**



**House Crow roosting at Mosare**







**Yellow-footed Green Pigeon at Ransai**



**Flock of Black-tailed Godwits opposite to Sanjivani International school, Kharghar**



## VII. Threats and conservation of birds

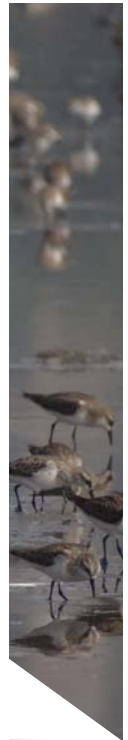
1. Hunting – use of catapults for killing birds was found to be a common practice in the survey area, especially among small children.
2. Trapping - Use of small noose traps to capture small birds such as munias for trading was observed. A Shikra was found trapped in a nylon net hanging on a huge tree more than 50 feet tall. The net might have been abandoned there after using it for protecting crops from birds and bats by the farmers.
3. Human interference – Massive construction activities were found going on in the entire Navi Mumbai region. Because of smoke from brick kilns and dust from construction sites, and massive stone quarries, the visibility in study area was found low in study period.
4. Rapidly changing environment – Conversion of wetlands in to plain open areas by land filling for various purposes such as JNPT work in Uran has led to a change in the distribution of water birds. Due to non-availability of suitable water bodies birds have been restricted to a few areas and these sites are also under pressure of rapid changes.
5. Burning of forests for fuel wood removal.

### Measures to be taken

- 1) Strict implication of Wildlife Protection Act to stopping hunting and trapping.
- 2) Nylon nets hanging on trees in forest patches should be removed and disposed off.
- 3) The extent and spread of stone quarries and construction work should be strictly regulated and work there should be minimized in winter.
- 4) As there is no legal protection to the wetlands in the study area, some sites should be protected for conservation of habitat in this rapidly developing region.



Hunting of birds using catapults is common practice in study area





**Use of noose traps for capturing small birds probably for trading**



**A Shikra trapped in a abandoned nylon net at Chirner**

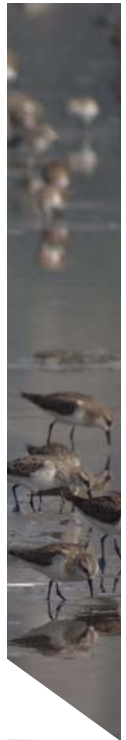




**Habitat degradation due to stone quarries**



**Removal of an entire hill may affect the avifaunal distribution**





## VIII. Discussion

The recent developmental activities in Navi Mumbai have resulted in rapid changes in natural habitats and subsequently the movement and distribution of birds. Thus, knowledge of the distribution patterns of species will be important for the protection of different habitats and to avoid future bird hazard problems of NMIA.

Birds once common in the area such as Pied Avocet and Lesser Flamingo were not sighted during our surveys. It is the need of the hour to monitor the area systematically on a long-term basis with focused study on the status and distribution of birds, with the objective of conservation of their habitats, wherever appropriate.



