



# Birds in the City

Summer observations

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Landscape Environment Advancement Foundation, LEAF

# Birds in the City

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## Introduction: The urban life of birds

As humans we imagine ourselves as the prime inhabitants of cities.

However, small patches within and at the edges of dense human population support a rich biodiversity of nature.

Birds are the most visible of this range of life around us.

All of us see pigeons and sparrows near, or in our houses. We can occasionally even spot a flash of colour of a sunbird whizzing past. Summer evenings would be incomplete if we did not hear the *koe's* song; and the monsoon deficient without the peacock.

Birds offer an immediate connect to the larger world of nature around us. While we may know a little of their original habitat, we have really no clue about how they actually move and live within cities.

What are all the bird species in the city?

Where exactly do they live in the city? What are their foraging habits? How do they move within a city? Are there different species of birds living in different parts of the city?

These are a few simple questions which Jobin, a landscape architecture student was trying to answer when he set out to observe the urban life of birds.

He has taken three different transects across Ahmedabad city, and has observed birds and their habits within them. His observations are recorded as two dimensional maps and photographs.

He has recorded about fifty species of birds in the city of Ahmedabad in the months of May, June and July. Nocturnal birds have not been included.

While he asked straight forward questions; his observations provoke us to think a little deeper.

How have birds changed in behaviour in adapting to city life? It might not be a simple question of living in a smaller slice of their original habitat (scrubland, woodland etc.); but a whole new way of living. A case in point, the Common Myna; which nests in holes in walls.

How has a host of other bird species adapted to living in dense urban conditions?

Does noise level affect bird calls? Are urban birds different from rural birds?

Jobin's studies begin to indicate how we can provide for a number of bird species in the city. To my mind, it also begins to make a case for informed design, which can allow for a richer experience of nature within the city. Dimensions and habitat typologies are clearly documented throwing up interesting comparisons. Juxtaposing his documentation of Kankaria lake, and the railway track, one is forced to reflect on the nature of the making of the edges of the lake; indeed the design of a lot of public parks and open spaces.

While the value of urban biodiversity is indisputable; a study of this nature allows us to think anew programmatically and pragmatically, the making of spaces within the urban environment which not only accommodate a range of species but also make it possible to experience the same in a more fulfilling manner.

Anjali  
July 2011

## Birds in the city

Birds are a reminder of nature to every city-dweller. Because of their ability to fly, even a multi-storeyed apartment resident is familiar with their presence and their connection to nature. In spite of being a densely packed city, various birds seem to have found suitable habitats within Ahmedabad. Some of the habitats include:

- Agricultural lands on the fringes of the city or along the *Chandrabhaga nalah* in the north-western part of the city – the food-grains available in large quantity, nesting areas in hedges surrounding the fields, fallow lands with insects tilled out from the soil, are some reasons for the presence of birds in this area.
- Industrial area on the eastern end of the city – some closed industries lying in the core of the industrial areas left untended have become a good habitat for many birds.
- Riverside vegetations on the northern and southern ends of the city – with the banks of the river covered with reeds or *kikar* bushes, birds get sufficient food and many hidden spaces to nest successfully.
- Riverfront development cutting through the city – even with the river banks developed over, groves of trees in certain areas and river islets formed with the water level going down form perfect feeding spots for some water birds.
- Wooded institutional areas – the provision of shelter and food throughout summer brings in a lot of birds in this area.
- Infrequently used railway tracks turned scrublands – with minimal human intervention along these tracks, the scrubs have provided food and nesting spots for smaller birds.
- Different lakes of the city, seasonal or with fronts developed – groves of trees along the lakes or small puddles of water yet to dry are the reasons for the presence of some water birds around these lakes.
- Huge open grounds surrounded with trees – open grounds give ample space and vision for birds which depend on their flying manoeuvres to catch their prey.
- Dumping ground in the south of the city – The city dump invites birds to feed on various human leftovers and insects brought in with it.

The bird community in all these areas is rich and varied. If observed closely, each of these habitats would have further divisions in terms of bird habitats. The reasons for such differences between various habitats of the city have been the basic intent of this study.

During the summer months in Ahmedabad, migratory bird species leave the city for their home countries. The ones that we see during these months are generally resident birds, that breed and stay in their respective areas. Local migrations happen for some birds which leave for other parts of the country. Some migratory ones that are left behind are called vagrants.

There are three main ways of finding out the variety of animals and plants in a study area: area searches; transect searches; and point searches. Animals that move around a lot or which might be easily disturbed, such as birds, can be studied with point searches. To do this, each searcher is given a place in the study site where they sit still. They then record the animals that they can see or hear during a set period of time.

Initially to locate the sites for study, I went around the city on a particular road or along the river with promising differences in the habitats

flanking it. After stopping at various sites along these transects and studying them, I came up with three transects and their thirteen sites for the following reasons:

- For the presence of a high bio-diversity or variety of bird species (as compared to all the sites I studied)
- For the presence of a high number of a particular population of bird species either because of their roosting, nesting or feeding preferences.

For example: Kalupur railway station happens to invite a high number of Rose-ringed parakeets (*Psittacula krameri*) on its old trees to roost in the evening. On the contrary, Vasna barrage having a high biodiversity caters to Bank mynas (*Acridotheres ginginianus*) to nest along the slopes of dug ditches in a very high number. The river bed around Sabarmati Bridge in the northern part of the city brings in a huge flock of Asian open-billed storks (*Anastomus episcopus*) that feed along the banks of the river.

Different point transects in the site were considered after it was studied and the one with the maximum apparent bird movements (for various reasons like the presence of water body, food availability, point transect falling on the edge of two or more habitats) was chosen for further study.

The study for the site involved the following:

**Neighbourhood map** -The intent was to map out various habitats in and around the site selected. Different habitats cater to birds in different ways. Some prefer open grounds to just forage for food, while some would even nest in open. Birds nesting and roosting on trees might spend their predominant time foraging on the ground. Various birds spotted in the site and surroundings have been mapped with their activities in various habitats at their respective heights from the ground

**Sightings along a section** -In a bird watcher's diary, the location of bird, the activity of the bird while it was sighted etc are jotted down. Similarly the next part of study involved looking at a particular section of the site and plotting various locations where the birds were sighted for most part of the study time. The activity of the bird is listed. This gives us an idea of the niche where the bird is most active.

**Bird map** - Sitting at a particular point transect, the movements and activities of the birds were recorded at following times:

Morning: 0600-0800 hrs.

Afternoon: 1100-1300 hrs.

Evening: 1730-1930 hrs.

Their activities have been outlined to four activities - foraging (searching for food), nesting (building and inhabiting a nest), roosting (perching to rest or sleep) and perching(sitting, as on a branch). A perching point has been added to involve other activities like calling for possible mates, looking out for prey, seeking shelter from hot summer sun etc.

**Inferences** - The bird population has been approximately listed down. The various reasons for the presence and flourishing of birds in the particular site are also listed down based on the studies carried out.

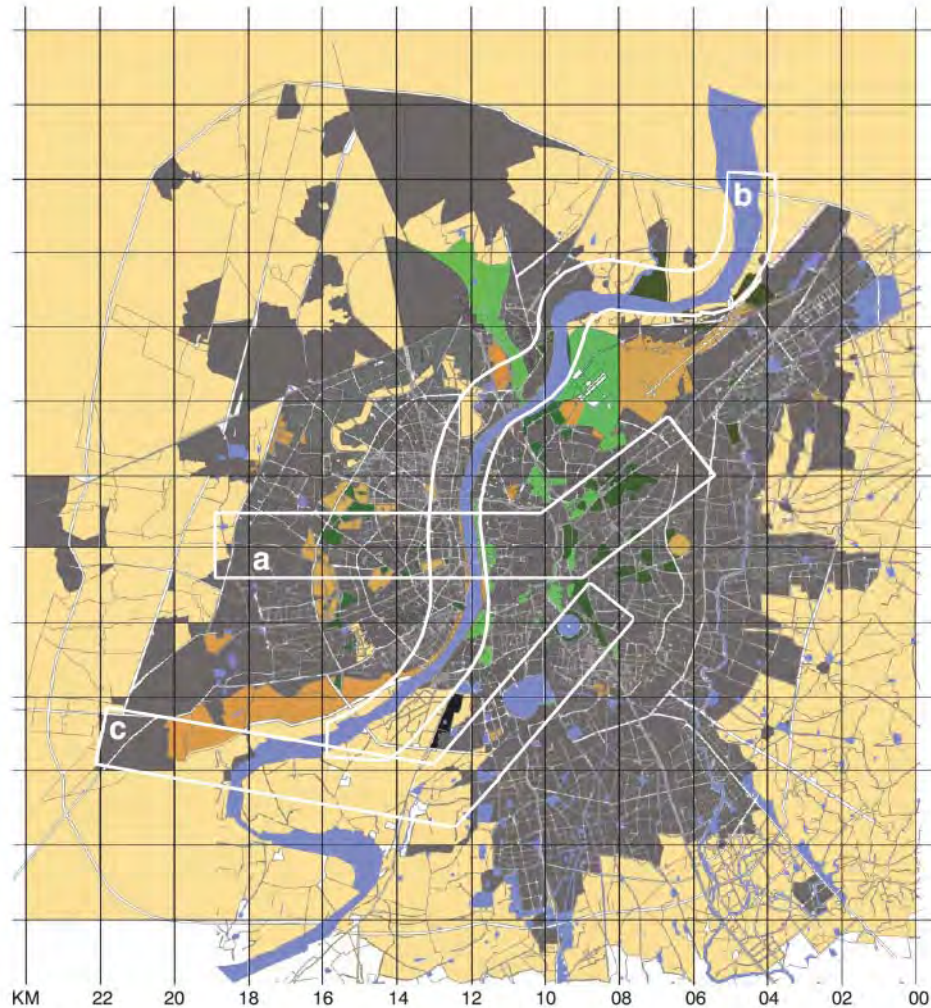
Crepuscular (twilight) activities of nocturnal birds have been studied and mapped but study focuses mainly on the diurnal (active during day) birds.

Roosting and nesting points represented in the map are the ones observed on the site. They might not be exhaustive for the site.



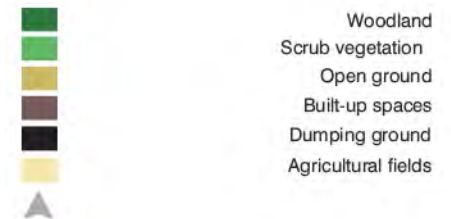


## Map of Ahmedabad



The study for birds of Ahmedabad was started initially by dividing the city into transects. A transect is a strip of ground in which a systematic study is carried out. In this case, transects were either taken along a road or the river. Three such transects were etched out in the city:

- a.  
**Western urban fringe to eastern industrial area**
- b.  
**Along river Sabarmati**
- c.  
**Pockets in the south of the city**



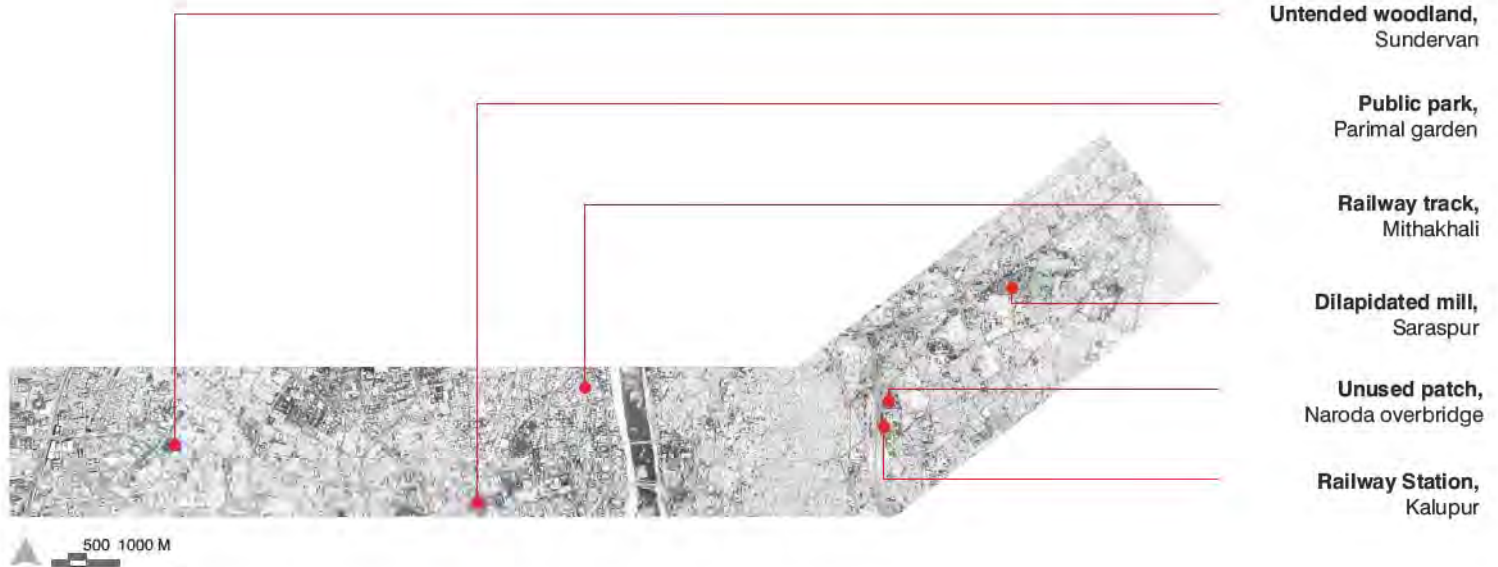
## BIRD HABITATS



Transects observed in the city



## WESTERN FRINGE TO EASTERN INDUSTRIAL AREA, Transect a



This transect contains six varied habitats all within a dense fabric. It starts from the western fringes of the city with a small but densely wooded pocket surrounded by high-rise buildings. The road goes on to reach the center of the city to Parimal garden which has high tree canopies above and heavy human traffic below. As the road cuts across a railway track, the adjacent residential buildings and the neglected strip of land creates yet another environment for the birds. Across the Nehru Bridge, and beyond the Old city, amongst heavy traffic zone lies Kalupur railway station that invites a huge flock of Rose-ringed Parakeets daily to roost on its old *Ficus* trees. The road runs further beside a tract of unused land with groves of *peepal* trees. The industrial area starts as you go further on the road and amidst all the noise is a dilapidated and silent cotton mill, quietude broken occasionally by a peacock cawing or *koels* cooing.



N.T.S. ▲

SITES ALONG THE TRANSECT

# UNTENDED WOODLAND, SUNDERVAN



-  Grove
-  Scrub vegetation
-  Open ground
-  Water body
- 

NEIGHBORHOOD HABITAT MAP





Grove



Open ground

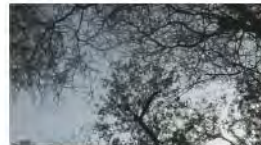


Scrub vegetation



Water body

Nesting point  Foraging point   
 Roosting point  Perching point 



Interlocked tree canopies



Common Babbler forage among the fallen litter



Green Bee-eaters catch insects on trees around a glade



Open ground across the boundary wall



Peacock dances among the leaf litter on the ground



Green Bee-eater nests in earth banks



Young trees and shrubs form the undergrowth



White-browed Fantail feed on insects flitting across shrubs



Oriental Magpie-robin flying between fallen bamboos



Water body among the trees



White-breasted Waterhen feed among the fallen leaves



Little Egret foraging in the water body



Rose-ringed Parakeet  
(*Psittacula krameri*)  
nesting in a hollowed  
bole of *Azadirachta*  
*indica*



Oriental Magpie-robin  
(*Copsychus saularis*)  
foraging in the litter



Jungle Babbler  
(*Turdoides striatus*)  
flock to feed in leaf  
litter



SIGHTINGS ALONG A SECTION





Peacock (*Pavo cristatus*) displays courtship dance in an open area between fallen branches



White-browed Fantail (*Rhipidura aureola*) catches insects between the fallen branches



White-breasted Waterhen (*Amauromis phoenicurus*) feeds among the litter near water body



Green Bee-eaters (*Merops orientalis*) visit their nest built in a burrow in an earth bank



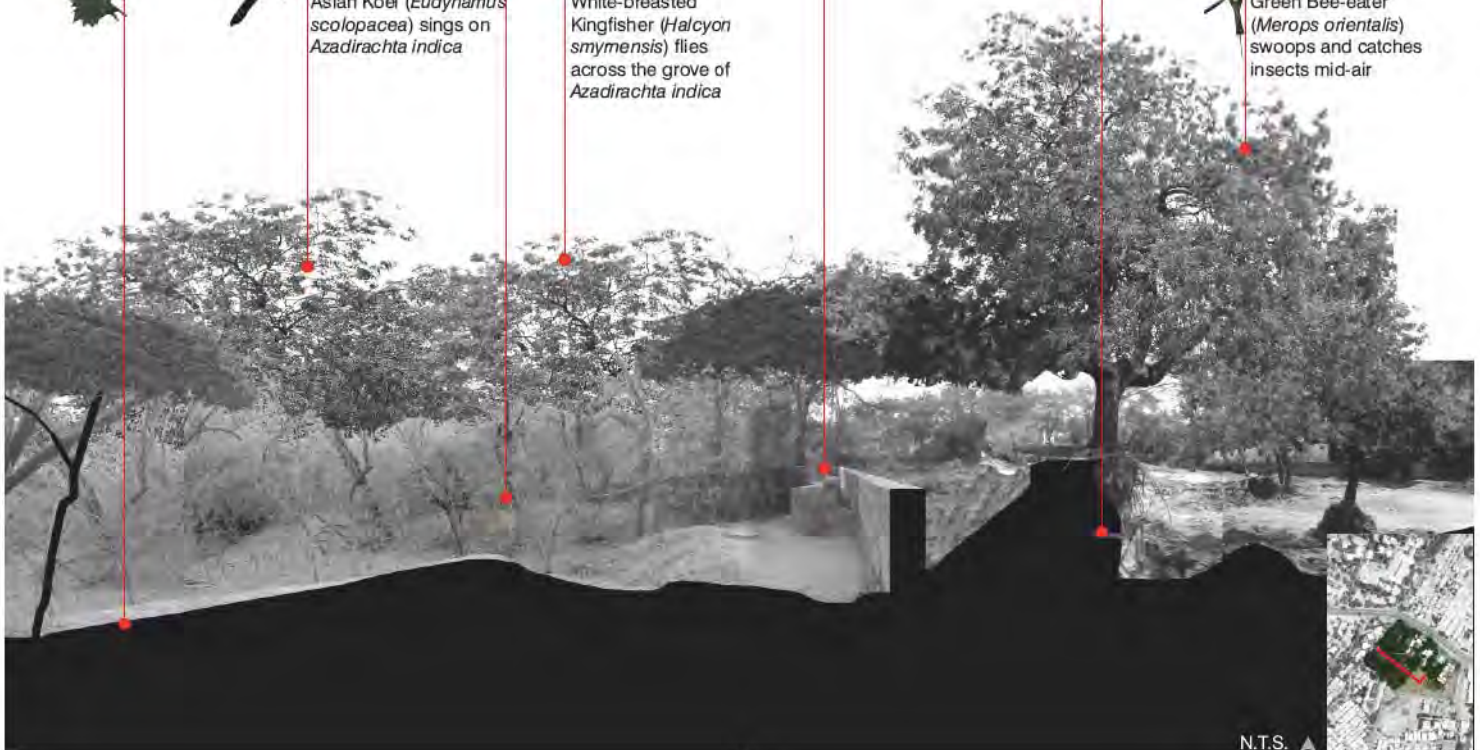
Asian Koel (*Eudynamis scolopacea*) sings on *Azadirachta indica*



