

Sabarmati Riverfront: A Paradise for Birds







Sabarmati Riverfront: A Tale of Urban Transformation

Sabarmati River has been an integral part in the life of Ahmedabad since the time the City was founded in 1411 along the River banks.

In May 1997, the Ahmedabad Municipal Corporation (AMC) launched a Special Purpose Vehicle (SPV) - the Sabarmati Riverfront Development Corporation Limited (SRFDCL). The SRFDCL was entrusted with the responsibility of turning the Riverfront into a major urban asset for the City, bring people closer to water, bring back focus to the City center, and create City level social infrastructure and recreation facilities.

The Project approach is to bring about an overall environmental improvement, social upliftment and sustainable development along the Riverfront. The Project has created a complete ecosystem that exudes Happiness and Joy. One of the key features of this Project is a two-level, continuous promenade at the water's edge along each bank of the River. The 11.5 km long promenades built serves pedestrians and cyclists and provide access to the water and also hosts a variety of public features at the City level. Creation of various Parks & Gardens viz. Flower Park, Usmanpura Park, Children Park, Shahibaug Park at important locations along with a Biodiversity Park has transformed the entire Project area into an Urban Retreat and provided the citizens a relief from the dense built environment. Various native Trees have been planted with the help of Miyawaki Plantation methodology and many endangered species of Trees have also been planted to increase the Green cover.

The Riverfront is now adorned with picturesque Parks & Gardens, Riverside Walkways, Biodiversity Park, Atal Bridge, state-of-the-art Sports Parks, Event Centre, Pedestrian Walkways etc.

SRFDCL & BCSG Biodiversity Study

Birds are the most abundant group of vertebrate wildlife in all the natural environments. Rivers, far from being the exception, are home to many Bird species: some go there to eat, or to nest or to rest, others follow the course of a River, using it as a migratory route to travel.

Though the Sabarmati Riverfront is in the City, it is appealing for Birds. It has become a favoured destination for several species of Birds. Sabarmati Riverfront is witnessing almost 200 species of native and migratory Birds. Among those who are regularly seen are Flamingo, Heron, Egrets, Bronze Wing Jacana, Grey Headed Swamphen, Purple Sunbird, Ruddy Shelduck, Lapwings, Owlets, Grey Francolin, Eagles, Kites, Shikras, Rosy Starlings, House Crows etc.

The presence of so many species of birds is attributed to the improvement in the water quality in the River. This River is used by birds in a number of ways: it is providing them with breeding grounds and is also a source for food and water. Thanks to the presence of greenery, flowers, gardens, parks and fish in the water, Birds feel at home at the Sabarmati Riverfront. The River also has French wells which provide the perfect habitat for the birds.

Thus, SRFDCL and Bird Conservation Society, Gujarat (BCSG) collaborated in February 2019 to study the avian diversity along the Sabarmati Riverfront. Proper identification of key hotspots for study was carried out, which included gardens and parks, wooden patches, concrete structures, the river stretches etc. The modus operandi for the project envisaged included community engagement through Citizen Science activities. The Citizen Science approach encouraged the local community to help study ecology, biodiversity and human wildlife interaction at the Riverfront. The group of birdwatchers was divided into four teams and each team was assigned one of the four different zones, (two on each side of the River, A1, A2, B1, B2) for regular monitoring and data collection. Data collection methodologies included direct Bird watching at allotted zones, using scientific tools for data collection like e-Bird app, aided with photographs. All seasons during the course of study were covered to record resident birds as well as migrating birds (winter and monsoon). The enthusiastic participants hailing from different backgrounds included college students, doctors, business people, wildlife photographers etc.

Why BIRDS?

The Art of Pollination

Birds play a vital role in extending biodiversity by helping in the reproductive process of plants. Ornithophily is a term used to describe bird pollination. Birds visit different plants searching for nectar and inadvertently carry pollens which fertilize other plants.

Pest Control Agent

Birds are natural predators of insects and keep their population under control. An insectivore continuously forages for insects on land and air. Owls help control the nuisance created by rodents and small mammals. Owl's major diet includes rodents and protects farmlands, further ensuring protection of the food source. The absence of birds will cause mass hysteria because these insects will cause the ecosystem to collapse.

Weed Control Agent

Granivores are birds that feed on grains and seeds. Such birds help maintain diversity and control the rampant growth of vegetation. These birds include sparrows, munias, parakeets, doves, etc. These birds forage in flocks on seeds and help control certain species of plants from becoming invasive.