Red Avadavat feeding in paddy field area



House Crow feeding on nectar



Table 1: GPS locations of the sites visited

Sr. No.	Name	Position	Altitude
1.	Ajivali	N18 57.628 E73 08.848	31 m
2.	Belpada	N18 55.424 E73 00.127	57 m
3.	Chiple	N19 00.393 E73 09.161	17 m
4.	Chirner road	N18 56.473 E73 02.486	52 m
5.	Dahirghate	N18 52.942 E73 04.478	86 m
6.	Dighade	N18 54.306 E73 02.695	4 m
7.	Dighati	N18 49.719 E73 03.161	38 m
8.	Diwale	N19 00.791 E73 02.274	63 m
9.	Dongari	N18 53.761 E72 57.479	16 m
10.	DPS, palm beach road	N19 00.478 E73 01.265	2 m
11.	Dastan Phata	N18 57.484 E73 00.608	15 m
12.	Jasai	N18 56.594 E73 01.679	6 m
13.	Kalamboli Bridge	N18 59.564 E73 05.762	26 m
14.	Kalhe	N18 52.572 E73 05.758	16 m
15.	Karnala Bird Sanctuary (Towards Ransai)	N18 53.019 E73 05.231	130 m
16.	Kewale	N19 01.468 E73 09.783	35 m
17.	Kopar	N18 59.119 E73 04.989	39 m
18.	Lonivali	N18 58.860 E73 11.410	48 m
19.	Mansarovar-Kamothe	N19 01.127 E73 04.804	-8 m
20.	Mosare	N18 57.023 E73 05.960	142
21.	Nanoshi	N18 56.341 E73 05.027	23 m
22.	Nere	N19 00.867 E73 10.248	26 m
23.	Nerul	N19 01.092 E73 01.708	7 m
24.	Nhava	N18 57.805 E72 59.108	15 m
25.	NRI Complex, Sea Woods	N19 00.497 E73 00.694	2 m
26.	Palaspe	N18 57.528 E73 07.852	24 m
27.	Pali	N18 59.428 E73 10.885	45 m
28.	Pargon	N18 58.795 E73 04.052	3 m
29.	Patnoli	N18 55.834 E73 04.980	20 m
30.	Ransai	N18 53.727 E73 05.136	34 m
31.	Ransaidam	N18 53.608 E73 04.146	36 m
32.	Sanpada, Palm beach road	N19 01.502 E73 00.426	-3 m
33.	Shedung	N18 57.252 E73 10.306	43 m
34.	Tembhode	N19 01.308 E73 07.391	17 m
35.	TS Chanakya	N19 00.844 E73 00.482	-0 m
36.	Ulvenode	N18 58.765 E73 01.274	5 m





Table 2: Threatened birds of study area (IUCN List 2011)

Sr. no.	Name of bird	Area	Habitat	No. of birds	Activity
1.	Painted Stork <i>Mycteria leucocephala</i> (NT)	Belpada	W	50	Roosting
		Pargaon	W/GS	40	Feeding
		Kombadbhuja	W	7	Feeding
		Sanjivani School	W	35	Feeding
2.	Black-headed Ibis <i>Threskiornis melanocephalus</i> (NT)	All areas	W, MC	2-5	Feeding
3.	Black-tailed Godwit <i>Limosa limosa</i> (NT)	Near Sanjivani school (Kharghar)	W	200	Feeding
		Belpada	W	150	Feeding
		Dastan Phata	W	80	Feeding
4.	Greater Spotted Eagle <i>Aquila clanga</i> (VU)	Belpada	W	1	Soaring
		Mosare	F	1	Soaring

Table 3: Family wise bird species count (N = 46)

Sr. No.	Family	No. of	Sr. No.	Family	No. of	Sr. No.	Family	No. of
1.	Podicipedidae	1	17.	Laridae	7	33.	Hirundinidae	2
2.	Phalacrocoracidae	3	18.	Columbidae	5	34.	Campephagidae	4
3.	Ardeidae	8	19.	Psittacidae	2	35.	Irenidae	1
4.	Ciconiidae	4	20.	Cuculidae	5	36.	Pycnonotidae	3
5.	Threskiornithidae	3	21.	Tytonidae	1	37.	Laniidae	3
6.	Anatidae	9	22.	Strigidae	1	38.	Muscicapidae	22
7.	Accipitridae	13	23.	Caprimulgidae	2	39.	Paridae	1
8.	Falconidae	1	24.	Apodidae	2	40.	Motacillidae	7
9.	Pandionidae	1	25.	Alcedinidae	4	41.	Nectariniidae	2
10.	Phasianidae	1	26.	Meropidae	2	42.	Emberizidae	2
11.	Phonoceptoridae	1	27.	Coraciidae	1	43.	Estrildidae	5
12.	Rallidae	5	28.	Upupidae	1	44.	Passeridae	3
13.	Recurvirostridae	1	29.	Bucerotidae	1	45.	Sturnidae	3
14.	Jacaniidae	2	30.	Capitonidae	2	46.	Oriolidae	2
15.	Charadriidae	7	31.	Picidae	1	47.	Dicruridae	2
16.	Scolopacidae	15	32.	Alaudidae	3	48.	Corvidae	3