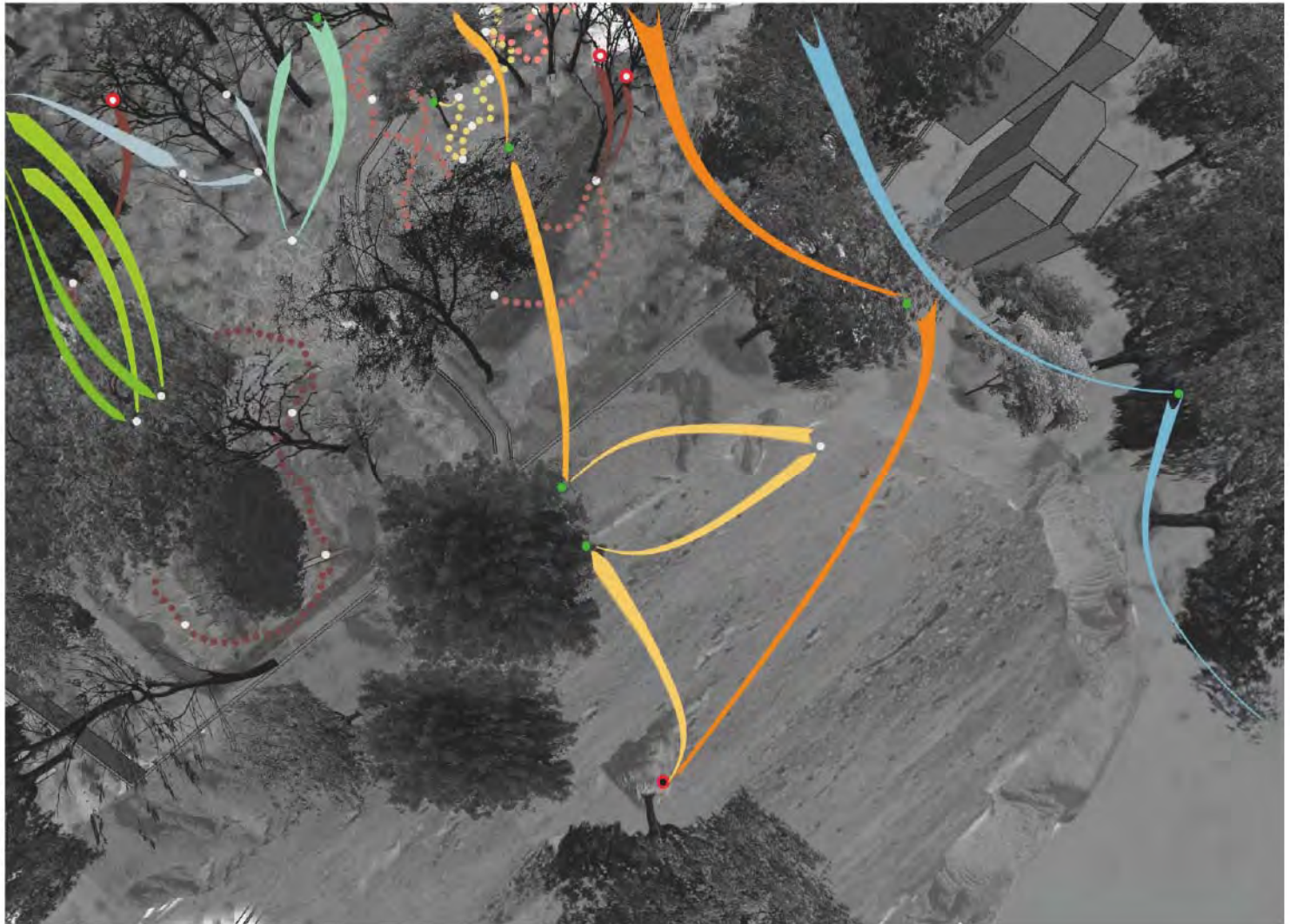
White-breasted Kingfisher (*Halcyon smymensis*) flies across the grove of *Azadirachta indica*



Green Bee-eater (*Merops orientalis*) swoops and catches insects mid-air



N.T.S. ▲



BIRD MAP ▲



White-breasted Kingfisher  
(*Halcyon smyrnensis*)



Peafowl  
(*Pavo cristatus*)



Oriental Magpie-robin  
(*Copsychus saularis*)



Indian Myna  
(*Acridotheres tristis*)



Indian Pond Heron  
(*Andreola grayii*)



White-browed Fantail  
(*Rhipidura aureola*)



Asian Koel  
(*Eudynamis scolopacea*)



Green Bee-eater  
(*Merops orientalis*)



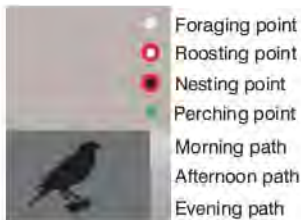
Rose-ringed Parakeet  
(*Psittacula krameri*)



White-breasted Waterhen  
(*Amaurornis phoenicurus*)



Eurasian Collared Dove  
(*Streptopelia decaocto*)



Rose-ringed Parakeets fly north-west from the site where they find more trees. They come back in the evening to roost. White-breasted Kingfisher shuttles between Sundervan and a scrubland to the south-east. The Green Bee-eaters forage at the southern edge of the site perching on branches of neem tree and catching insects mid-air. They have their nests in the earth-banks formed during construction work. The White-breasted Waterhen forages throughout the site specially areas near the water body. Peafowls walk on the leaf litter under the trees displacing insects and feeding on them.



N.T.S.

# PUBLIC PARK, PARIMAL GARDEN



-  Grove
-  Water body
-  Open Ground
-  Shrubbery
- 

NEIGHBORHOOD HABITAT MAP





Grove



Groves of *Azadirachta indica* and *Allanthus excelsa*



Golden-backed Wood-pecker pecking insects from the bark



Fruiting *Ficus religiosa* attracts Rose-ringed Parakeet



Yellow-footed Green Pigeon basking on *Colvillea racemosa*



Water body



Central water body with water lilies on the surface.



Black Ibis basking in the sun



White-breasted Waterhen feeding near water



Little Egret searching for food among water vegetation



Open ground



Oriental Magpie-robin searching for nesting materials



Eurasian Collared-Dove foraging on pathways



Indian Mynas searching for food on lawns



Shrubbery



Shrubbery of *Caesalpinia pulcherrima*

Nesting point  Foraging point   
 Roosting point  Perching point 



Eurasian Collared Dove (*Streptopelia decaocto*) perching on the branches of *Azadirachta indica*



White-breasted Waterhen (*Amaurornis phoenicurus*) feeds walking on the leaves



Little Cormorant (*Phalacrocorax niger*) basking on the branches of *Thespesia populnea* tree



Jungle Babbler (*Turdoides striatus*) feeding on the lawn grass



Asian Koel (*Eudynamus scolopacea*) perching on *Polyalthia longifolia* tree



N.T.S. ▶



Black Ibis (*Pseudibis papillosa*) flock to roost on *Ficus benghalensis*



Indian Myna (*Acridotheres tristis*) roosting between the leafy branches of *Ficus benghalensis*



Black Ibis (*Pseudibis papillosa*) feeding on the reedy edges of the water body



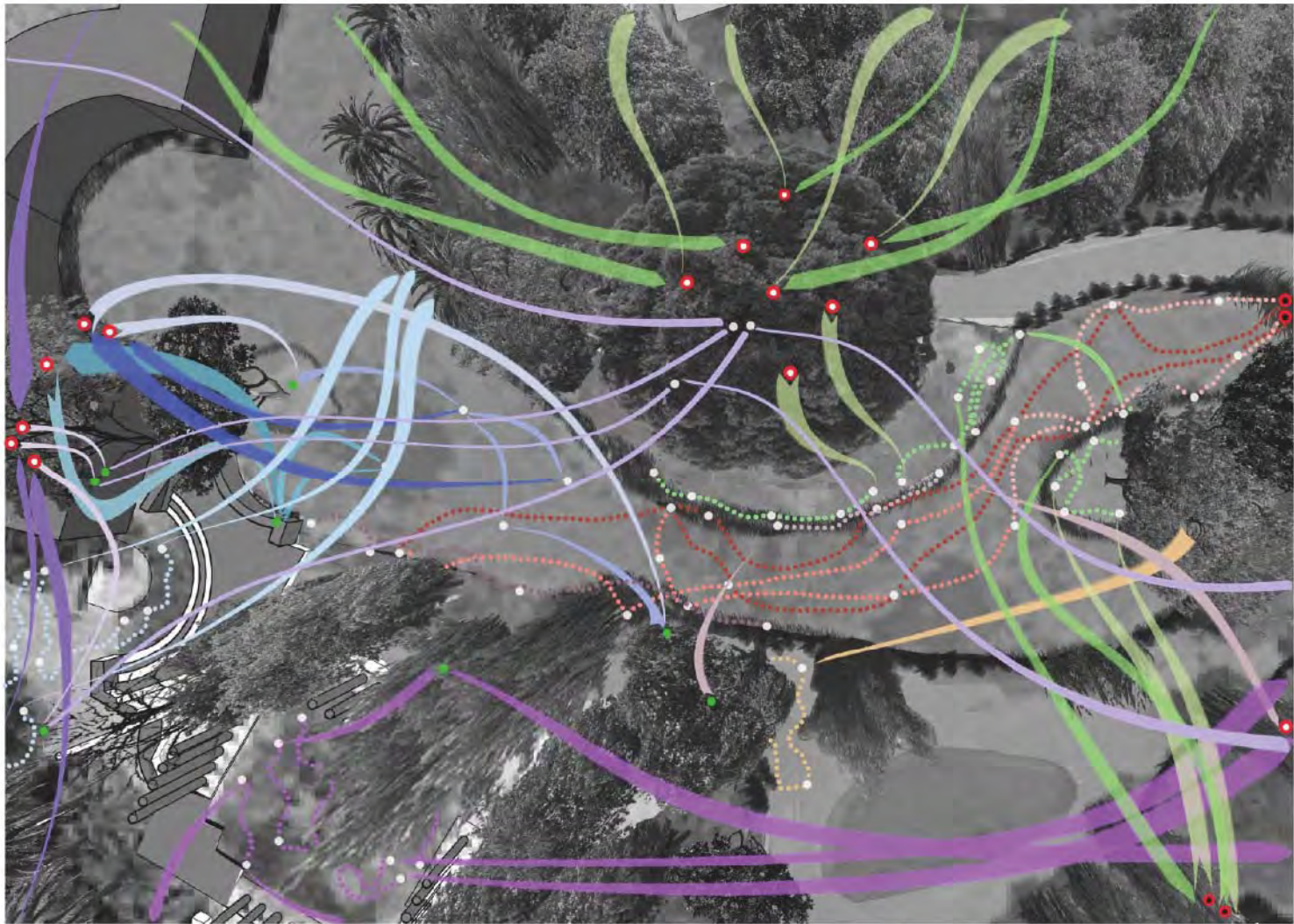
Indian Pond Heron (*Ardeola grayii*) feeding on the reedy banks of the water body



Black Kite (*Milvus migrans*) perches among the branches of *Azadirachta indica*



SIGHTINGS ALONG A SECTION



BIRD MAP ▲





White-breasted Kingfisher  
(*Halcyon smyensis*)



Little Cormorant  
(*Phalacrocorax niger*)



Rock Pigeon  
(*Columba livia*)



Black Ibis  
(*Pseudibis papillosa*)



Indian Pond Heron  
(*Andreola grayii*)



Indian Myna  
(*Acridotheres tristis*)



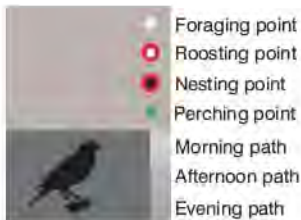
Yellow-footed Green Pigeon  
(*Treron phoenicoptera*)



White-breasted Waterhen  
(*Amaurornis phoenicurus*)



Eurasian Collared Dove  
(*Streptopelia decaocto*)

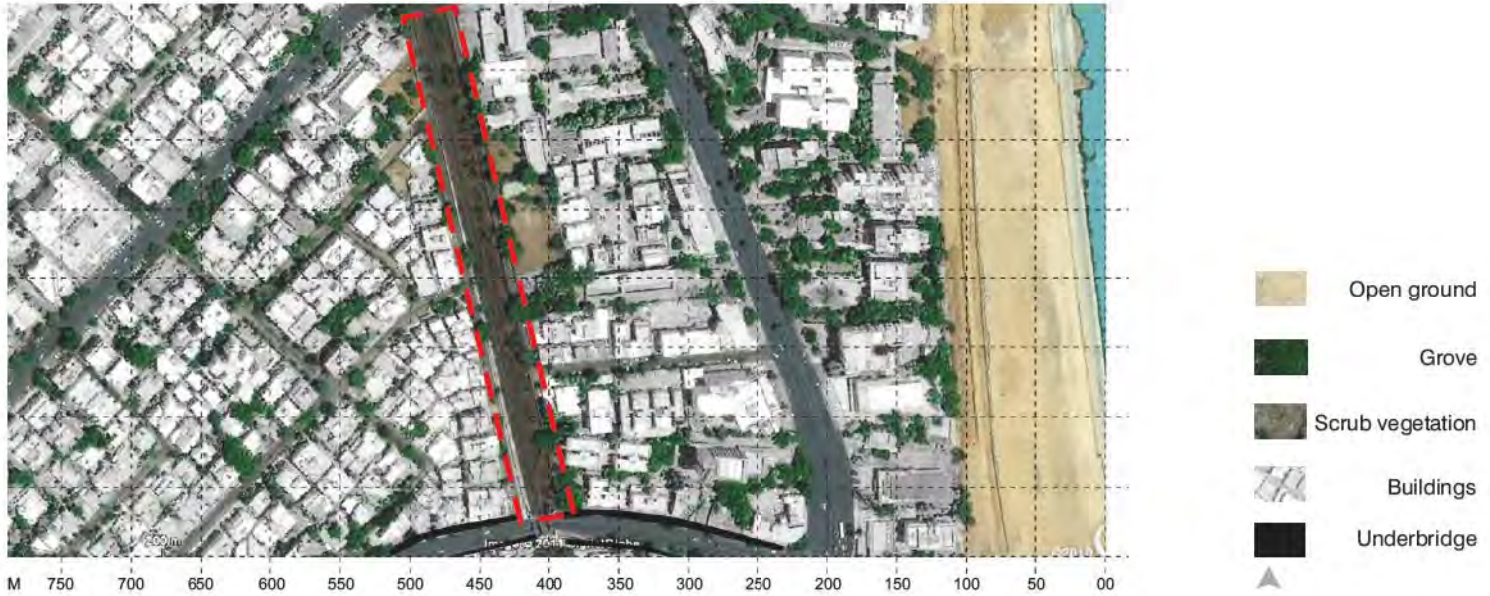


Black Ibises fly onto the central *Ficus benghalensis* by the day fall and roost there. They fly in small groups in the morning. In the afternoon, a horde of birds take protection from the summer sun near the pond under trees. Birds like Little Egrets, White-breasted Waterhen, Pond Heron, Black Ibises continue feeding at various parts of the ponds, the former two near the centre of the ponds and the latter two at the edges. The Little cormorants dive and feed in the pond and start roosting much earlier than the other birds, initiating with an evening sun bask.

N.T.S. ▶



# RAILWAY TRACK, MITHAKHALI



NEIGHBORHOOD HABITAT MAP





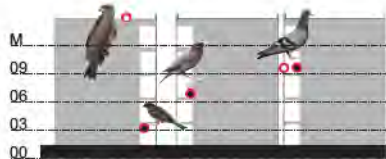
Open ground



Grove



Scrub vegetation



Buildings



Underbridge

Nesting point  Foraging point   
 Roosting point  Perching point 



Open area around the railway track



Little Brown Dove foraging on a footpath along the track



Household garbage dumped in open bring in Indian Mynas.



Groves of *Azadirachta indica* and *Ailanthus excelsa*



Fruiting *Azadirachta indica* attract Asian Koel



Rose-ringed Parakeets feed on a *Moringa oleifera* tree



Scrub vegetation along railway track



Flowering *Zyzyphus Nummulmaria* attracts insects



Flowering *Calotropis procera* attracts Purple Sunbird



Multi-storeyed buildings along the railway track



Black Kite preparing to roost on a balcony railing



House Sparrow nesting in basement of buildings



Mithakhali underbridge at one end of the track



Weep-holes of underbridge nested in by Bank Mynas



Bank Mynas foraging near the underbridge.

## GENERAL SITE SECTIONS



Black Kite (*Milvus migrans*) roosting on building parapet



House Crow (*Corvus splendens*) sitting on the window ledge looking out for food.



Rock Pigeon (*Columba livia*) roosting on parapets.



Oriental Magpie-robin (*Copsychus saularis*) perching on electric cable.



Red-vented Bulbul (*Pyconotus cafer*) perching on a twig of *Cordia myxa*.



Indian Myna (*Acridotheres tristis*) foraging in garbage thrown over the wall.



Jungle Babbler (*Turdoides striatus*) feeding on a skink caught in litter.



Pair of Shikra (*Accipiter badius*) nesting on *Ailanthus excelsa* with two chicks.



SIGHTINGS ALONG A SECTION



Little Brown Dove  
(*Streptopelia senegalensis*) foraging on the foot-path along the railway track



House Sparrow  
(*Passer domesticus*) foraging on the ground.



Rose-ringed Parakeet  
(*Psittacula krameri*) flocking on *Azadirachta indica*.