Decomposers / Scavengers

Vultures, kites, storks, ibises, and crows are commonly seen as scavengers. These birds have a special role in nature as they clean the ecosystem, further controlling contagious infections and diseases caused by decaying matter. These birds are experts at cleaning and will consume decaying carcasses in a short span of time. The same amount of decomposition and removal without these birds would take a huge amount of time and money.

Seed dispersal and Forest Creation

Birds are skilled gardeners and help create beautiful landscapes. The seeds they carry for dispersal help generate new habitats and an increase in tree populations further leads to carbon sequestration and climate change control.



Pied Kingfisher

Climate Indicator

For ages, farmers across India have been guided by birds about changing seasons and weather. Scientists are using bird migration patterns to understand seasonal transitions. The arrival of the Jacobian Cuckoo from the African continent is a sign of monsoons, as these cuckoos take the help of winds for migration. Birds are an ecologist's favourite tool to study change in habitats and climates.

Birdwatching

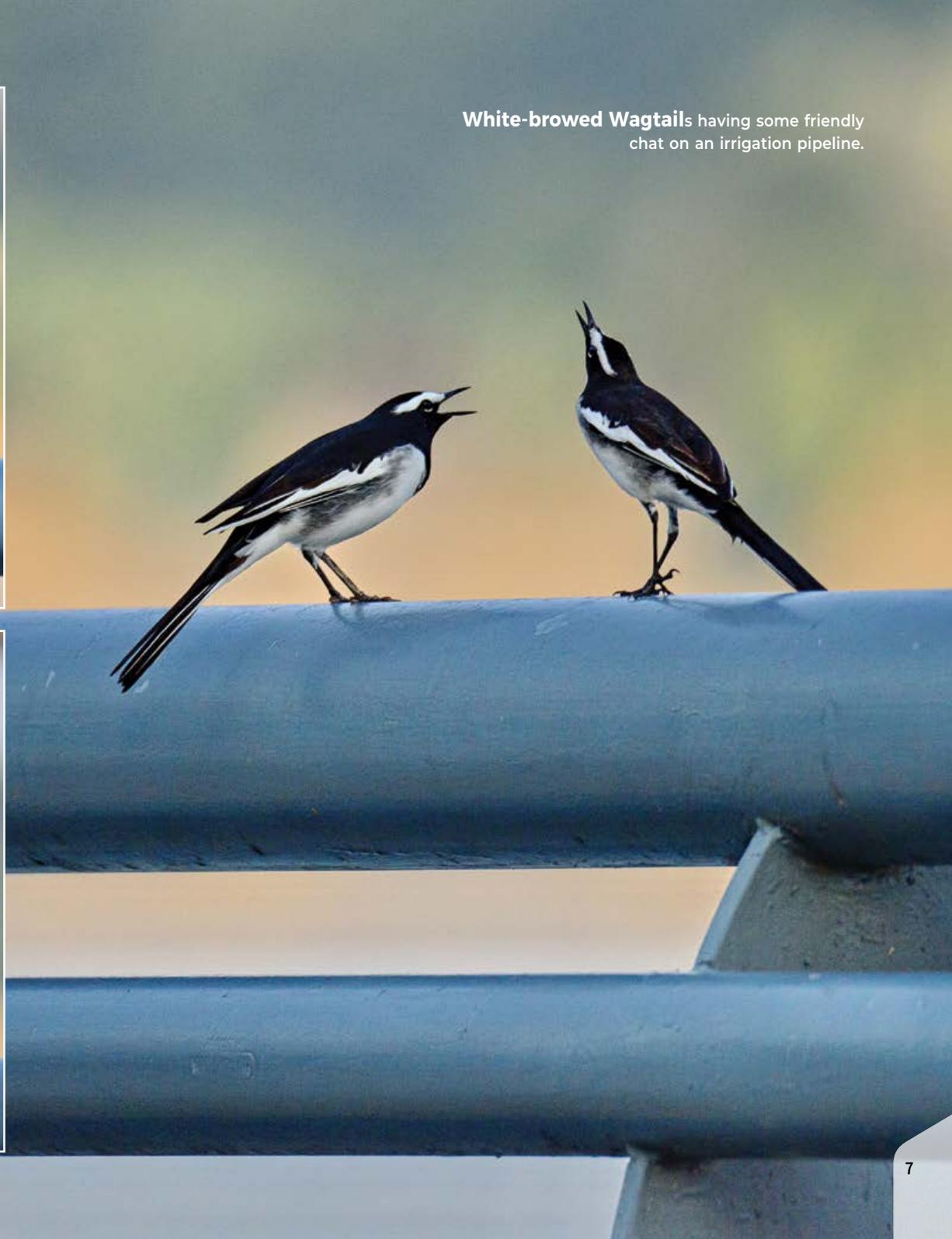
Birdwatching is becoming a popular hobby and pass-time activity. People enjoy the world of birds, observing their behavior, colors and enchanting calls. Birdwatching helps people get aesthetic enjoyment and a chance to get close to nature and its entities. In recent years, birdwatching has become a major contributor to tourism, helping communities in remote areas provide a sustainable livelihood. The community that used to practice hunting is now protecting birds and their habitats.