Annexure: List of birds observed during survey carried out in 10km radius area of NMIA						
Sr. No.	Common and scientific	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
<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	All wetland areas
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	Dastan Phata
12.	Western Reef-egret <i>Egretta gularis</i>	W/MD	IV	LC	M	Dastan Phata, Nere, Belpada
<b>Family – Ciconiidae</b>						
13.	Painted Stork <i>Mycteria leucocephala</i>	W	IV	NT	R	Belpada, Kopar, Sanjivani Sch, kombadbhuja
14.	Asian Openbill <i>Anastomus oscitans</i>	W	IV	LC	R	Dastan Phata,
15.	Woolly-necked Stork <i>Ciconia episcopus</i>	W	IV	LC	R	Dastan Phata, Mosare
16.	Black Stork <i>Ciconia nigra</i>	W	IV	LC	M	Ransai dam
<b>Family – Threskiornithidae</b>						
17.	Black-headed Ibis <i>Threskiornis melanocephalus</i>	W/C	IV	NT	R	All wetlands and mangroves (2-4 birds)





Annexure: List of birds observed during survey carried out in 10km radius area of NMIA

Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
18.	Eurasian Spoonbill <i>Platalea leucorodia</i>	W	I	LC	R	Jasai, Sanjivani Sch, Belpada
19.	Glossy ibis <i>Plegadis falcinellus</i>	W	IV	LC	M	Karal
<b>Family – Phoenicopteridae</b>						
20.	Greater Flamingo <i>Phoenicopterus major</i>	W	I	LC	M	Belpada, NRI
<b>Family – Anatidae</b>						
21.	Ruddy Shelduck <i>Tadorna ferruginea</i>	W	IV	LC	M	Jasai, Sanjivani Sch, Belpada
22.	Northern Pintail <i>Anas acuta</i>	W	IV	LC	M	Belpada
23.	Common Teal <i>Anas crecca</i>	W	IV	LC	M	Belpada
24.	Spot-billed Duck <i>Anas poecilorhyncha</i>	W/C	IV	LC	R	All
25.	Garganey <i>Anas querquedula</i>	W	IV	LC	M	Belpada
26.	Northern Shoveler <i>Anas clypeata</i>	W/C	IV	LC	M	Kharghar creek
27.	Comb Duck <i>Sarkidionlis melanotos</i>	W	IV	LC	R	Dastan Phata
28.	Lesser Whistling-duck <i>Dendrocygna javanica</i>	W	IV	LC	R	Dastan Phata, Belapur pond
29.	Cotton Teal <i>Nettapus coromandelianus</i>	W	IV	LC	R	Dastan Phata, Belapur pond
<b>Family – Accipitridae</b>						
30.	Black-shouldered Kite <i>Elanus caeruleus</i>	All	I	LC	R	All areas
31.	Black Kite <i>Milvus migrans</i>	All	I	LC	R	All areas
32.	Brahminy Kite <i>Haliastur Indus</i>	W/P	I	LC	R	Belpada, Dastan Phata
33.	Shikra <i>Accipiter badius</i>	All	I	LC	R	All areas
34.	White-eyed Buzzard <i>Butastur teesa</i>	F	I	LC	R	Jasai
35.	Oriental Honey-buzzard <i>Pernis ptilorhynchus</i>	F	I	LC	R	Mosare
36.	Common Buzzard <i>Buteo buteo</i>	F	I	LC	R	Ransai
37.	Long-legged Buzzard <i>Buteo rufinus</i>	F	I	LC	R	Mosare



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Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
38.	Western Marsh Harrier <i>Circus aeruginosus</i>	W	I	LC	M	All areas
39.	Crested Serpent-eagle <i>Spilornis cheela</i>	F	I	LC	R	Ransai, Mosare
40.	Short-toed Snake-eagle <i>Circaetus gallicus</i>	GS	I	LC	R	Chirner road
41.	Booted Eagle <i>Hieraaetus pennatus</i>	F	I	LC	M	Mosare
42.	Greater Spotted Eagle <i>Aquila canga</i>	F	I	VU	M	Belpada, Mosare
	<b>Family – Falconidae</b>	V	I	LC	R	
43.	Common Kestrel <i>Falco tinnuncullus</i>	GS	IV	LC	R	Chirner road
	<b>Family – Pandionidae</b>					
44.	Osprey <i>Pandion haliaetus</i>	W/C	I	LC	R	Kharghar creek, Belpada
	<b>Family – Phasianidae</b>					
45.	Jungle Bush Quail <i>Perdica asiatica</i>	F	-	LC	R	Ransai, Chirner Road
	<b>Family – Rallidae</b>					
46.	White-breasted Waterhen <i>Amaurornis phoenicurus</i>	W/C	IV	LC	R	Dastan Phata, Pargaon
47.	Purple Swamphen <i>Porphyrio porphyrio</i>	W	IV	LC	R	Dastan Phata, Pargaon
48.	Common Moorhen <i>Gallinula chloropus</i>	W	IV	LC	R	Belapur pond, Dastan Phata
49.	Eurasian Coot <i>Fulica atra</i>	W	IV	LC	R	Belapur pond, Dastan Phata
50.	Slaty-breasted Rail <i>Gallirallus striatus</i>	W/C	IV	LC	R	Kalamboli creek
	<b>Family – Jacanidae</b>					
51.	Bronze-winged Jacana <i>Metopidius indicus</i>	W	IV	LC	R	Belapur pond, Dastan Phata
52.	Pheasant-tailed Jacana <i>Hydrophasianus chirurgus</i>	W	IV	LC	R	Belapur pond, Dastan Phata
	<b>Family – Charadriidae</b>					
53.	Red-wattled Lapwing <i>Vanellus indicus</i>	ALL	IV	LC	R	All areas