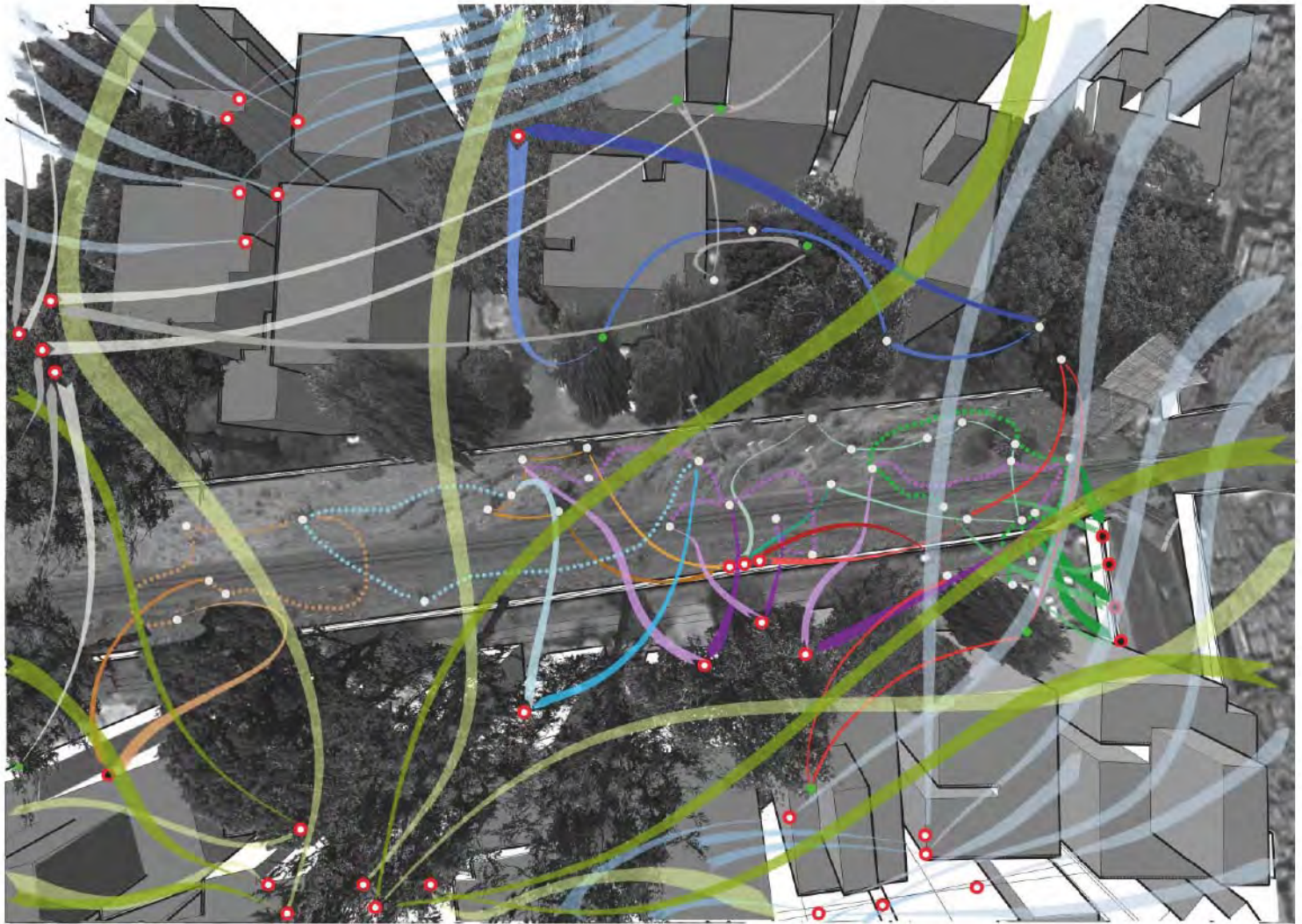


Ashy Prinia (*Prinia socialis*) flitting between the *Zyzyphus nummularia* shrubs



Asian Koel (*Eudynamis colopacea*) singing from *Alanthus excelsa* tree





BIRD MAP ▲



Rock Pigeon  
(*Columba livia*)



Bank Myna  
(*Acridotheres ginginianus*)



Oriental Magpie-robin  
(*Copsychus saularis*)



Indian Myna  
(*Acridotheres tristis*)



Little Brown Dove  
(*Streptopelia senegalensis*)



House Sparrow  
(*Passer domesticus*)



Asian Koel  
(*Eudynamys scolopacea*)



House Crow  
(*Corvus splendens*)



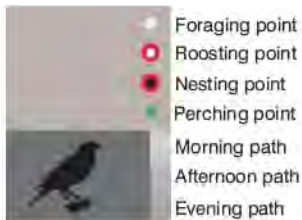
Ashy Prinia  
(*Prinia socialis*)



Black Kite  
(*Milvus migrans*)



Red-vented Bulbul  
(*Pycnonotus cafer*)

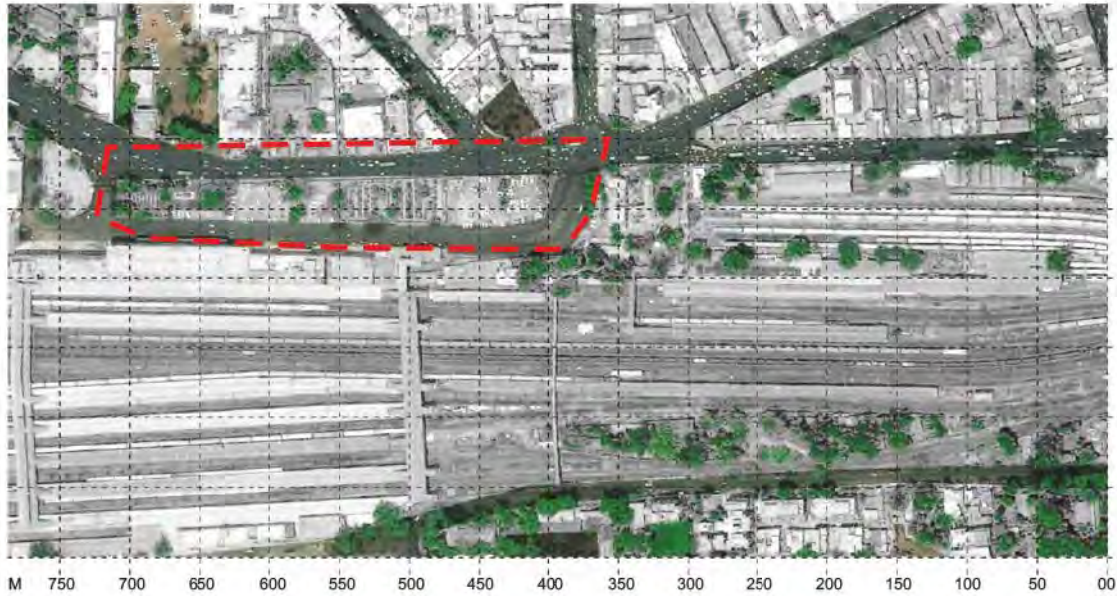


Black Kites roost together on the same tree, but in the morning they fly out in different directions individually or in small numbers. In the evening, small birds like Ashy Prinias, Red-vented Bulbuls, Oriental Magpie-robins roost communally on a small *Zyzyphus* shrub. The House Sparrows make frequent up and down flights from the site to an apartment nearby, where they have nested. The site is used as dumping yard, and the birds get food from the dump and scrub, cover by the scrub and protection by the trees.



N.T.S. ◀

# KALUPUR RAILWAY STATION



NEIGHBORHOOD HABITAT MAP







Grove



Buildings



Old trees of *Ficus infectoria* near Railway station



Yellow-footed Green Pigeon feeding on *Ficus infectoria*



Trees like *Cordia myxa* roosted upon by Rose-ringed Parakeets



Buildings around railway station



House Crow on roof top

Nesting point  Foraging point   
 Roosting point  Perching point 



House Crow (*Corvus splendens*) sitting on building parapet



Rock Pigeon (*Columba livia*) roosting on the building window ledges



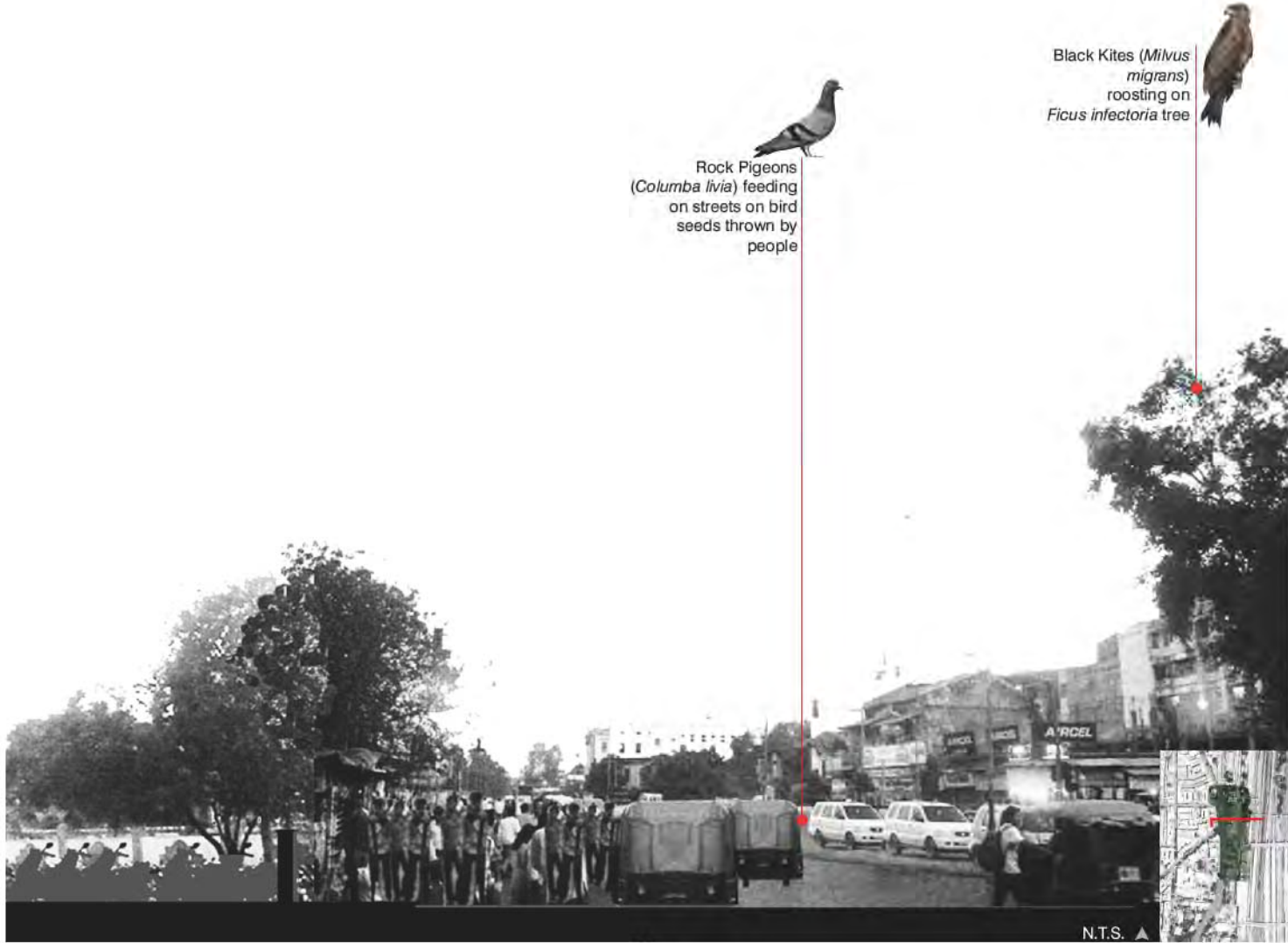
Rose-ringed Parakeets (*Psittacula krameri*) flocking on *Ficus infectoria* tree



Rose-ringed Parakeets (*Psittacula krameri*) flocking on *Ficus religiosa* tree

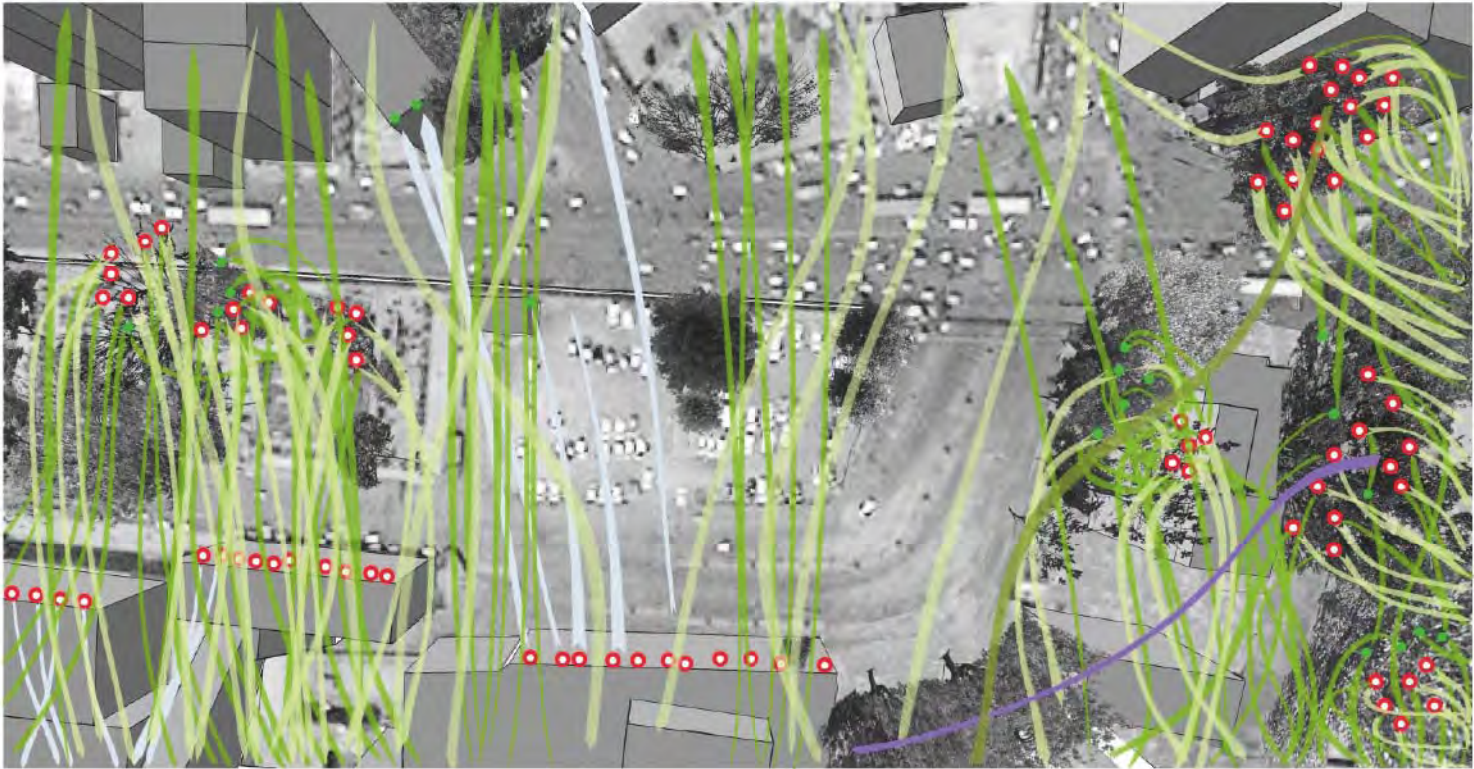


SIGHTINGS ALONG A SECTION



Rock Pigeons (*Columba livia*) feeding on streets on bird seeds thrown by people

Black Kites (*Milvus migrans*) roosting on *Ficus infectoria* tree





Rose-ringed Parakeet  
(*Psittacula krameri*)



Black Kite  
(*Milvus migrans*)



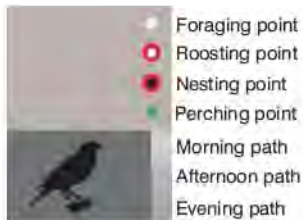
Yellow-footed Green Pigeon  
(*Treron phoenicoptera*)



House Crow  
(*Corvus splendens*)



Rock Pigeon  
(*Columba livia*)



Flocks of Rose-ringed Parakeets start every evening from the groves of trees in the eastern part of the city, flying across the Railway station towards the Old City to roost. Some come down and roost on the trees near the Station. A couple of Yellow-footed Green Pigeon also follow the same pathway. The Rock Pigeons of the station always prefer the coves built into the facade of the building to roost and rest. They fly towards the Old City for feeding and come back every evening.



N.T.S.

# UNUSED PATCH, NARODA OVERBRIDGE



-  Grove
-  Open ground
-  Buildings
-  Overbridge
- 

NEIGHBORHOOD HABITAT MAP



N.T.S. ▲



Grove



Open ground



Buildings



Overbridge

Nesting point Foraging point   
 Roosting point Perching point



House Crows flocking on grove of *Ficus religiosa*



Rose-ringed Parakeet on *Ficus religiosa*



Black Kite roosting on *Ficus religiosa*



Rose-ringed Parakeets come down for bird seeds



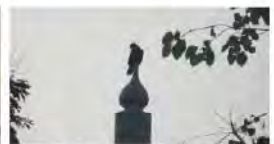
Rock Pigeons come down for bird seeds



Building near overbridge with Rock Pigeons resting on it



House Crows and Bank Mynas fed by residents



Black Kite resting on nearby minaret



Naroda overbridge



House Crows waiting for garbage to be dumped



Weepholes of overbridge resided in by Rock Pigeons



Rock Pigeon (*Columba livia*) feeding on bird seeds thrown by people



Rose-ringed Parakeet (*Psittacula krameri*) feeding on bird seed thrown by people



House Crow (*Corvus splendens*) flocking on *Ficus religiosa* tree



Black Kite (*Milvus migrans*) roosting on *Ficus religiosa* tree



SIGHTINGS ALONG A SECTION





Asian Koel (*Eudynamys scolopacea*) calling from the branches of *Ficus religiosa*



Rock Pigeon (*Columba livia*) nest in weep-holes of overbridge



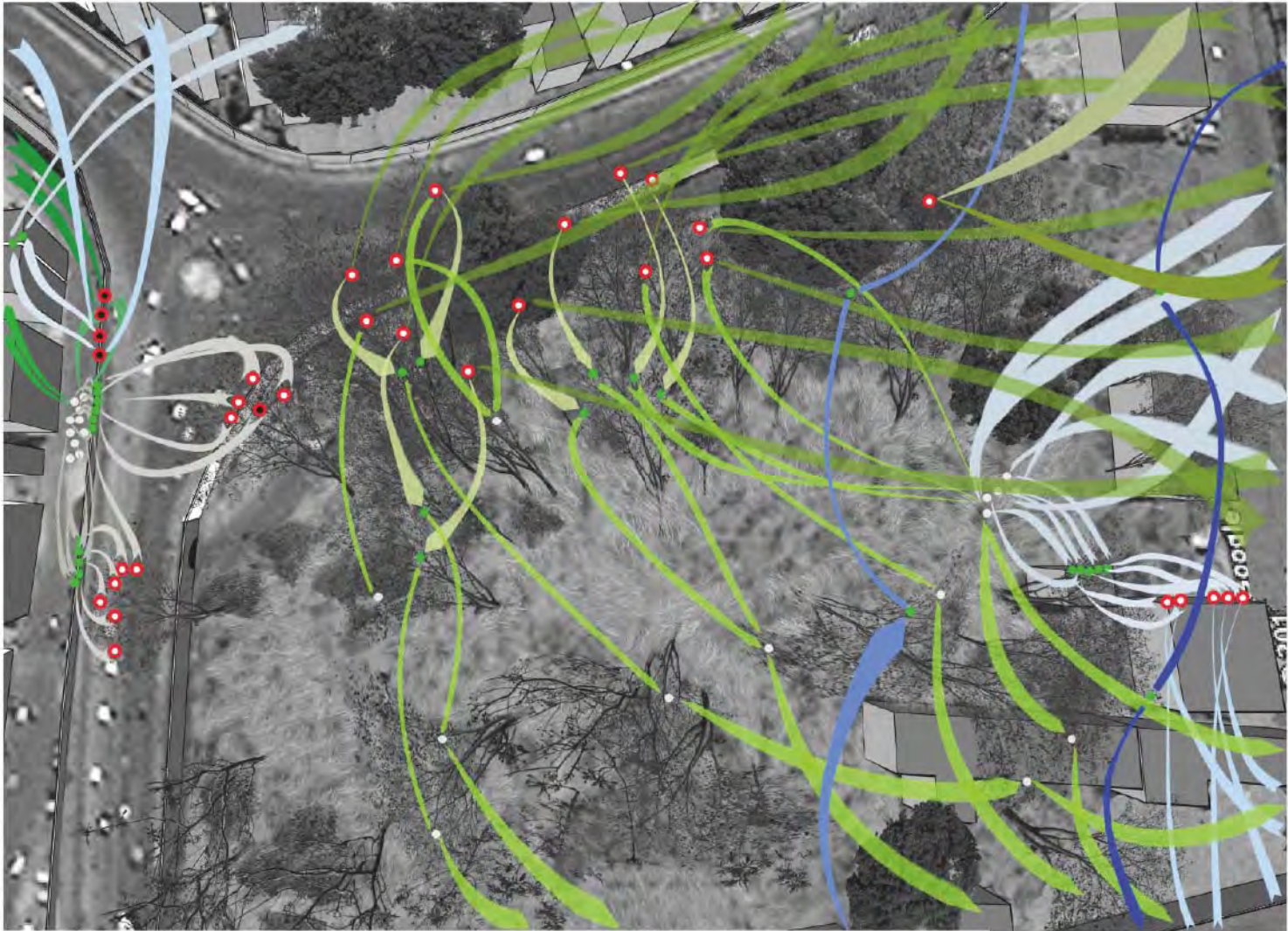
House Crow (*Corvus splendens*) flocking to feed on household garbage dumped on road



Bank Myna (*Acridotheres ginginianus*) flocking to feed on household garbage dumped on road



N.T.S. ▲



BIRD MAP



Black Kite  
(*Milvus migrans*)



Rose-ringed Parakeet  
(*Psittacula krameri*)



Asian Koel  
(*Eudynamys scolopacea*)



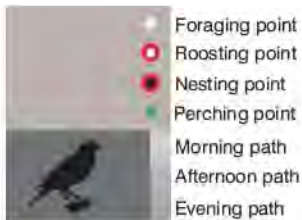
Rock Pigeon  
(*Columba livia*)



Bank Myna  
(*Acridotheres ginginianus*)



House Crow  
(*Corvus splendens*)



Rose-ringed Parakeets fly in flocks towards the groves to the south. The Asian Koels also trace the same path, but Parakeets go further to the north. The House Crow that roost on the trees of the site group together near the over-bridge next to the residential buildings. They forage there in the morning and leave further into the city later. Indian Mynas, Bank Mynas, Rock pigeons that nest in the weep-holes of the over-bridge follow the same routine during the early hours of the day.