Inspiring Science

Biomimicry is science emulating nature and its elements to help create sustainable designs, machinery, innovations, and processes for effective results. Bird flight and feather design have always inspired the aviation industry. The early warning system using birds will help counter climate change. Many computer algorithms are based on bird behavior.



White-browed Wagtails having some friendly chat on an irrigation pipeline.



Jacobian cuckoo, also known as the **Pied Cuckoo** or **Pied Crested Cuckoo**, is a monsoon visitor in the state of Gujarat, which is said to migrate from the African continent, visiting Indian states in large numbers to nest. Mythologically named Chatak. It is considered a harbinger of the monsoon rains due to the timing of its arrival.

Jacobian cuckoo is known to exhibit Brood parasitism i.e. Not building a nest and laying eggs in other bird nests like babblers and bulbuls, also called host's.





Common-hawk Cuckoo or **Brain Fever** is resident cuckoo of Gujarat. The bird is famous for its continuous loud repetitive three-note call which enunciates the phrase “brain fever” - one for “brain” and two for “fever”.

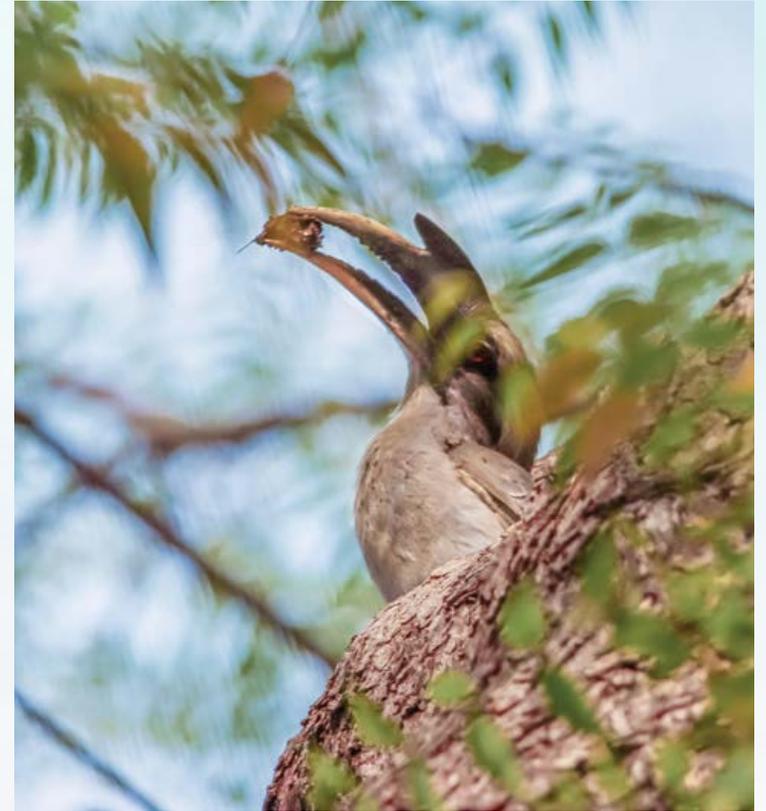


Brood Parasite

Some bird's species don't build nests but thrive by laying their eggs in the nests of other individuals. These birds are called parasites, and the foster parents are called hosts. This reproductive strategy is commonly seen in cuckoo families. The parasite bird silently sneaks its eggs into the host species nest for free fostering, hence preventing the parasite species from the burden and expense of rearing the young's. With evolution, many parasite species eggs mimic the host eggs in colour and shape, have thicker shells, and take shorter incubation times overall, pushing the parasite offspring to hatch first and fast.

In the urban landscape, one can witness brood parasites in Asian koel and house crows.