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Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
54.	Lesser Sand Plover <i>Charadrius mongolus</i>	W/MD	IV	LC	M	Behind NRI complex
55.	Greater Sand Plover <i>Charadrius leschenaultia</i>	W/MD	IV	LC	M	Behind NRI complex
56.	Little Ringed Plover <i>Charadrius dubius</i>	W/MD	IV	LC	R	All wetlands
57.	Pacific Golden Plover <i>Pluvialis fulva</i>	W/MD	IV	LC	M	Behind TS Chanakya
58.	Kentish Plover <i>Charadrius alexandrinus</i>	W/MD	IV	LC	..	All wetlands
59.	Grey Plover <i>Pluvialis squatarola</i>	W/MD	IV	LC		Belpada
<b>Family – Scolopacidae</b>						
60.	Common Snipe <i>Gallinago gallinago</i>	W	IV	LC	R	Belpada, Dastan Phata
61.	Common Redshank <i>Tringa tetanus</i>	W/MC	IV	LC	M	All (congregation at Kharghar creek)
62.	Wood Sandpiper <i>Tringa glareola</i>	W/MC	IV	LC	M	All wetlands
63.	Common Sandpiper <i>Tringa hypoleucos</i>	W/MC		LC	R	All wetlands
64.	Common Greenshank <i>Tringa nebularia</i>	W/RS	IV	LC	M	Behind TS Chanakya, Belpada
65.	Terek Sandpiper <i>Xenus cinereus</i>	W/MC	IV	LC	M	Kharghar Creek, Kopar
66.	Green Sandpiper <i>Tringa ochropus</i>	W/MC	IV	LC	M	Belpada
67.	Marsh Sandpiper <i>Tringa stagnatilis</i>	W		LC	M	All wetlands (more at belpada)
68.	Black-tailed Godwit <i>Limosa limosa</i>	W	IV	LC	M	Belpada, Sanjivani Sch
69.	Eurasian Curlew <i>Numenius arquata</i>	W	IV	LC	M	Behind NRI complex
70.	Ruddy Turnstone <i>Arenaria interpres</i>	RS	IV	LC	M	Behind TS Chanakya,
71.	Temminck's Stint <i>Calidris temminckii</i>	W	LC	M	All	(Large congregation behind NRI complex)