N.T.S. A

# DILAPIDATED MILL, SARASPUR



NEIGHBORHOOD HABITAT MAP





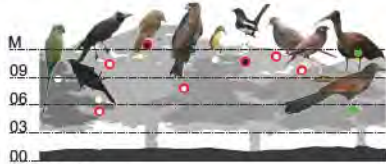
Open ground



Indian Myna foraging along pedestrian paths



Eurasian Collared-Dove foraging on the ground



Grove



Groves of *Azadirachta indica* and *Ailanthus excelsa*



Rose-ringed Parakeets flocking on *Azadirachta indica*



Indian Myna nests in the bole of *Ficus religiosa*



Black Kites prepare to roost on *Ailanthus excelsa*



Scrub vegetation



Shrubs of *Calotropis procera* and *Zizyphus nummulmaria*.



Buildings



Peacock walks across the roof of the dilapidated mill



Rock Pigeons nest in ruined walls of the building

Nesting point  Foraging point   
 Roosting point  Perching point 



Common Tailorbird  
(*Orthotomus sutorius*)  
flitting between  
*Zyzyphus nummulmaria*  
shrubs



Rose-ringed Parakeet  
(*Psittacula krameri*)  
flocking on *Azadirachta indica*



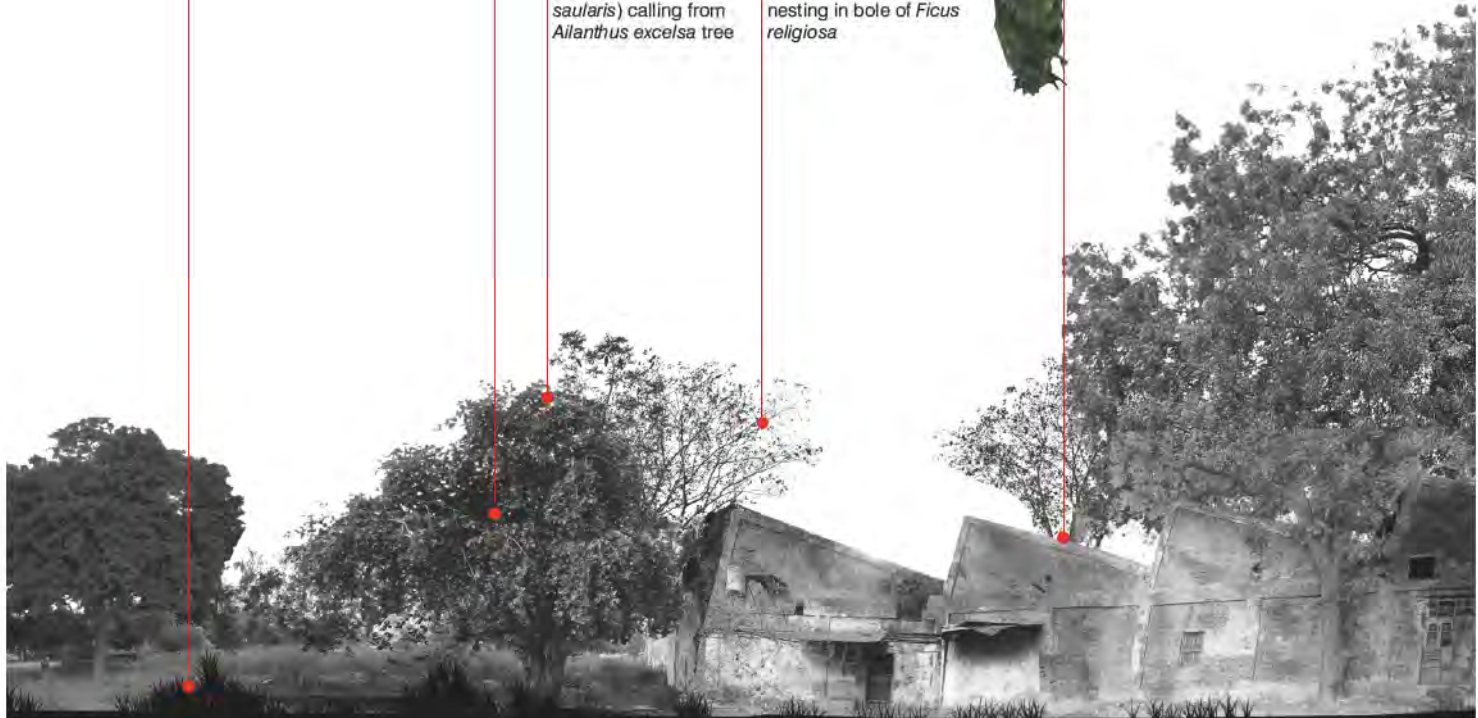
Oriental Magpie-robin  
(*Copsychus saularis*) calling from  
*Ailanthus excelsa* tree



Indian Myna  
(*Acridotheres tristis*)  
nesting in bole of *Ficus religiosa*



Peacock (*Pavo cristatus*) walking on  
the dilapidated roof  
feeding among fallen  
leaves



SIGHTINGS ALONG A SECTION



Rock Pigeon (*Columba livia*) nesting in the niches of the wall



Eurasian Collared-Dove (*Streptopelia senegalensis*) feeding on the ground



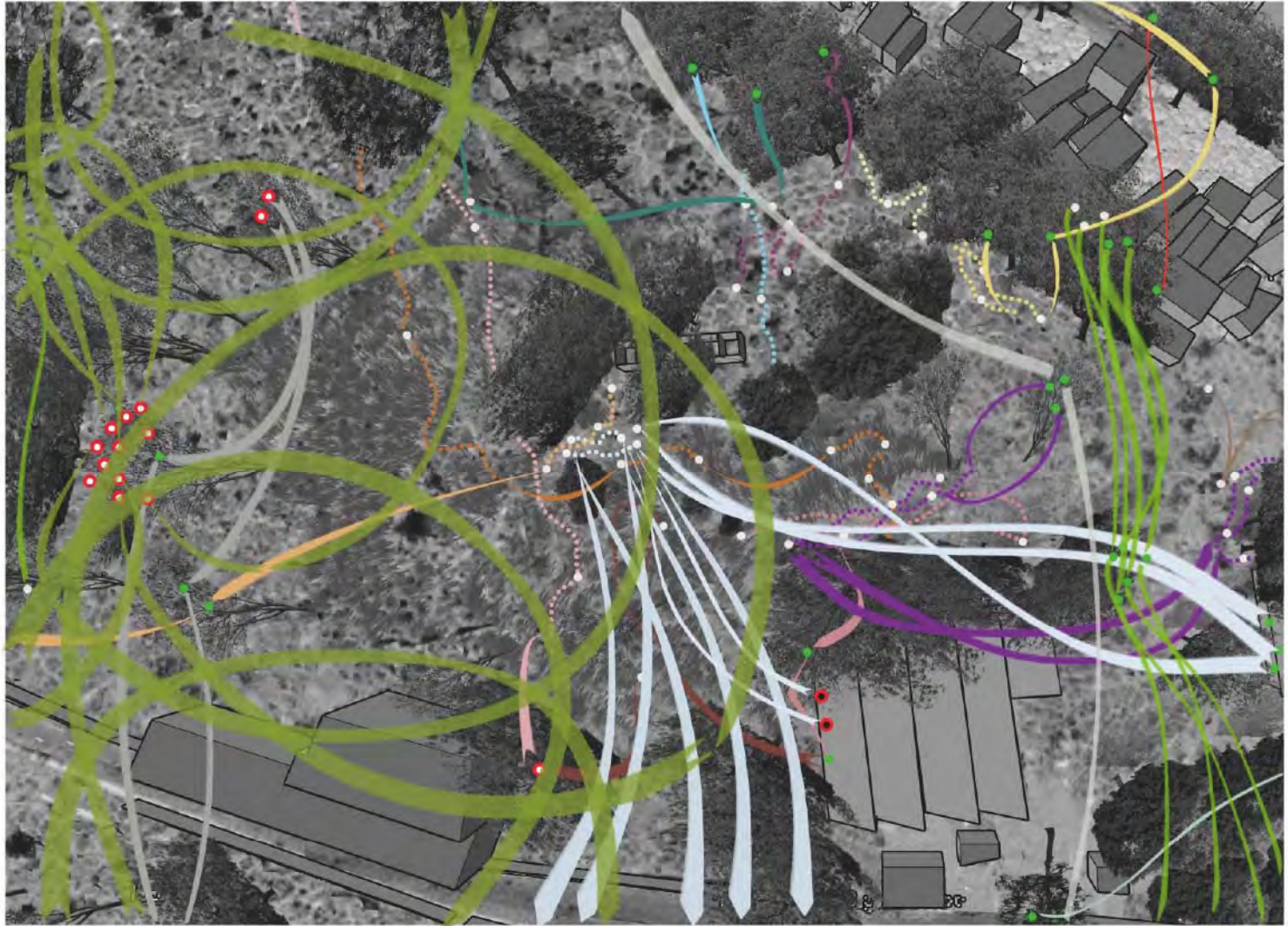
Asian Koel (*Eudynamys scolopacea*) calling from the branches of *Ficus religiosa*



Black Kite (*Milvus migrans*) roosting in the groves of *Ficus religiosa*



N.T.S. ▲



BIRD MAP ▶





Black Kite  
(*Milvus migrans*)



Rose-ringed Parakeet  
(*Psittacula krameri*)



Asian Koel  
(*Eudynamis scolopacea*)



Rock Pigeon  
(*Columba livia*)



Greater Coucal  
(*Centropus sinensis*)



House Crow  
(*Corvus splendens*)



Peafowl  
(*Pavo cristatus*)



Common Tailor Bird  
(*Orthotomus sutorius*)



Oriental Magpie-robin  
(*Copsychus saularis*)



Indian Myra  
(*Acridotheres tristis*)



Little Brown Dove  
(*Streptopelia senegalensis*)



Red-vented Bulbul  
(*Pycnonotus cafer*)



Eurasian Collared-Dove  
(*Streptopelia decaocto*)



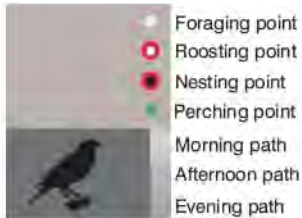
Jungle Babbler  
(*Turdoides straitus*)



Purple Sunbird  
(*Nectarinia asiatica*)



Grey Francolin  
(*Francolinus pondicerianus*)



The groves have become a roosting place for Black Kites and as the night approaches they start circling over the site to later settle together on an open-branched tree. A very similar scrub vegetation to the south also bring in a number of small birds like Common Tailor Bird, Purple Sunbird, Red-vented Bulbul etc and ground feeding birds like Grey Francolins and Peafowls. The Jungle Babbler, Eurasian Collared Doves prefer being in the proximity to the residential buildings to south-west. People also place food for birds in feeders and on the ground across the site.



N.T.S. 4



## ALONG THE RIVER SABARMATI, Transect b

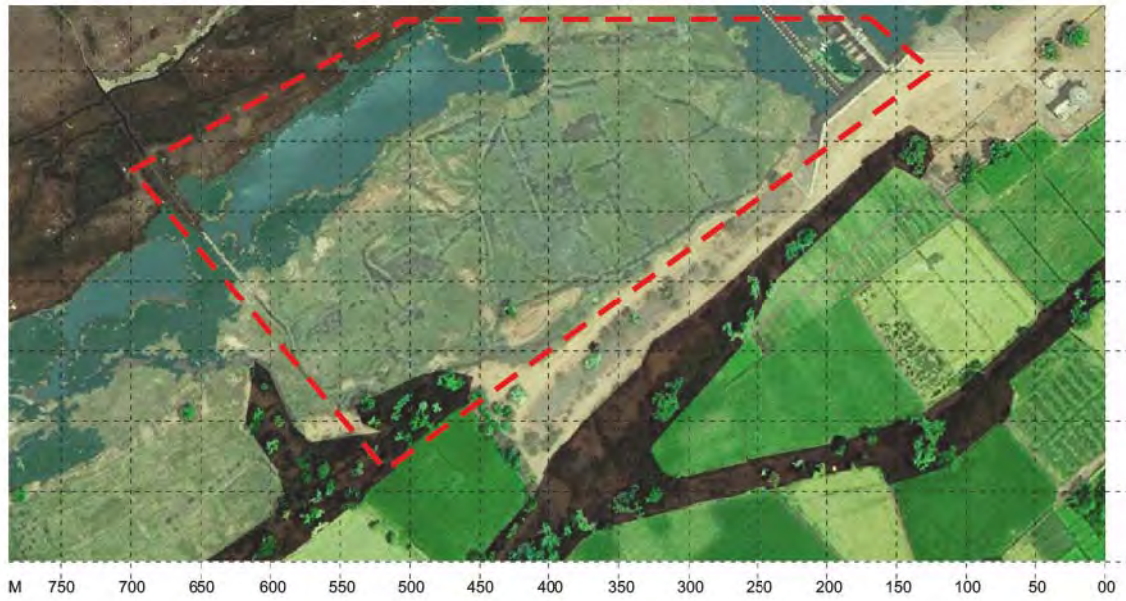


N.T.S. ▲

The transect runs along the river Sabarmati beginning with the suburbs of Sabarmati near the bank. Narmada canal brings in water to the river at this point. Agricultural fields along one of the nalah joining the river in Ranip presents a complete different set of bird species. Sabarmati Ashram with old groves of *Neem* (*Azadirachta indica*) and *Bakul* (*Mimusops elengi*) happen to be a very popular roosting site for many water birds in summer. The end of this transect with Vasna barrage where the river from the city is allowed to trickle further south bring in hordes of birds, both in diversity and number.

SITES ALONG THE TRANSECT

# END OF THE RIVER IN CITY, VASNA BARRAGE



- Open ground
- Grove
- Water body
- Scrub vegetation
- Agricultural fields

NEIGHBORHOOD HABITAT MAP





Open ground



Water body



Grove



Scrub vegetation



Agricultural fields

Nesting point  Foraging point   
 Roosting point  Perching point 



Open ground beside water body teems with birds



Earth banks nested in by Bank Mynas



Birds feed on waste flow in with river on its banks



Water released through barrage attracts hordes of birds



Egrets, Stilts, Heron and Doves feeding near water



Black-headed White Ibises and Rock Pigeons flock and feed



White-breasted Kingfisher feeds over a stream



Groves of neem have Rose-ringed Parakeets flying through



Black Drongo on a *Terminalia arjuna* tree



Hedges of *Prosopis juliflora* around the agricultural fields



Indian Robin frequenting the hedges

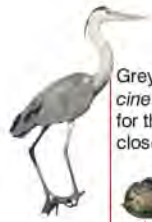


Rose-ringed Parakeet feeding on the fruit of *Prosopis juliflora*



Cattle Egret foraging close to a cow that managed into a field

## GENERAL SITE SECTIONS



Grey Heron (*Ardea cineria*) patiently waits for the prey to come closer



Pair of Little Grebes (*Tachybaptus ruficollis*) glide over the water surface undisturbed



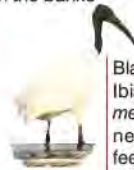
Indian Pond Heron (*Ardeola grayii*) solitarily gleans long portion of the edge of water body



Painted Stork (*Mycteria leucocephala*) stands in water for a long time



Black-winged Stilts (*Himantopus himantopus*) feeding on the banks



Black-headed White Ibis (*Threskiornis melanocephalus*) flock near the barrage feeding in the water released



Black Kites (*Milvus migrans*) perching on the ground intermittently feeding off the soil



Flock of Rock Pigeons (*Columba livia*) feed on waste particles brought by the water released from barrage



Flock of House crows (*Corvus splendens*) feed on waste flown in by the river



**SIGHTINGS ALONG A SECTION**



Green Bee-eater  
(*Merops orientalis*)  
catches flies mid-air  
near water bodies



Red-wattled Lapwings  
(*Vanellus indicus*) shriek at  
intruders to protect their  
young ones



Median Egret  
(*Mesophoyx intermedia*) flocking  
with herons and other  
egrets



White-breasted  
Kingfisher (*Halcyon  
smyrnenensis*) perches  
on an overhanging  
branch over the water



Bank Myna  
(*Acridotheres  
ginginianus*) nesting  
communally on the  
earth banks



Cattle Egret (*Bubulcus  
ibis*) feeding in close  
proximity to cattle  
grazing



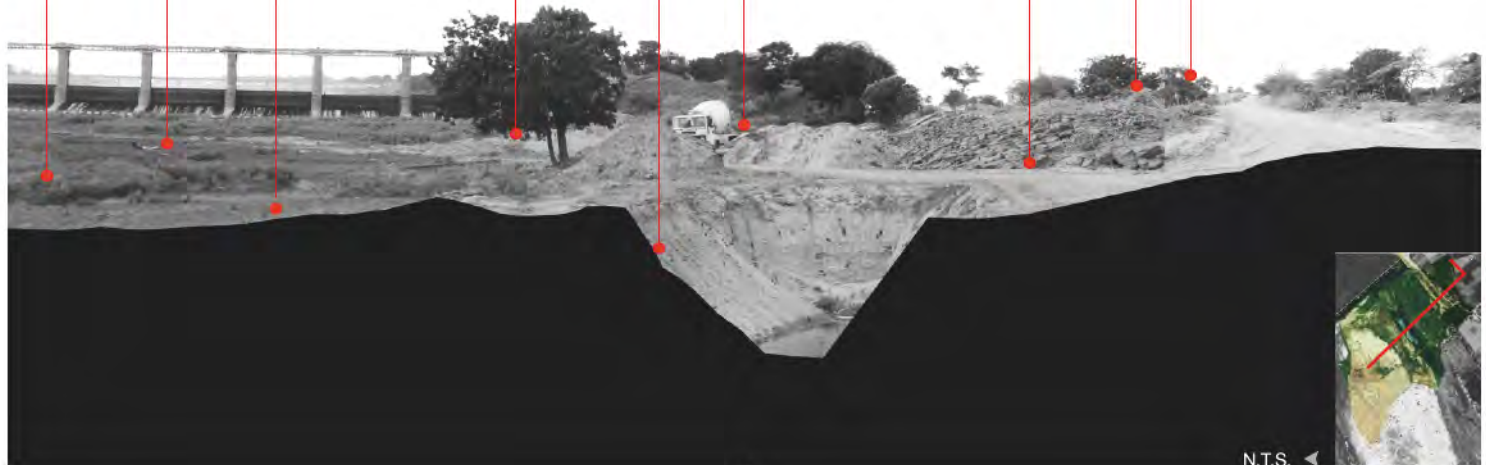
Indian Myna  
(*Acridotheres tristis*)  
foraging on the  
pathway