Indian Grey Hornbill is the only Hornbill species found in Gujarat. Hornbill prefer large fruiting trees. Few patches along riverfront offer suitable habitat for hornbill to survive in Urban landscape.



As the name says, **Asian Green Bee-eater** major diet consists of bees, but they relish other flying insects like dragonflies, wasps, moths, and butterflies. They are considered pests by bee-keepers due to their predation on bees as food. Before consuming the removed exoskeleton, sting, and wings, by repeatedly thrashing them on the perch. They are excellent fliers and perform aerial ballet, the manoeuvres flying, catching flying insects in the air and gliding back to the perching point.





The communal roosting or HUDDLING in large or small numbers can be seen with the nasal trill calling tree-tree-tree. Many members can be seen huddling together in rows on branches or electric wires and looking for any food opportunity flying by. The birds like to sand-bathe or water-dive in flight to keep parasites off their bodies. The bee-eaters' graceful aerial ballet will have you enthralled in no time, lifting your spirits right up there with them.





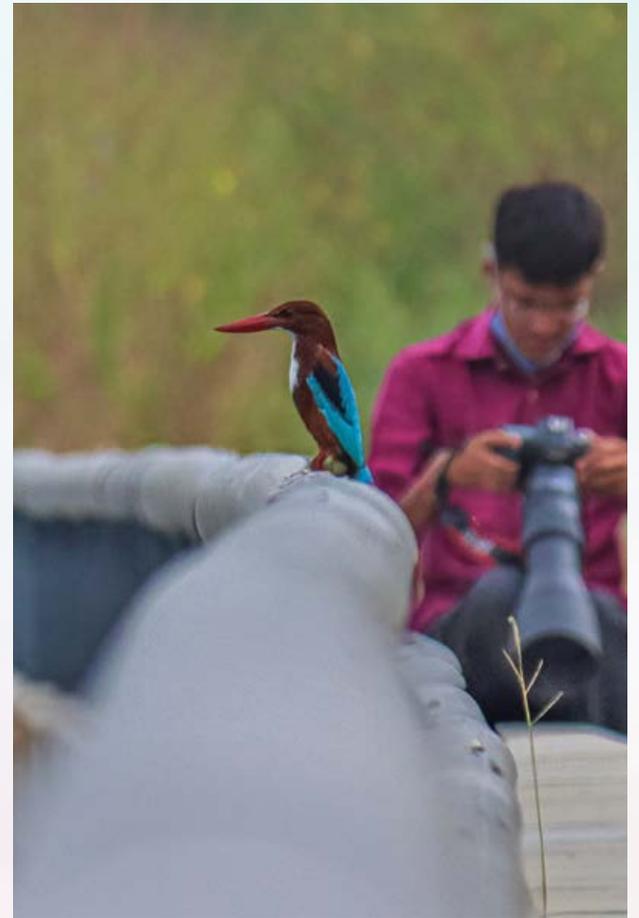
Little Cormorant can be seen perched near a water body with its wings spread out. The medium-to-large aquatic bird has a reptilian-like appearance, and its scientific name means “Sea Crow”. They are brilliant divers and easily chase fish by propelling themselves through the water using their webbed feet. After every catch, they come out of the surface to swallow the catch. Many birds try to steal the cormorant’s catch, as those birds are incapable of diving deep. After their treat is over, they emerge out of the water and hold out their wings for drying, also called “sunbathing” or “wing-drying”. The wings are soaked and dried to prevent any accumulation of air bubbles, which, if trapped underneath feathers, can hinder deep diving.

Their sharp hook-like bills, web feet, short wings, and special feathers enable them to catch fish efficiently. In Chinese tradition, the bird is used for fishing. The snare is tied at the base of the bird’s throat, which stops birds from swallowing large fish. The bird returns to its fisherman’s raft;





White-throated Kingfisher





White Wagtail a wintering migrant bird preys upon dragonfly. One can easily locate them in the winter playing around the urban structure of the riverfront.



A **White Wagtail** forages for insects around a leisuring stray dog. The photographer successfully captures the colour resemblance between the white wagtail and the dog.



Asian Koel (male)



Rose-ringed Parakeet



Asian Koel (female)



Yellow-footed Green Pigeon

Seed Dispersal the vital role of ecology is performed by them. The seeds which are ingested through fruits remain indigestible and are dispersed as the bird fly to different places.