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Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
72.	Little Stint <i>Calidris minuta</i>	W	IV	LC	M	All wetland areas
73.	Curlew Sandpiper <i>Calidris ferruginea</i>	W	IV	LC	M	Belpada, Dastan Phata, Sanjivani sch (congregation of 2000 birds behind NRI complex)
74.	Ruff <i>Philomachus pugnax</i> <b>Family – Recurvirostridae</b>	W	IV	LC	M	Belpada, dastan phata
75.	Black-winged Stilt <i>Himantopus himantopus</i> <b>Family – Laridae</b>	W	IV	LC	R	All wetland areas
76.	Indian River Tern <i>Sterna aurantia</i>	W	-	LC	R	Belpada, Jasai
77.	Gull-billed Tern <i>Gelochelidon nilotica</i>	W	IV	LC	M	All wetland areas
78.	Caspian Tern <i>Sterna caspia</i>	W/C	IV	LC	M	Wetlands of Kamothe, Panvel
79.	White-cheeked Tern <i>Sterna repressa</i>	W	IV	LC	M	Jasai
80.	Brown-headed Gull <i>Larus brunnicephalus</i>	W	IV	LC	M	All wetland areas (more than 200 at DPS lake)
81.	Black-headed Gull <i>Larus ridibundus</i> <b>Family – Columbidae</b>	W	IV	LC	M	All wetland areas
82.	Rock Pigeon <i>Columba livia</i>	All/NH		LC	R	All areas
83.	Yellow-footed Green-pigeon <i>Treron phoenicoptera</i>	F	IV	LC	R	Ransai
84.	Little Brown Dove <i>Streptopelia senegalensis</i>	All	IV	LC	R	All areas
85.	Eurasian Collared Dove <i>Streptopelia decaocto</i>	GS	IV	LC	R	Uran
86.	Spotted Dove <i>Streptopelia chinensis</i> <b>Family – Psittacidae</b>	All	IV	LC	R	All areas
87.	Rose-ringed Parakeet <i>Psittacula krameri</i>	All	IV	LC	R	All areas





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Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
88.	Plum-headed Parakeet <i>Psittacula cynocephali</i> <b>Family – Cuculidae</b>	F	IV	LC	R	Ransai
89.	Asian Koel <i>Eudynamys scolopaceus</i>	All	IV	LC	R	All areas
90.	Greater Coucal (Southern Coucal) <i>Centropus sinensis</i>	All	IV	LC	R R	All areas
91.	Common Hawk-cuckoo <i>Hierococcyx varius</i>	All	IV	LC	R	Mosare, Ransai
92.	Blue-faced Malkoha <i>Phaenicophaeus viridirostris</i>	All	IV	LC	R	Mosare
93.	Sirkeer Malkoha <i>Phaenicophaeus leschenaulti</i> <b>Family – Tytonidae</b>	All	IV	LC	R	Mosare
94.	Common Barn-owl <i>Tyto alba</i> <b>Family – Strigidae</b>	NH	IV	LC	R	Kharghar
95.	Spotted Owlet <i>Athene brama</i> <b>Family – Caprimulgidae</b>	F/NH	IV	LC	R	Mosare, Ransai
96.	Indian Little Nightjar <i>Caprimulgus asiaticus</i>	A/GS	IV	LC	R	Ransai
97.	Savanna Nightjar <i>Caprimulgus affinis</i> <b>Family – Apodidae</b>	F	IV	LC	R	Ransai
98.	Little Swift <i>Apus affinis</i>	NH		LC	R	All areas
99.	Asian Palm-Swift <i>Cypsiurus balasiensis</i> <b>Family – Alcedinidae</b>	F/NH		LC	R	All areas
100.	Lesser Pied Kingfisher <i>Ceryle rudis</i>	W	IV	LC	R	Kopar
101.	White-breasted Kingfisher <i>Halcyon smyrnensis</i>	All	IV	LC	R	All areas
102.	Common Kingfisher <i>Alcedo atthis</i>	W	IV	LC	R	All areas
103.	Black-capped Kingfisher <i>Halcyon pileata</i>	W/F	IV	LC	R	Ransai



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Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
<b>Family – Meropidae</b>						
104.	Little Green Bee-eater <i>Merops orientalis</i>	All		LC	R	All areas
105.	Blue-tailed Bee-eater <i>Merops philippinus</i>	F/MC		LC	R	Kharghar creek, Mosare
<b>Family – Coraciidae</b>						
106.	Indian Roller <i>Coracias benghalensis</i>	All	IV	LC	R	All areas
<b>Family – Upupidae</b>						
107.	Common Hoopoe <i>Upupa epops</i>	MC/GS		LC	M	All areas
<b>Family – Bucerotidae</b>						
108.	Indian Grey Hornbill <i>Ocyrceros birostris</i>	F	I	LC	R	Mosare, Ransai
<b>Family – Capitonidae</b>						
109.	Coppersmith Barbet <i>Megalaima haemacephala</i>	F	IV	LC	R	Mosare, Ransai
110.	Brown-headed Barbet <i>Megalaima zeylonica</i>	F	IV	LC	R	Mosare, Ransai
<b>Family – Picidae</b>						
111.	Yellow-fronted Pied Woodpecker <i>Dendrocopus maharattensis</i>	F	IV	LC	R	
112.	Eurasian Wryneck <i>Jynx torquilla</i>	F	IV	LC	R	Mosare
<b>Family – Alaudidae</b>						
113.	Ashy -crowned Sparrow Lark <i>Eremopterix griseus</i>	GS	IV	LC	R	Uran
114.	Rufous-tailed Finch-Lark <i>Ammomanes phoenicura</i>	All	IV	LC	R	All areas
115.	Malabar Lark <i>Galerida malabarica</i>	ALL	IV	LC	R	All areas
<b>Family – Hirundinidae</b>						
116.	Wire-tailed Swallow <i>Hirundo smithii</i>	All		LC	R	All areas
117.	Barn Swallow <i>Hirundo rustica</i>	W		LC	R	All areas