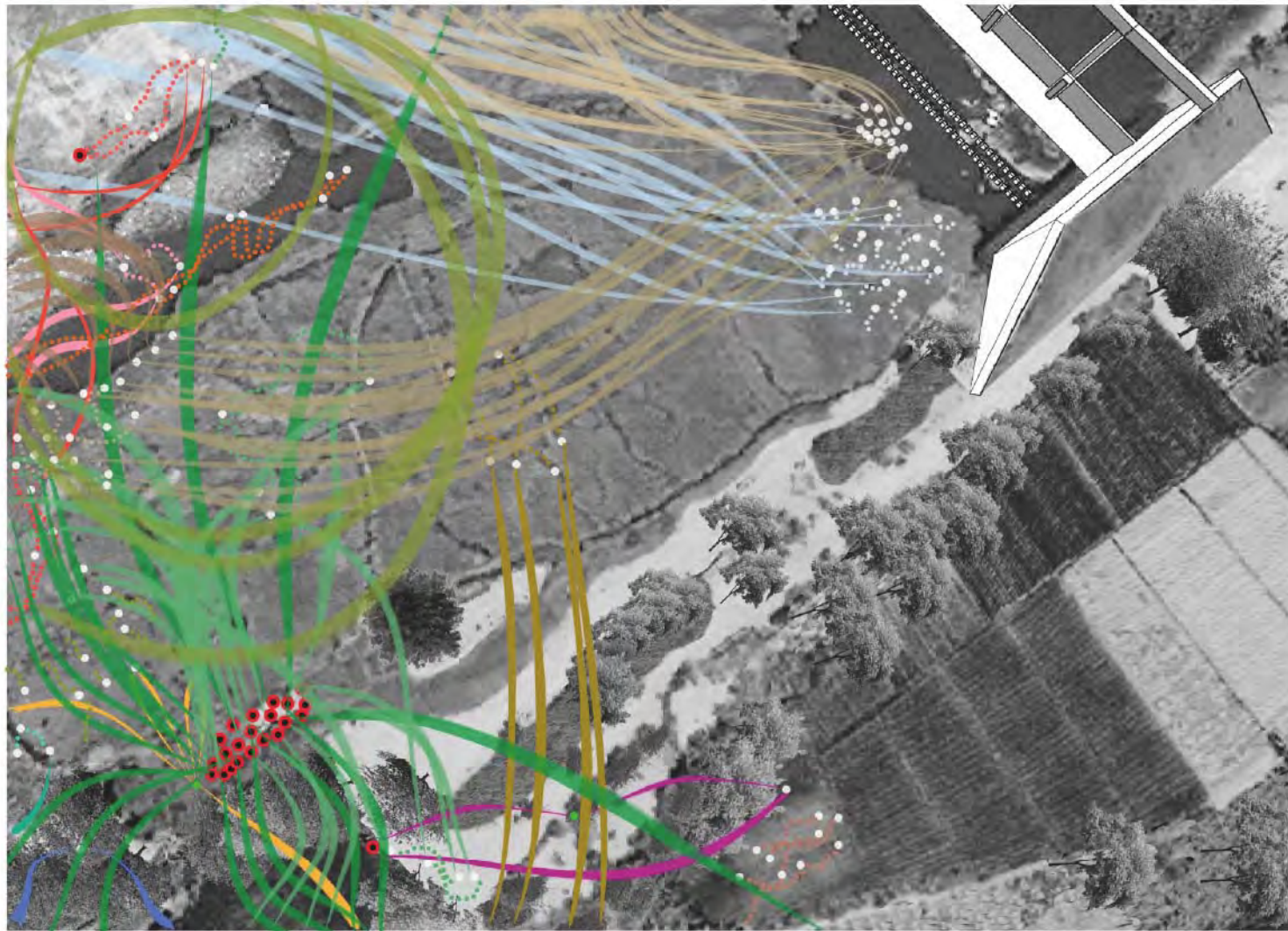


Rose-ringed Parakeet  
(*Psittacula krameri*)  
feeding on fruits of  
*Prosopis juliflora*



Indian Robin  
(*Saxicoloides fulicata*)  
nesting in the hedges  
of *Prosopis juliflora*





BIRD MAP ▲





White-breasted Kingfisher  
(*Halcyon smyrnensis*)



Black-winged Stilt  
(*Himantopus himantopus*)



Rock Pigeon  
(*Columba livia*)



Bank Myna  
(*Acridotheres ginginianus*)



Black Drongo  
(*Dicrurus macrocercus*)



Indian Myna  
(*Acridotheres tristis*)



Red-wattled Lapwing  
(*Vannellus indicus*)



Green Bee-eater  
(*Merops orientalis*)



Black-headed White Ibis  
(*Threskiornis melanocephalus*)



Asian Koel  
(*Eudynamis scolopacea*)



House Crow  
(*Corvus splendens*)



Cattle Egret  
(*Bubulcus ibis*)



Indian Robin  
(*Saxicoloides fulicata*)



Rose-ringed Parakeet  
(*Psittacula krameri*)



Grey Heron  
(*Ardea cinerea*)



Black Ibis  
(*Pseudibis papillosa*)



Indian Pond Heron  
(*Andreola grayii*)



Eurasian Collared Dove  
(*Streptopelia decaocto*)



Median Egret  
(*Mesophoyx intermedia*)



Painted Stork  
(*Mycteria leucocephala*)



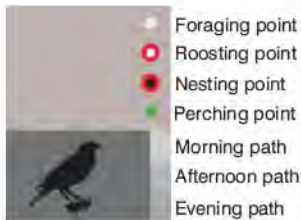
Black Kite  
(*Milvus migrans*)



Little Grebe  
(*Tachybaptus ruficollis*)



Indian Short-toed Lark  
(*Calandrella rayta*)



Black-headed White Ibises start their morning by flocking near the barrage where the river spews water with all types of waste. Similarly Rock Pigeons feed near the barrage. As the day progresses, they move southwards. They are joined later by Black Kites in the afternoon. The Kites flock and sit on the ground. The Little Grebes skim in the water surface throughout the day feeding from it. The Red-wattled lapwings shuttle from the adjacent scrubland to the banks of the river. Later in the evening, all water birds fly southwards.

N.T.S. ▲



# GROVE, SABARMATI ASHRAM



-  Grove
-  Open ground
-  Water body
-  Retaining wall
- 

NEIGHBORHOOD HABITAT MAP





Grove



Groves of *Azadirachta indica* and *Mimusops elengi*



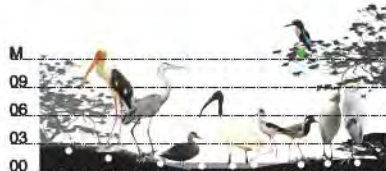
Rose-ringed Parakeet on *Mimusops elengi*



White-rumped Vulture on a dead tree along Ashram road



House Crows roost on a dead tree across Ashram road



River Sabarmati with banks expanding



Spot-billed Ducks skimming the river banks



Painted Storks and White Ibises on river islands



Black-winged Stilts and Dunlins feeding along sand banks



Open ground



Open ground across the Ashram road



Eurasian Collared Dove forage on the track along the river



Cattle Egret foraging near the riverine joining Sabarmati



Green Bee-eaters prey along open pathway along the river



Retaining wall



Retaining wall along the river



Bank Mynas nesting in weep-holes of retaining wall



House Sparrow nesting in weep-holes of retaining wall



Rose-ringed Parakeets nesting in one of the weep-holes

Nesting point  Foraging point   
Roosting point  Perching point 



Grey Heron (*Ardea cinerea*) patiently waiting while fishing



Spot-billed Duck (*Anas poecilorhyncha*) feeding among reedy sand banks



Black-winged Stilt (*Himantopus himantopus*) feeding near the banks



Bank Myna (*Acridotheres ginignianus*) flock on the banks to feed on the banks



Indian Myna (*Acridotheres tristis*) nesting in weepholes



House Sparrow (*Passer domesticus*) feeding on bird seed placed on copings



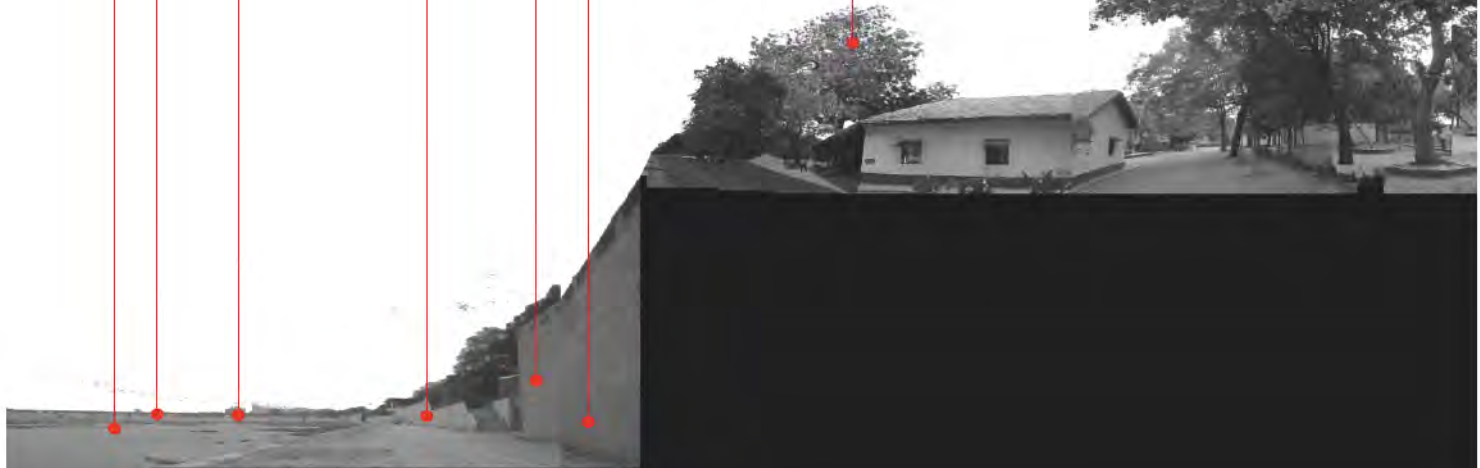
Rose-ringed Parakeet (*Psittacula krameri*) nesting in the weep holes of the retaining wall



Little Cormorant (*Phalacrocorax niger*) roosting on the branches of *Azadirachta indica* tree



Cattle Egret (*Bubulcus ibis*) preparing to roost on *Azadirachta indica*



SIGHTINGS ALONG A SECTION



Black-headed White Ibis (*Threskiornis melanocephalus*) roosting on *Azadirachta indica*



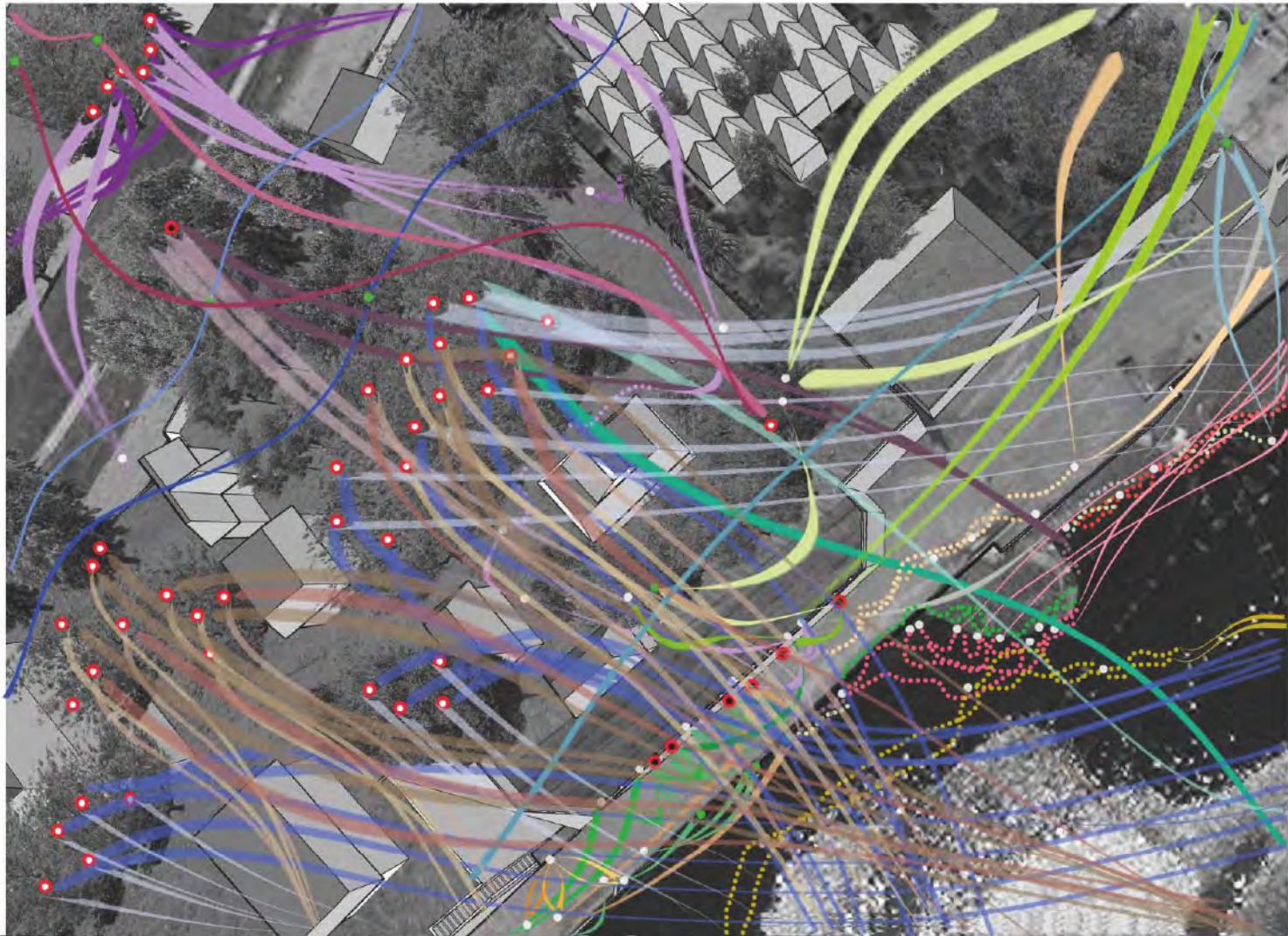
Asian Koel (*Eudynamus scolopacea*) singing between the branches of *Azadirachta indica*



Indian Pond Heron (*Ardeola grayii*) nesting in *Polyalthia longifolia* tree



N.T.S. ▲



BIRD MAP ▲



Rock Pigeon  
(*Columba livia*)



Bank Myna  
(*Acridotheres ginginianus*)



House Crow  
(*Corvus splendens*)



Indian Myna  
(*Acridotheres tristis*)



Asian Koel  
(*Eudynamis scolopacea*)



House Sparrow  
(*Passer domesticus*)



Red-wattled Lapwing  
(*Vannellus indicus*)



Little Cormorant  
(*Phalacrocorax niger*)



White-breasted Kingfisher  
(*Halcyon smyrnensis*)



Black ibis  
(*Pseudibis papillosa*)



Indian Pond Heron  
(*Andreola grayii*)



Eurasian Collared Dove  
(*Streptopelia decaocto*)



Green Bee-eater  
(*Merops orientalis*)



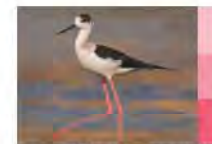
Rose-ringed Parakeet  
(*Psittacula krameri*)



Spot-billed Duck  
(*Anas poecilorhynca*)



Black-headed White Ibis  
(*Threskiomis melanocephalus*)



Black-winged Stilt  
(*Himantopus himantopus*)



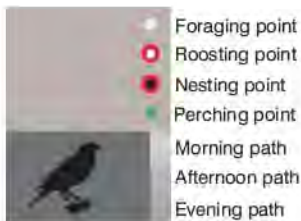
White-rumped Vulture  
(*Gyps bengalensis*)



Cattle Egret  
(*Bubulcus ibis*)



Grey Heron  
(*Ardea cinerea*)

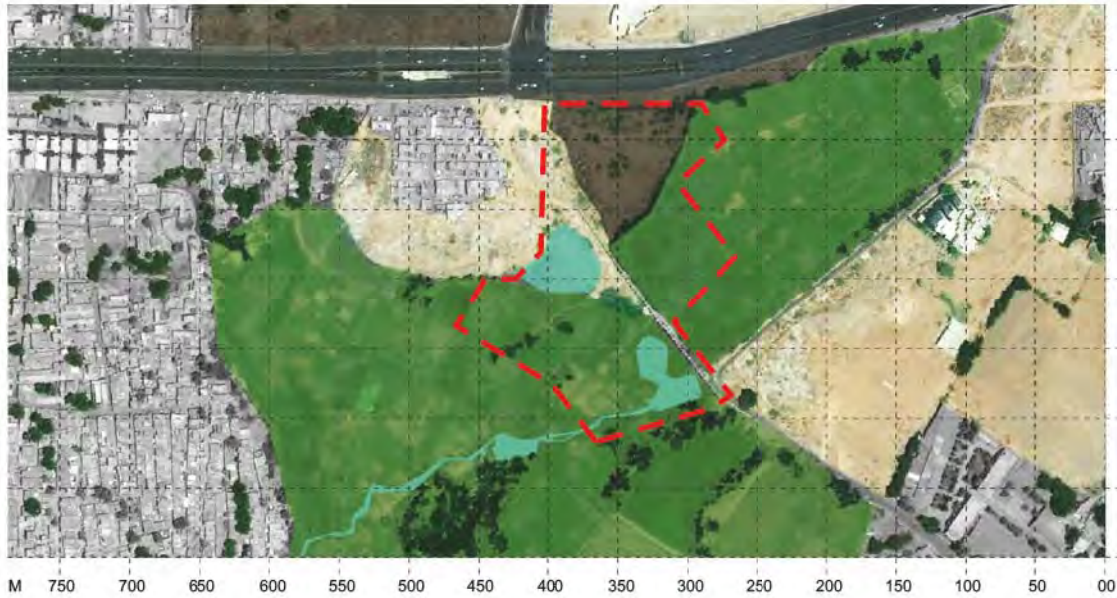


Black-headed White Ibises, Little Cormorants, Cattle Egrets fly in to roost on the trees of the Ashram as the night falls. They fly to the south of the river in the morning. By the afternoon, they start flocking on the river islets to feed till the dusk. White-rumped Vultures move west towards the open grounds and fields flanking the Chandrabhaga *nalah*. They spend most of the morning on a bare tree opposite the entrance of the Ashram. The same tree is used by House Crows to roost. Rose-ringed Parakeets shuttle between the fields and the retaining wall.

N.T.S.