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Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
<b>Family – Campephagidae</b>						
118.	Common Woodshrike <i>Tephrodornis pondicerianus</i>	F	IV	LC	R	Mosare
<b>Family – Irenidae</b>						
119.	Common Iora <i>Aegithina tiphia</i>	F	IV	LC	R	Ransai
120.	Gold-fronted Leafbird <i>Chloropsis aurifrons</i>	F	IV	LC	R	Nere, shedding
<b>Family - Pycnonotidae</b>						
121.	Red-vented Bulbul <i>Pycnonotus cafer</i>	All	IV	LC	R	All areas
122.	Red-whiskered Bulbul <i>Pycnonotus jocosus</i>	F/MC	IV	LC	R	All areas
<b>Family – Laniidae</b>						
123.	Bay-backed Shrike <i>Lanius vittatus</i>	All		LC	R	All areas
124.	Long-tailed Shrike <i>Lanius schach</i>	All		LC	R	All areas
125.	Southern Grey Shrike <i>Lanius meridionalis</i>	GS		LC	R	Chirner road
<b>Family – Motacillidae</b>						
126.	Citrine Wagtail <i>Motacila citreola</i>	W/M	IV	LC	M	All areas
127.	Yellow Wagtail <i>Motacila flava</i>	W/M	IV	LC	M	All areas
128.	Grey Wagtail <i>Motacila cinerea</i>	W	IV	LC	M	All areas
129.	White Wagtail <i>Motacila alba</i>	W	IV	LC	M	All areas
130.	Large Pied Wagtail <i>Motacia maderaspatensis</i>	W	IV	LC	R	All areas
131.	Tree pipit <i>Anthus trivialis</i>	P/GS	IV	LC	M	All areas
132.	Paddyfield Pipit <i>Anthus rufulus</i>	ALL	IV	LC	R	All areas
<b>Family – Muscicapidae</b>						
133.	Orange-headed Thrush <i>Zoothera citrina</i>	F	IV	LC	R	Ransai
134.	Jungle babbler <i>Turdoides striatus</i>	F	IV	LC	R	Ransai, Mosare, Patnoli
135.	Brown-cheeked Fulvetta <i>Alcippe poioicephala</i>	F	IV	LC	R	Ransai
136.	Black Redstart <i>Phoenicurus ochruros</i>	GS	IV	LC	M	Mosare



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Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
137.	Malabar Whistling-thrush <i>Myophonus horsfieldii</i>	F	IV	LC	M	Ransai
138.	Oriental Magpie-robin <i>Copsychus saularis</i>	All	IV	LC	R	All areas
139.	Common Stonechat <i>Saxicola torquatus</i>	All	IV	LC	M	All areas
140.	Pied Bushchat <i>Saxicola caprata</i>	All	IV	LC	R	Uran
141.	Indian Black Robin <i>Saxicoloides fulicatus</i>	All	IV	LC	R	All areas
142.	White-rumped Shama <i>Copsychus saularis</i>	F	IV	LC	R	Ransai
143.	Bluethroat <i>Luscinia svecica</i>	MC	IV	LC	M	Belpada, Kharghar creek, Pargaon
144.	Small Minivet <i>Pericrocotus cinnamomeus</i>	F	IV	LC	R	Mosare
145.	Blue Rockthrush <i>Monticola solitarius</i>	GS	IV	LC	M	Uran
146.	Zitting Cisticola <i>Cisticola juncidis</i>	MC	IV	LC	R	Kopar
147.	Plain Prinia <i>Prinia inornata</i>	All	IV	LC	R	All areas
148.	Ashy Prinia <i>Prinia socialis</i>	All	IV	LC	R	All areas
149.	Clamorous Reed-warbler or Indian Great Reed-warbler <i>Acrocephalus stentoreus</i>	MS	IV	LC	M	Kharghar Creek, Kopar
150.	Common Tailorbird <i>Orthotomus sutorius</i>	All		LC	R	All areas
151.	Lesser Whitethroat <i>Sylvia curruca</i>	GS	IV	LC	M	Uran
152.	Red-breasted Flycatcher <i>Ficedula parva</i>	GS/F	IV	LC	M	Nere
153.	Asian Brown Flycatcher <i>Muscicapa dauurica</i>	MC	IV	LC	M	Kopar
154.	White-browed Fantail-flycatcher <i>Rhipidura albicollis</i>	MC	IV	LC	M	Kharghar creek
155.	Black-naped Monarch Flycatcher <i>Hypothymis azurea</i>	F	IV	LC	R	Shedung