# AGRICULTURE ALONG NALAH, RANIP

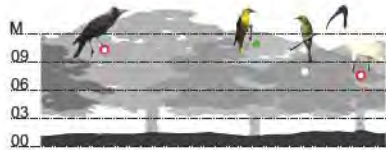


-  Grove
-  Water body
-  Scrub vegetation
-  Agricultural fields
-  Open ground
- 

NEIGHBORHOOD HABITAT MAP







Grove



*Ficus religiosa*, *Azadirachta indica*, and *Allanthurus excelsa*



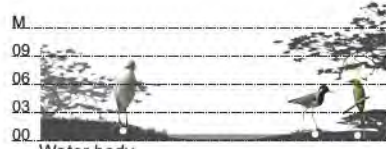
House Crows flocking on *Allanthurus excelsa*



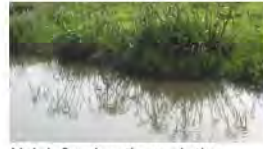
Green Bee-eater feeding on a branch of *Pongamia pinnata*



Black-headed White Ibis perching on *Allanthurus excelsa*



Water body



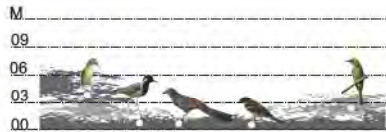
*Nalah* flowing through the fields



Cattle Egret feeding in the *nalah*



Red-wattled Lapwing near the bank of the *nalah*



Scrub vegetation



Scrub consisting of *Calotropis procera* and *Prosopis juliflora*



House Sparrow perching on *Calotropis procera*



Purple Sunbird sipping nectar from *Calotropis procera* flowers



Open ground



Greater Coucal walking across the open area



Red-vented Bulbul perching on cables across open area



Red-wattled Lapwing feeding on refuse thrown in open area



White-breasted Kingfisher perching on the cable



Agricultural fields



Cattle Egret foraging with the domesticated goats



Black Drongo perching on a post between the fields



Nest of Red-wattled Lapwing hidden between the field

Nesting point  Foraging point   
 Roosting point  Perching point 



Red-vented Bulbul  
(*Pycnonotus cafer*)  
perching on the cable  
going over the road



Red-wattled Lapwing  
(*Vanellus indicus*)  
foraging among the  
refuse thrown in the  
open ground



House Sparrow  
(*Passer domesticus*)  
foraging among the  
refuse blown near the  
shrubs of *Calotropis*  
*procera*



Greater Coucal  
(*Centropus sinensis*)  
walking across the  
open ground



## SIGHTINGS ALONG A SECTION



Purple Sunbird (*Nectarinia asiatica*) sipping on the flowers of *Calotropis procera*



Cattle Egret (*Bubulcus ibis*) foraging among the fields



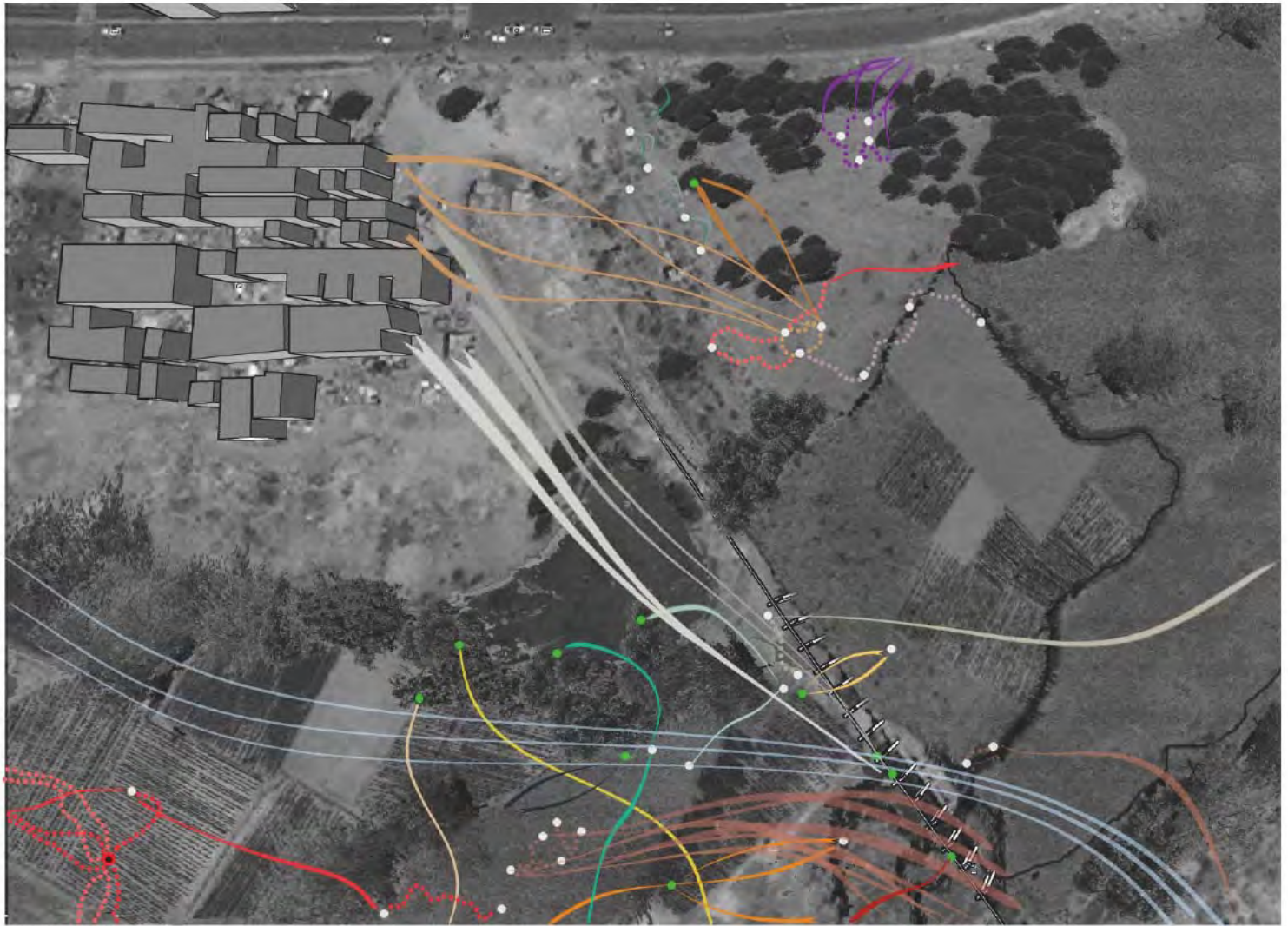
Green Bee-eater (*Merops orientalis*) perching on the branches of *Pongamia pinnata* overhanging



House Crow (*Corvus splendens*) flocking on *Ailanthus excelsa*



N.T.S. ▲



BIRD MAP ▲



White-breasted Kingfisher  
(*Halcyon smyrnensis*)



Greater Coucal  
(*Centropus sinensis*)



Red-wattled Lapwing  
(*Vannellus indicus*)



Green Bee-eater  
(*Merops orientalis*)



Black-headed White Ibis  
(*Threskiornis melanocephalus*)



Cattle Egret  
(*Bubulcus ibis*)



Rock Pigeon  
(*Columba livia*)



Purple Sunbird  
(*Nectarinia asiatica*)



House Crow  
(*Corvus splendens*)



Indian Myna  
(*Acridotheres tristis*)



Red-vented Bulbul  
(*Pycnonotus cafer*)



House Sparrow  
(*Passer domesticus*)



Eurasian Golden Oriole  
(*Oriolus oriolus*)



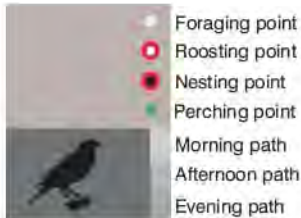
Brahminy Starling  
(*Stumus pagodarum*)



Black Drongo  
(*Dicrurus macrocercus*)



Oriental Magpie-robin  
(*Copsychus saularis*)

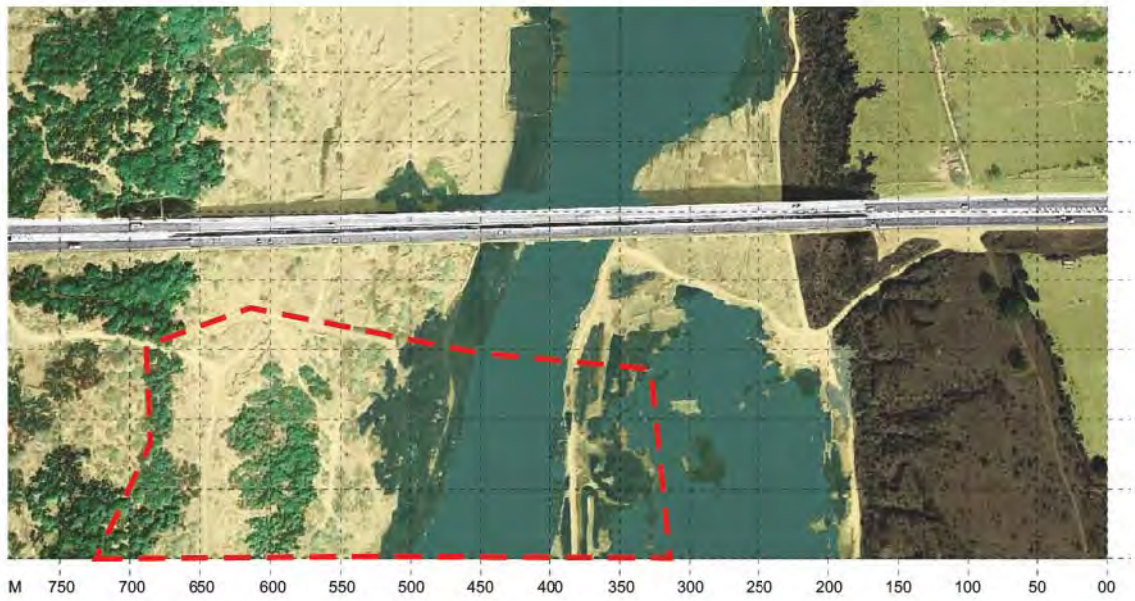


The House Crows and the House Sparrows shuttle between the residential area and the scrub land that is also used as dumping area. The Purple Sunbirds flit between flowering shrubs of *Calotropis procera*. The Cattle Egrets come to the site from the nearby water bodies and feed in the fields in the afternoon and evening. The trees near the *nalah* (water channel) act as perches for Green Bee-eaters that prey on the insects rising from the mucky water.



N.T.S. ▲

# BEGINNING OF RIVER IN CITY, SABARMATI BRIDGE



- Open Ground
- Water body
- Scrub vegetation
- Bridge
- Grove

NEIGHBORHOOD HABITAT MAP





Open ground



Water body



Scrub vegetation



Bridge



Grove

Nesting point  Foraging point  
Roosting point  Perching point



Dry river beds under the bridge



Black Ibises foraging in open between *Prosopis juliflora*



White-breasted Kingfisher on an earth bank



Narmada canal joining Sabarmati river



Asian Openbilled-storks flocking on shallow stretches



Little Cormorants, Median and Little Egrets among other birds



Shrub of *Calotropis procera* on dry river beds



Green Bee-eater on *Prosopis juliflora* catching flies mid-air



Purple Sunbird sipping nectar from *Calotropis procera* flowers



Sabarmati bridge



House Sparrows feed on food thrown by people for fishes



Groves of *Prosopis juliflora* along the banks

## GENERAL SITE SECTIONS



Purple Sunbird  
(*Nectarinia asiatica*)  
flitting between  
*Calotropis procera*

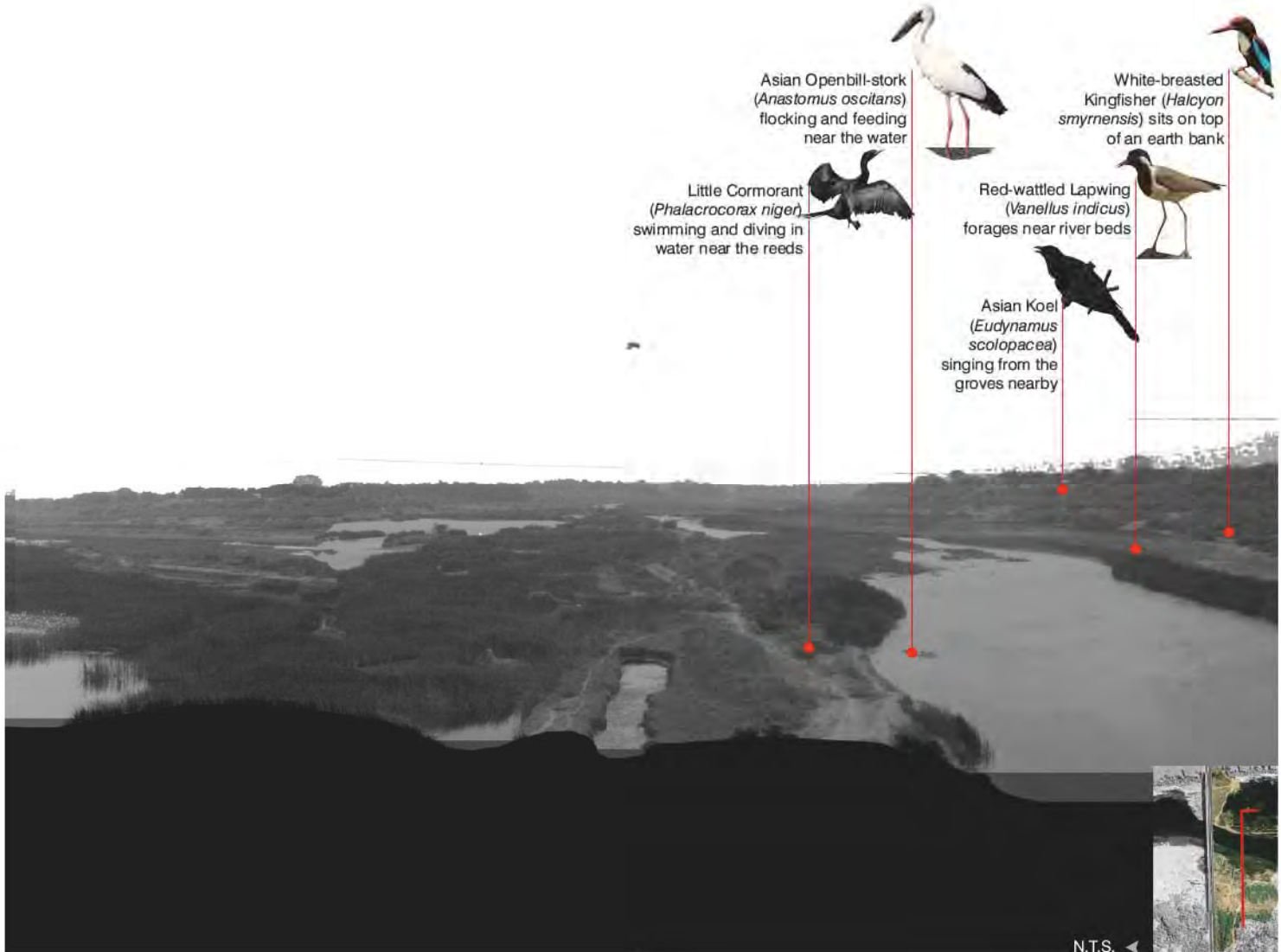


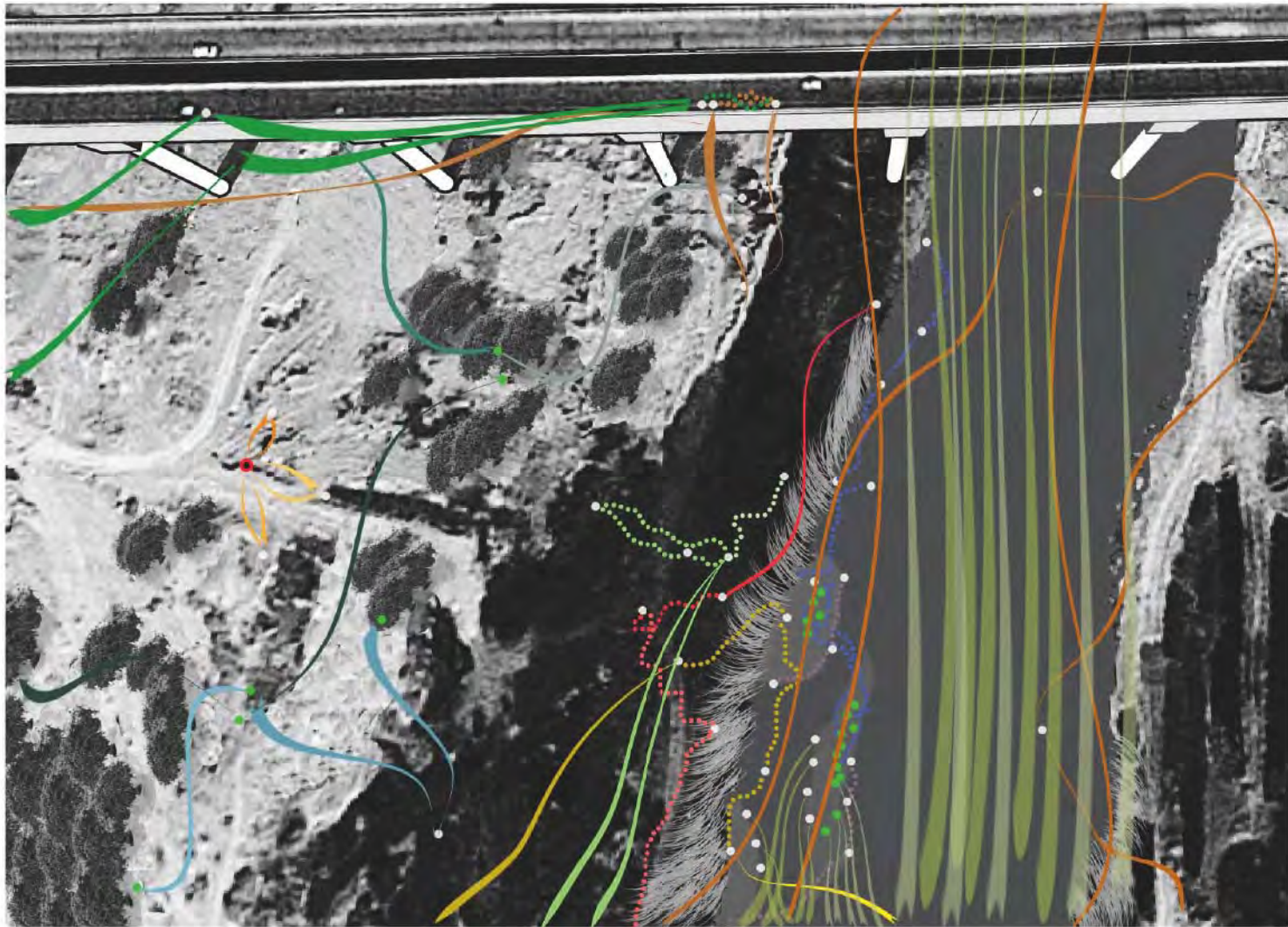
Green Bee-eater  
(*Merops orientalis*)  
preying on a branch of  
*Prosopis juliflora*



SIGHTINGS ALONG A SECTION







BIRD MAP ▲



White-breasted Kingfisher  
(*Halcyon smymensis*)



Black-winged Stilt  
(*Himantopus himantopus*)



Purple Sunbird  
(*Nectarinia asiatica*)



Bank myna  
(*Acridotheres ginginianus*)



Little Cormorant  
(*Phalacrocorax niger*)



House Sparrow  
(*Passer domesticus*)



Red-wattled Lapwing  
(*Vannellus indicus*)



Green Bee-eater  
(*Merops orientalis*)



Spot-billed Duck  
(*Anas poecilorhynca*)



Black Ibis  
(*Pseudibis papillosa*)



Indian Pond Heron  
(*Andreola grayii*)



Cattle Egret  
(*Bubulcus ibis*)



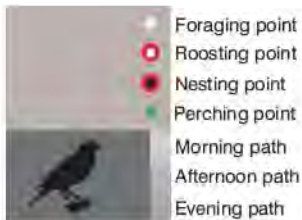
Asian Open-billed Stork  
(*Anastomus oscitans*)



Shikra  
(*Accipiter badius*)



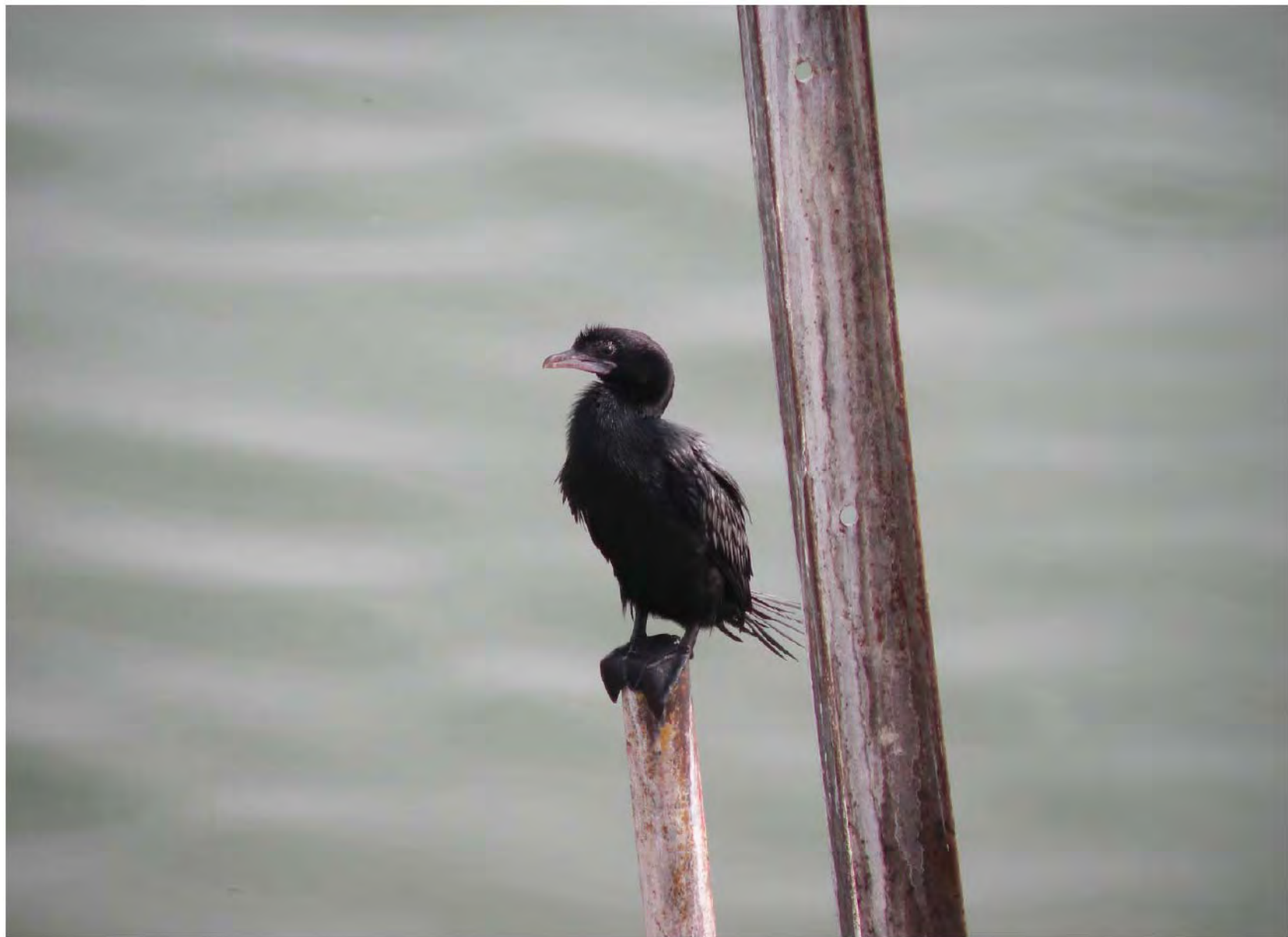
River Tern  
(*Sterna aurantia*)



Asian Open-billed Storks feed on the shallow river banks and islets and fly towards the south by the evening. The water from the Narmada canal ensures water in the river at this end where these birds roost while the upper reaches remain dry. The Egrets follow the same path. The *Prosopis* thicket to the west is an abode for many birds like the White-breasted Kingfishers, Shikras that come on the banks to feed. The Green-bee Eaters get plenty of food in those thickets and adjacent river banks. The Spot-billed Ducks, and Little Cormorants also feed with the Open-bills but roost nearby.



N.T.S. ◀



CITY SOUTH, Transect c

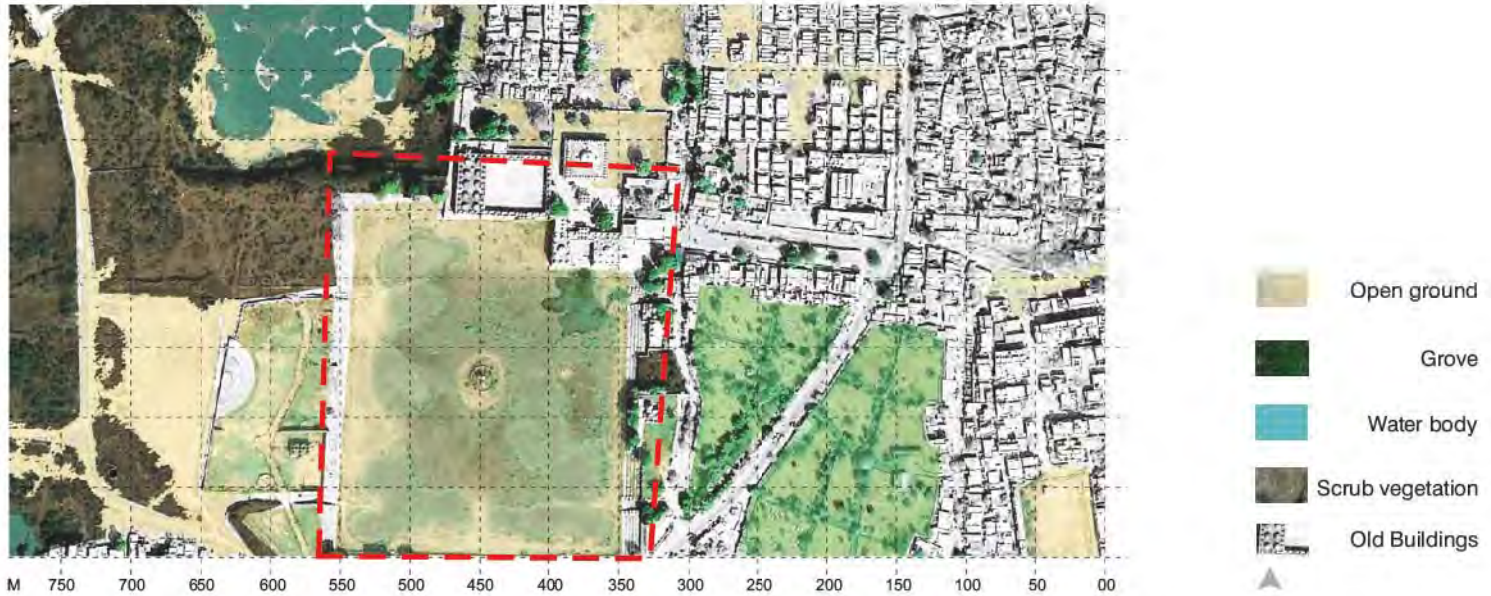


N.T.S. ▲

The transect begins with Sarkhej roza in South-west of the city. Sans its lake, the structure happens to shelter many avian species. Across the river, the transect brings a seasonal lake, Chandola. Its proximity to industries, has not spared whatever little water stagnant in it. Yet some birds feed and breed in areas around the lake. The transect ends with Kankaria lake, the city zoo, where mature *neem*, *imli*, *kanju* trees, provide nesting spaces for hundreds of water birds.

SITES ALONG THE TRANSECT

# HISTORICAL STRUCTURE, SARKHEJ ROZA



NEIGHBORHOOD HABITAT MAP





Open ground



Grove



Water body



Old buildings



Puddles of water spread across the dry lake



Indian Pond Heron feeding near a puddle



Black Kite comes down on ground to quench its thirst



Bank Myna feeds on frog caught in a water puddle



Sarkhej roza facing the dried lake



Bank Mynas nesting in weep-holes of retaining wall



Spotted Owlet perches on the cove of one of the structures



House Sparrow feeds among the people visiting Sarkhej



Sarkhej lake dries up and leaves an open ground



Rock Pigeon feeds on refuse blown to the edge of wall



Grove of *Azadirachta indica* near the seasonal lake



Spotted Owlet on *Azadirachta indica* tree

Nesting point  Foraging point   
 Roosting point  Perching point 



House Swift (*Apus affinis*) flying close to the building catching insects mid-air



Rock Pigeon (*Columba livia*) roosting on the sun-shade



Black Kite (*Milvus migrans*) drinking water from a puddle not yet dried from summer heat



SIGHTINGS ALONG A SECTION





House Crow (*Corvus splendens*) roosting on *Azadirachta indica*



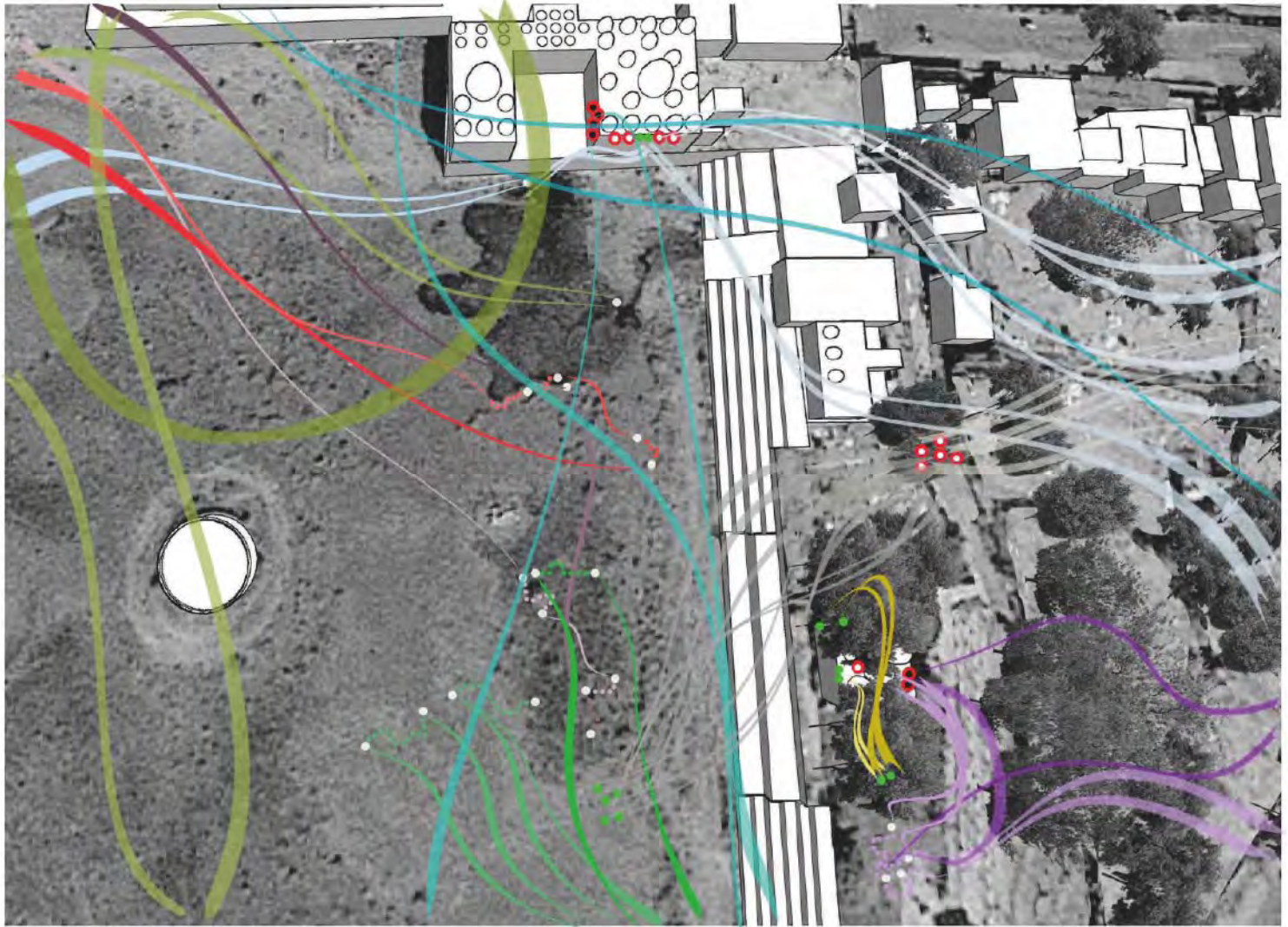
Indian Myna (*Acridotheres tristis*) trying to fend off spotted owl from their nest in the cove of the building



Spotted Owlet (*Athene brama*) resting from afternoon sun in the building



N.T.S. ▶



BIRD MAP ▲



Spotted Owllet  
(*Athene brama*)



House Swift  
(*Apus affinis*)



Rock Pigeon  
(*Columba livia*)



Red-wattled Lapwing  
(*Vannellus indicus*)



Indian Pond Heron  
(*Andreola grayii*)



Black Kite  
(*Milvus migrans*)



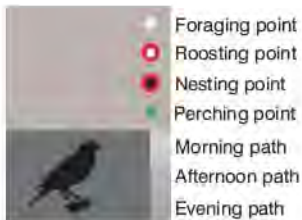
House Crow  
(*Corvus splendens*)



Indian Myna  
(*Acridotheres tristis*)



Bank Myna  
(*Acridotheres ginginianus*)

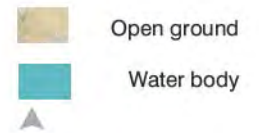
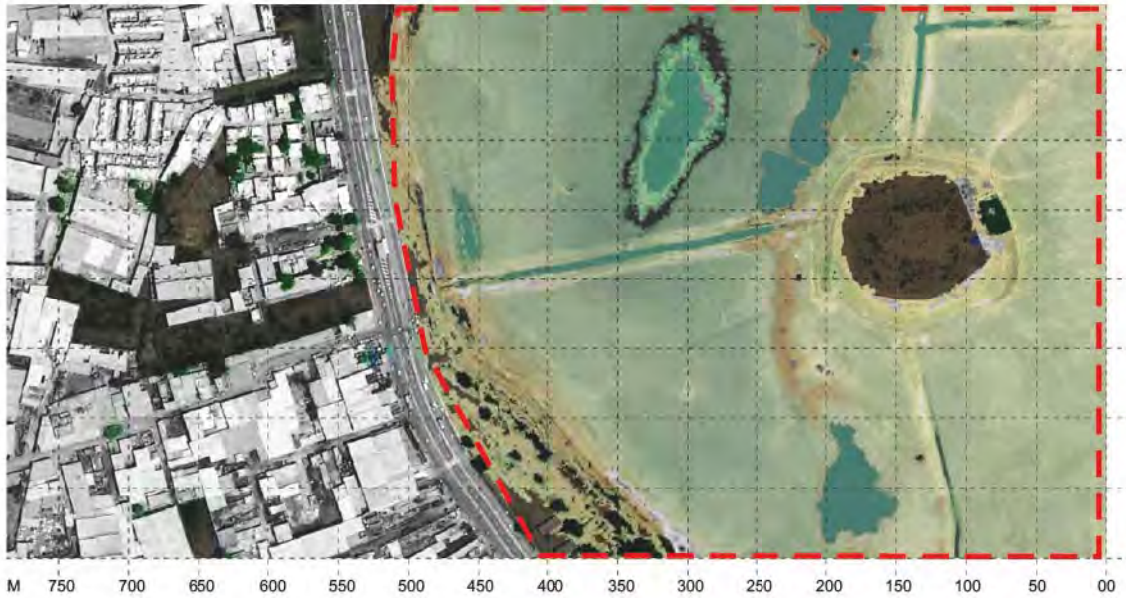


Red-wattled Lapwings and Pond Herons move to the site from the north where there are drying lakes. They shuttle in between the two places to feed. House Swifts have nested inside the Jami mosque. They fly across the dried lake throughout the afternoon and evening staying close to the buildings. The Spotted Owlets roost in one of the buildings or adjacent trees in the afternoons. The Bank Mynas have nested in the weep-holes of the retaining walls of the lake and feed near the water puddles.