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Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
<b>Family – Paridae</b>						
156.	Great Tit <i>Parus major</i>	NH	IV	LC	R	Uran
<b>Family – Nectariniidae</b>						
157.	Purple Sunbird <i>Cinnyris asiatica</i>	All	IV	LC	R	Uran
158.	Purple-rumped Sunbird <i>Leptocoma zeylonica</i>	GS	IV	LC	R	Uran
<b>Family – Emberizidae</b>						
159.	Red-headed Bunting <i>Emberiza bruniceps</i>	GS	IV	LC	M	Paragon
160.	Black-headed Bunting <i>Emberiza melanocephala</i>	GS	IV	LC	M	Paragon, Kharghar Creek
<b>Family – Estrildidae</b>						
161.	Indian Silverbill <i>Euodice malabarica</i>	P	IV	LC	R	All areas
162.	Red Avadavat <i>Amandava amandava</i>	W/MC	IV	LC	R	Belpada, TS Chanakya
163.	Black-headed Munia <i>Lonchura malacca</i>	MC	IV	LC	R	Kharghar creek, TS Chanakya
164.	Scaly-breasted Munia <i>Lonchura punctulata</i>	MC/F	IV	LC	R	Kharghar creek, TS Chanakya, Mosare
165.	White-rumped Munia <i>Lonchura striata</i>	F	IV	LC	R	Mosare
<b>Family – Passeridae</b>						
166.	House Sparrow <i>Passer domesticus</i>	All	IV	LC	R	All areas
167.	Baya Weaver <i>Ploceus philippinus</i>	All	IV	LC	R	All areas
168.	Yellow-throated Sparrow <i>Petronia xanthocollis</i>	F/GS	IV	LC	R	Uran, Mosare
<b>Family – Sturnidae</b>						
169.	Rosy Starling <i>Sturnus roseus</i>	All	IV	LC	M	Belpada, Nhava, Kharghar Creek, Pargaon, Kopar
170.	Brahminy Starling <i>Temenuchus pagodarum</i>	GS	IV	LC	R	Uran
171.	Common Myna <i>Acridotheres tristis</i>	All	IV	LC	R	All areas



Annexure: List of birds observed during survey carried out in 10km radius area of NMIA						
Sr. No.	Common and scientific	Habitat	WPA schedule	IUCN status	R/M	Sites
<b>Family – Oriolidae</b>						
172.	Eurasian Golden Oriole <i>Oriolus oriolus</i>	All	IV	LC	R	All areas
173.	Black-hooded Oriole <i>Oriolus xanthornus</i>	F	IV	LC	R	Ransai
<b>Family – Dicruridae</b>						
174.	Black Drongo <i>Dicrurus macrocercus</i>	All	IV	LC	R	All areas
175.	Ashy Drongo <i>Dicrurus leucophaeus</i>	F	IV	LC	R	Ransai
<b>Family – Corvidae</b>						
176.	House Crow <i>Corvus splendens</i>	NH	V	LC	R	All areas
177.	Jungle Crow <i>Corvus macrorhynchos</i>	All	IV	LC	R	All areas
178.	Rufous Treepie <i>Dendrocitta vagabunda</i>	F	IV	LC	R	Mosare

List of birds and respective families have been arranged following:

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