N.T.S. ◀

# SEASONAL LAKE, CHANDOLA LAKE



NEIGHBORHOOD HABITAT MAP





Open ground



Dry Chandola lake in summer



Black Kites on the ground inter-  
mittently feeding from the soil



House Crow foraging in the  
refuse people throw in the lake



Cattle Egret feeding on insects  
unearthed by buffalo hooves



Water body



Median Egret feeding near a  
drying puddle



Eurasian Spoonbill  
feeding on insects in puddle

Nesting point  Foraging point   
Roosting point  Perching point 



House Crow (*Corvus splendens*) nesting on *Prosopis juliflora* trees at the edge of the lake



House Crow (*Corvus splendens*) feeding from the refuse dumped in the lake



Black Kite (*Milvus migrans*) on the ground feeding from the soil



SIGHTINGS ALONG A SECTION



Eurasian Spoonbill (*Platalea leucorodia*) feeding at the edges of the water puddles



Cattle Egret (*Bubulcus ibis*) foraging near the buffaloes

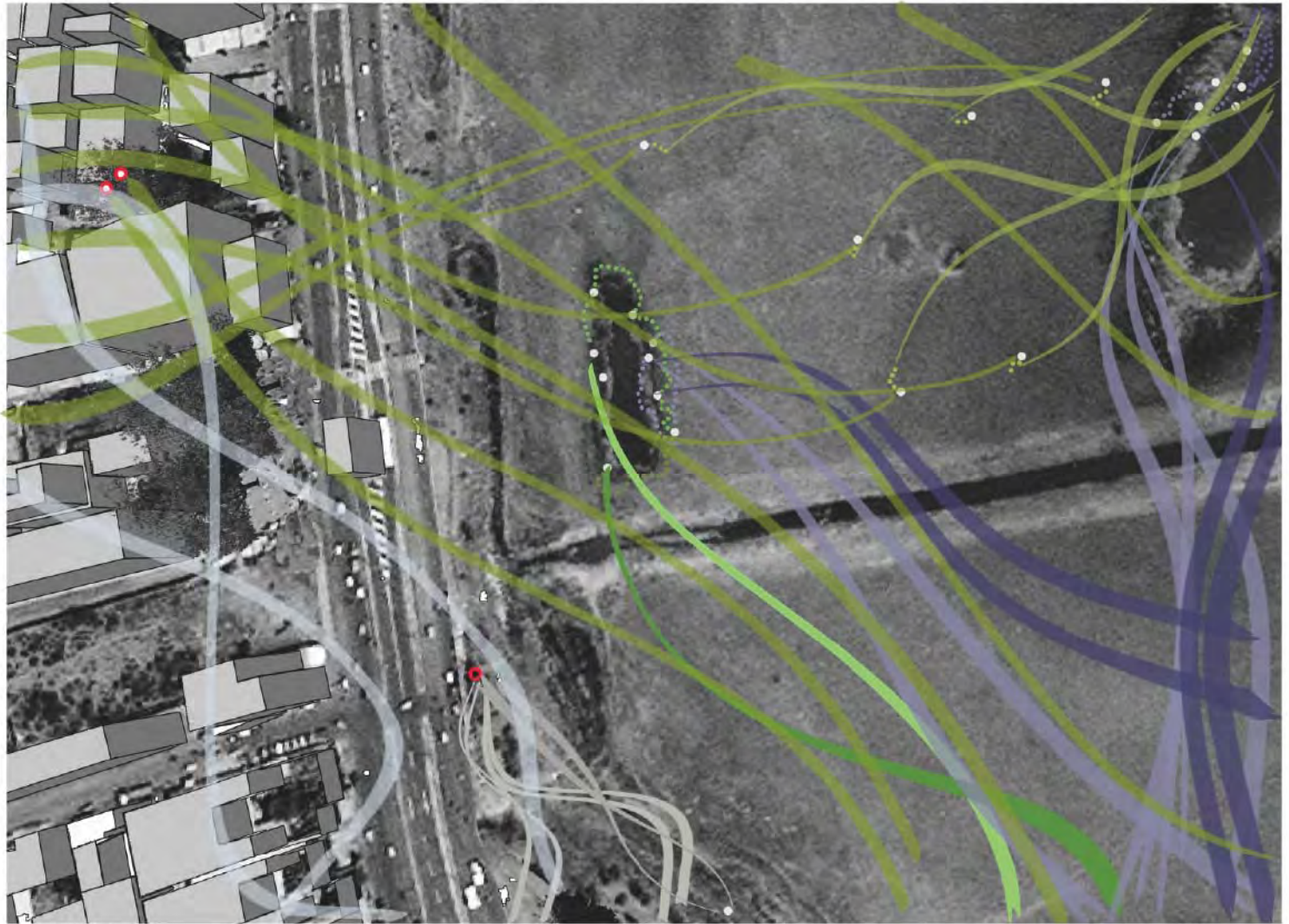


Painted Stork (*Mycteria leucocephala*) feeding on the banks of the puddles



Intermediate Egret (*Mesophoyx intermedia*) foraging at the sloping edge of the central mound





BIRD MAP ▲





Eurasian Spoonbill  
(*Platalea leucorodia*)



Rock Pigeon  
(*Columba livia*)



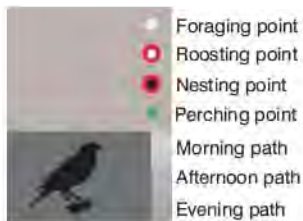
House Crow  
(*Corvus splendens*)



Black Kite  
(*Milvus migrans*)



Median Egret  
(*Mesophoyx intermedia*)

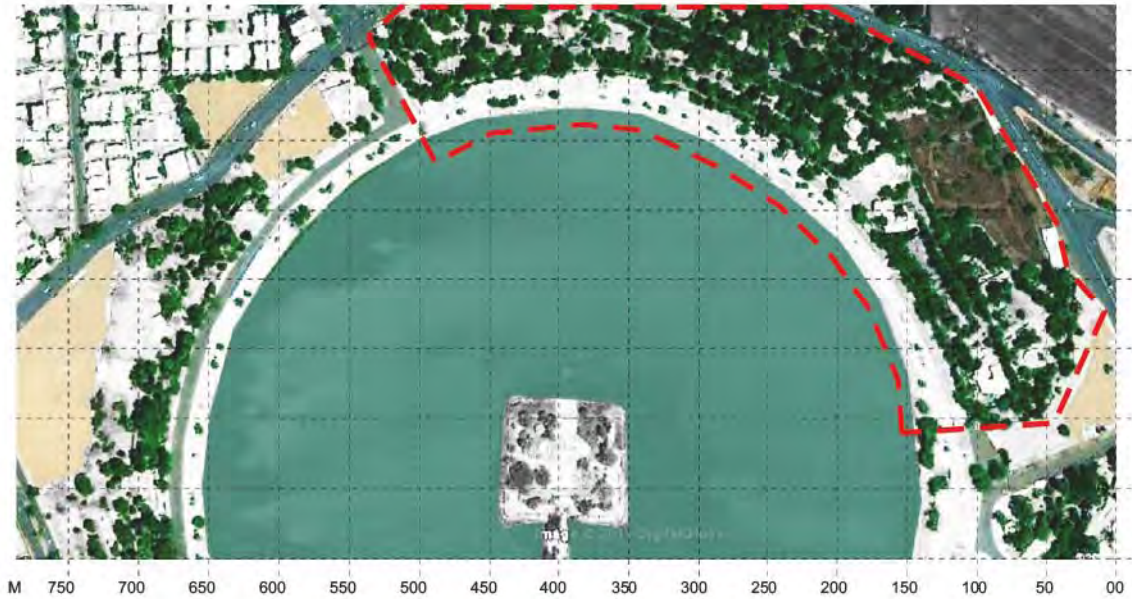


Water Birds like Median Egrets, Painted Stork fly from the south of the lake and fly back probably to Lambha lake where these birds roost. Black Kites forage around the residential areas to the west of the lake and fly over the lake to roost around the scrub vegetation falling to the north west of the lake. Some also swoop down to the dry lake and sit on the ground probably 'anting', a process where ants are encouraged to climb on their body to secrete chemicals that act as miticide or fungicide.



N.T.S. ◀

# CITY ZOO, KANKARIA LAKE



NEIGHBORHOOD HABITAT MAP





Grove



Little Cormorants and Greater Egrets on *Tamarindus indicus*



Night Heron roosting on *Azadirachta indica*



Greater Egret on *Azadirachta indica*



Black-headed White Ibis on *Polyalthia longifolia*



Water body



Edges of central island as foraging grounds for birds



Median Egret feeding near steps going to water



Little Cormorant perching on a pole near the steps

Nesting point  Foraging point   
 Roosting point  Perching point 



Great Egret  
(*Casmerodius albus*)  
flocking on *Tamarindus*  
*indicus*



Little Cormorant  
(*Phalacrocorax niger*)  
flocking with Greater  
Egret



Black-crowned Night  
Heron (*Nycticorax*  
*nycticorax*) nesting  
communally on  
*Polyalthia longifolia*



House Crow (*Corvus*  
*splendens*) feeding on  
refuse in service lane  
behind the eatery



## SIGHTINGS ALONG A SECTION



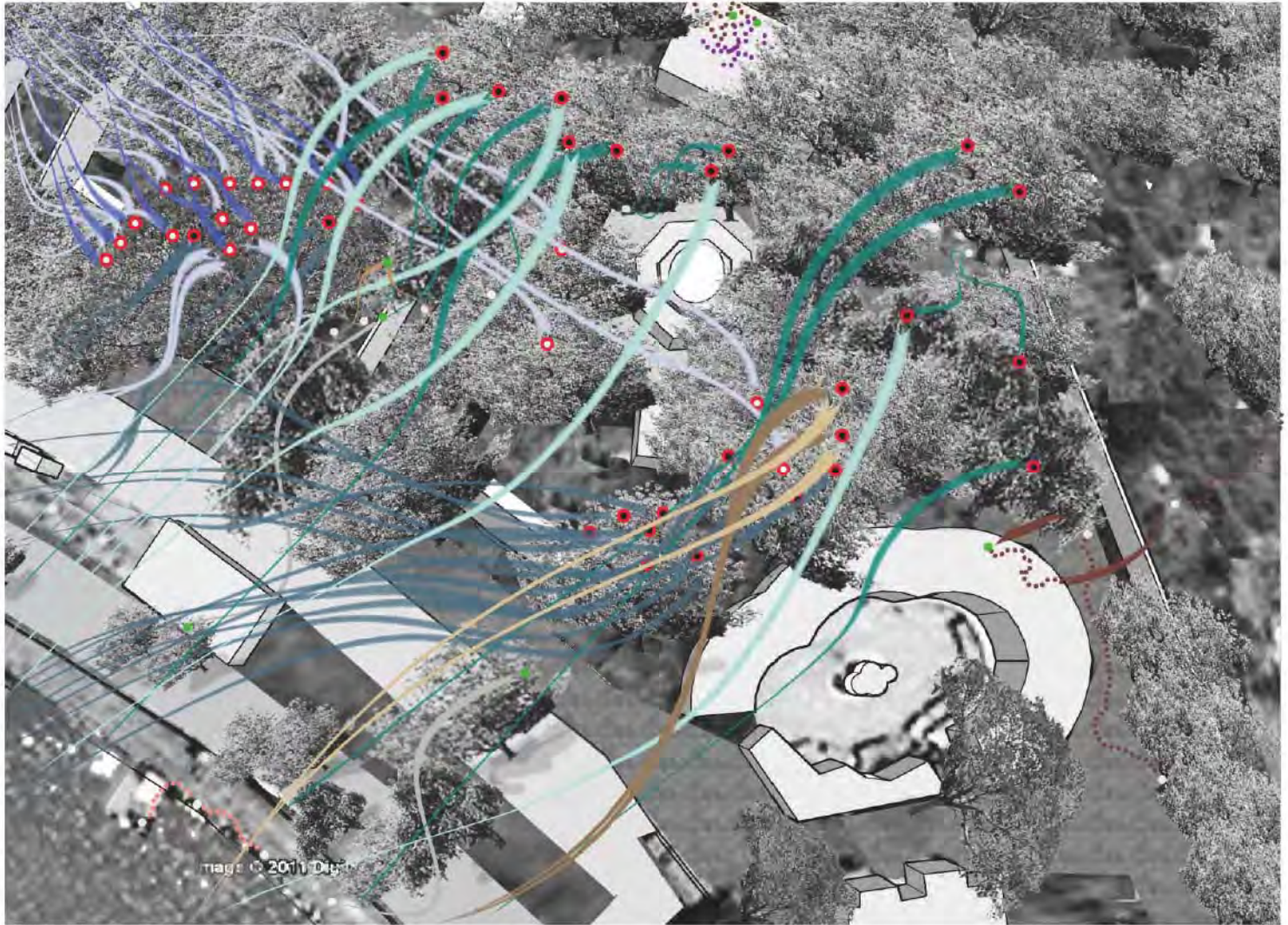
White-Breasted  
Waterhen (*Amauromis  
phoenicurus*) feeding  
near the water front  
edges



Median Egret  
(*Mesophoyx  
intermedia*) feeding  
near the water front



N.T.S.



map © 2011 Digipix

BIRD MAP ▲



House Crow  
(*Corvus splendens*)



Little Cormorant  
(*Phalacrocorax niger*)



Black-headed White Ibis  
(*Threskiomis melanocephalus*)



Greater Egret  
(*Casmerodius albus*)



White-breasted Waterhen  
(*Amauromis phoenicurus*)



Indian Myna  
(*Acridotheres tristis*)



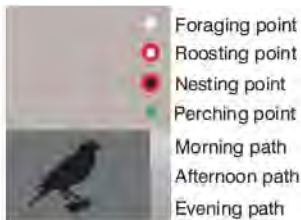
Black-crowned  
Night Heron  
(*Ncticorax nycticorax*)



House Sparrow  
(*Passer domesticus*)



Peafowl  
(*Pavo cristatus*)



Little Cormorants fly towards the West in flocks, probably towards the river to feed. Their flights back to the Zoo in the evening coincides with the flights of Night Herons leaving their nests for foraging. Greater Egrets prefer feeding on the peninsular center of the lake but in the dusk they help themselves with what they find in the animal enclosures of the zoo. Black-headed White Ibises follow the same path as Greater Egrets. Peafowls apparently do not leave the site. They live feeding on small creatures hiding among the leaf litter in unused enclosures of the zoo.

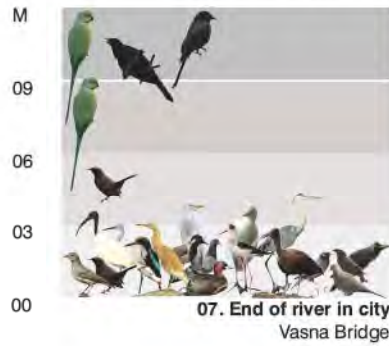
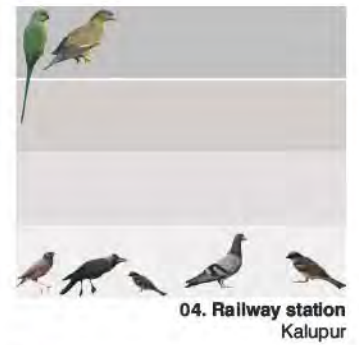
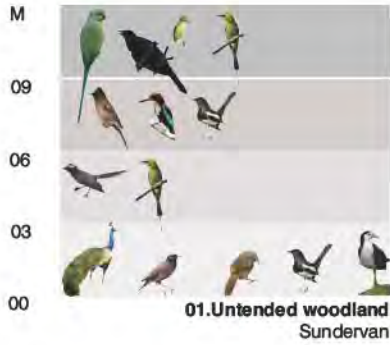


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Inferences



## FEEDING HEIGHTS OF BIRDS



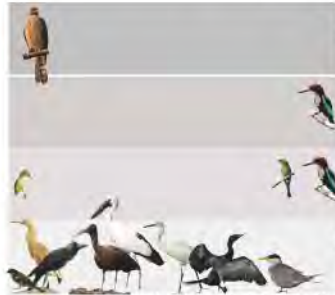
**05. Unused patch**  
Naroda overbridge



**06. Dilapidated mill**  
Saraspur



**09. Agriculture along *nalah***  
Ranip



**10. Beginning of river in city**  
Sabarmati Bridge



**12. Seasonal lake**  
Chandola



**13. City zoo**  
Kankaria

Upper storey foraging birds

Middle storey foraging birds

Lower storey foraging birds

Ground storey foraging birds

Upper storey foraging birds

Middle storey foraging birds

Lower storey foraging birds

Ground storey foraging birds

Upper storey foraging birds

Middle storey foraging birds

Lower storey foraging birds

Ground storey foraging birds



N.T.S. ▲



N.T.S. ▲



N.T.S. ▲

Birds not to scale

**1. Untended woodland**

Sundervan  
Size: 160 X 180 Sq. M



**2. Public park**

Parimal Garden  
Size: 275 X 200 Sq. M



**3. Railway track**

Mithakhali  
Size: 35 X 350 Sq. M



**4. Railway station**

Kalupur  
Size: 80 X 350 Sq. M



**5. Unused patch**

Naroda overbridge  
Size: 100 X 200 Sq. M



**6. Dilapidated mill**

Saraspur  
Size: 600 X 250 Sq. M



**BIRD POPULATION**

H- High (above 10), M- Medium (5-10), L- Low (below 5)(number of birds observed on site during study ).

**7. End of river in city**  
 Vasna Barrage  
 Size: 250 X 350 Sq. M



**8 .Grove**  
 Sabarmati Ashram  
 Size: 150 X 200 Sq. M



**9. Agriculture along nalah**  
 Ranip  
 Size: 150 X 200 Sq. M



**10. Beginning of river in city**  
 Sabarmati Bridge  
 Size: 250 X 500 Sq. M



**11. Historical structure**  
 Sarkhej Roza  
 Size: 300 X 250 Sq. M



**12. Seasonal lake**  
 Chandola  
 Size: 650 X 650 Sq. M



**13. City zoo**  
 Kankaria  
 Size: 125 X 550 Sq. M





In the city, Bank mynas use weep-holes of under-bridge, overbridges, retaining walls to nest.



Rock pigeons have adapted in using various niches of the city to nest. The above picture depicts one in a weep-hole of Naroda over-bridge.



The rural Bank Mynas, on the other hand have been digging out trenches on earth-banks to nest communally.



Sunshades and other projections have been a favorite nesting spot for Rock Pigeons, be the building single-storeyed or multi-storeyed.



Nests of Red-wattled Lapwing are built from different materials according to the site they chose. In the University area, the birds have chosen cow-dung pellets to nest with.



In the fields of Ranip, the blades of grasses were twisted together to form a saucer-like nest to lay eggs.



This House Crow chose a railway pole under the shade of a solar panel to nest.



*Ailanthus excelsa* trees have been observed to have House Crow nests of twig platform throughout the city.

## BIRDS AT DIFFERENT SITES - NESTING HABITS



A Black Kite chose the top of a light pole to nest.



Rose-ringed parakeets with Bank Mynas have chosen weep-holes of Shahibaug under-bridge to nest.



Black Kites generally chose the top branches of a high tree, here, *Polyalthia longifolia*, to nest.



They generally chose boles of trees like *Azadirachta Indica* to nest in hollows excavated by other birds or themselves.



Black kites roosting on light poles near Parimal Garden



Spotted Owlet use the cove of a structure of Sarkhej Roza to roost in the afternoon.



Peahens in Sundervan find in the sloping roof a perfect spot to roost for a night.



Yellow-footed Green Pigeon use Cables to roost in Gujarat University area.



Black Kites chose *Bombax ceiba* to roost together near Gujarat University



Spotted Owlet use a branchlet to roost during the wee hours of morning near Gujarat University .



A Peacock in Sardar Patel Institute use an *Azadirachta indica* branch to roost.



In Parimal Garden, they use the naked branches of *Colvillea racemosa* to roost.





Oriental Magpie-robin forages in the household dump.



In Law Garden, the Rose-ringed Parakeets come down to feed on bird seeds thrown for them by people.



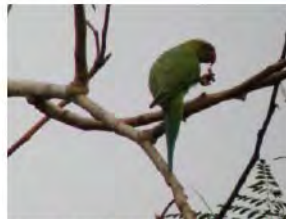
Black Drongo perches on the barbed wire near a recently mowed lawn in Gujarat University to catch flies.



Green Bee-eaters perch on the retaining wall to catch insects from the adjacent Sabarmati river



In Sundervan, they forage in the leaf litter of the bamboo.



Rose-ringed parakeets feed on the dried fruits of *Moringa oleifera* in Mithakhali railway track.



Black Drongo perches on a dead tree stump near a field in Ranip waiting for an insect to come in vicinity.



Green Bee-eater perches on the overhanging branches of *Prosopis cinererea* to catch insects from a recently dug area nearby.

## BIRDS AT DIFFERENT SITES - FEEDING HABITS



## **References**

### **Books and periodicals**

**The book of Indian Birds;** Salim Ali; Oxford University Press; 1996.

**A Photographic Field Guide to Birds of Gujarat for Amateurs;** R. B. Balar; Pappilon;2007.

**Trees of Delhi: A field guide;** Pradip Krishen; Dorling Kindersley, India; 2006.

### **Websites**

[www.wikipedia.com](http://www.wikipedia.com)

### **Acknowledgements**

I would like to thank Mr. Kandarp Katju and Mr. Kartik Shastri, both avid bird-watchers of Ahmedabad, for giving me their time to share their knowledge about the birds of Ahmedabad.





Jobin Varughese is a student of the post-graduate program in Landscape Architecture at CEPT University, Ahmedabad. This study is part of his summer training of 10 weeks. He graduated in architecture from Malaviya National Institute of Technology, Jaipur



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