Coppersmith Barbet also called the Crimson-breasted Barbet, this resident bird of India has a crimson forehead and a metronomic call. The metallic call tuk...tuk...tuk reminisces of a copper smith beating copper, giving its name. The beautiful, sparrow-sized bird is frugivore in nature and enjoys the fruit of urban trees like banyan and peepal. They chisel out holes to build their nests, which are perfectly round with a uniform diameter.



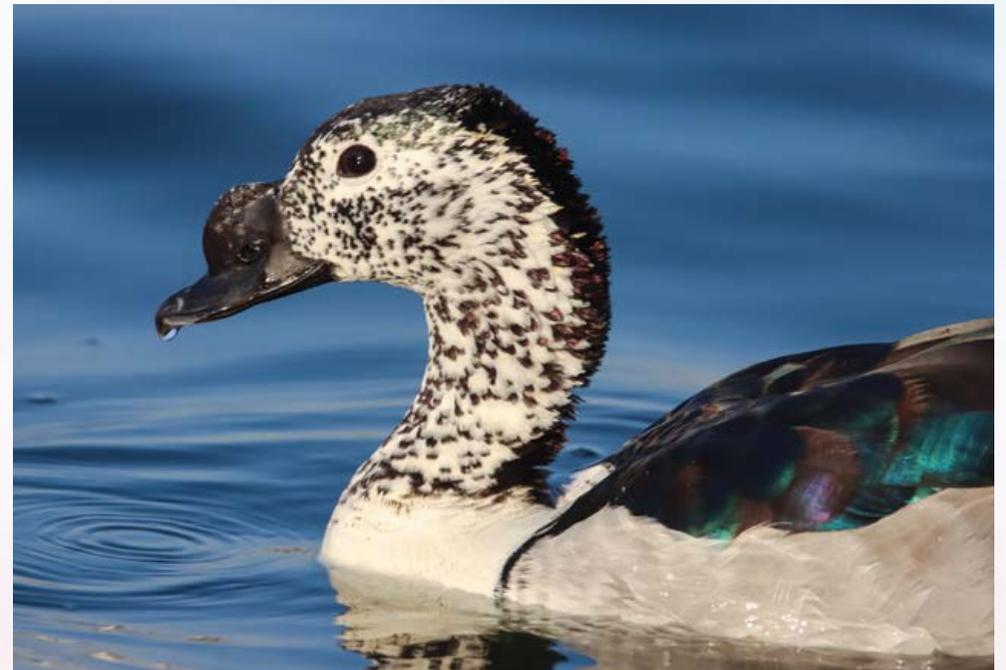
White-eared Bulbul



Asian Openbill Stork collects mussels and piles them on open ground, killing the mussels from dehydration and leading to the easy opening of mussels for feed. The stork prefers agricultural landscapes, marshes, irrigation canals, and wetlands. The water bodies preferred by the bird are generally shallow, which makes them easy to forage for molluscs. Due to its food preferences, the bird is considered a friend of the farmer.



Indian Cormorant or **Indian Shag** is one of the resident cormorant species of Gujarat can be easily identified by its Blue-green eye (emerald color), round head, and long narrow hook bill. The water bird can be frequently seen near water body emerging and disappearing under water to catch fish. While perching the water bird can be seen drying its body with outstretched wings.



Knob-billed Duck is common resident duck of Gujarat and Riverfront is actually one of the largest species of duck, with a size between 56-76cm. The male size is generally larger than the female and has a unique black knob on the bill which gives the species its name.



Indian Peafowl



Pied Kingfisher



Cattle Egret



Shikra a small bird of prey, is widely distributed in Asia and Africa. The bird, along with forest and farmland habitats, has adapted well to the urban landscape. In urban areas, they are a major predator for squirrels. During pre-independence times, the bird was famous in falconry as it has brilliant skills and intelligence, making it the easiest to train and tame.



House Crow chasing **Black-winged Kite**



A Black Drongo in a flying tussle with a **House Crow**.



- **Booted Eagle** sharing air space with the commonly found raptor, the **Black Kite**.
- **Booted Eagle** been chased by a mischievous murder of **House Crows**.
- **Booted Eagle** legs look like they are wearing boots, which gives them their name. The medium-sized eagle is dimorphic, i.e., found in two plumage forms: the dark morph and the pale morph.



Purple Sunbird



Female



Male

Purple Sunbird Male and female are busy feeding the chick seated inside the hanging nest. Male and Female create pouch-shaped nest suspended from low branch using vegetation like grass, dry leaf etc. The nesting material is held together using spider cobwebs.



Black-headed Gull

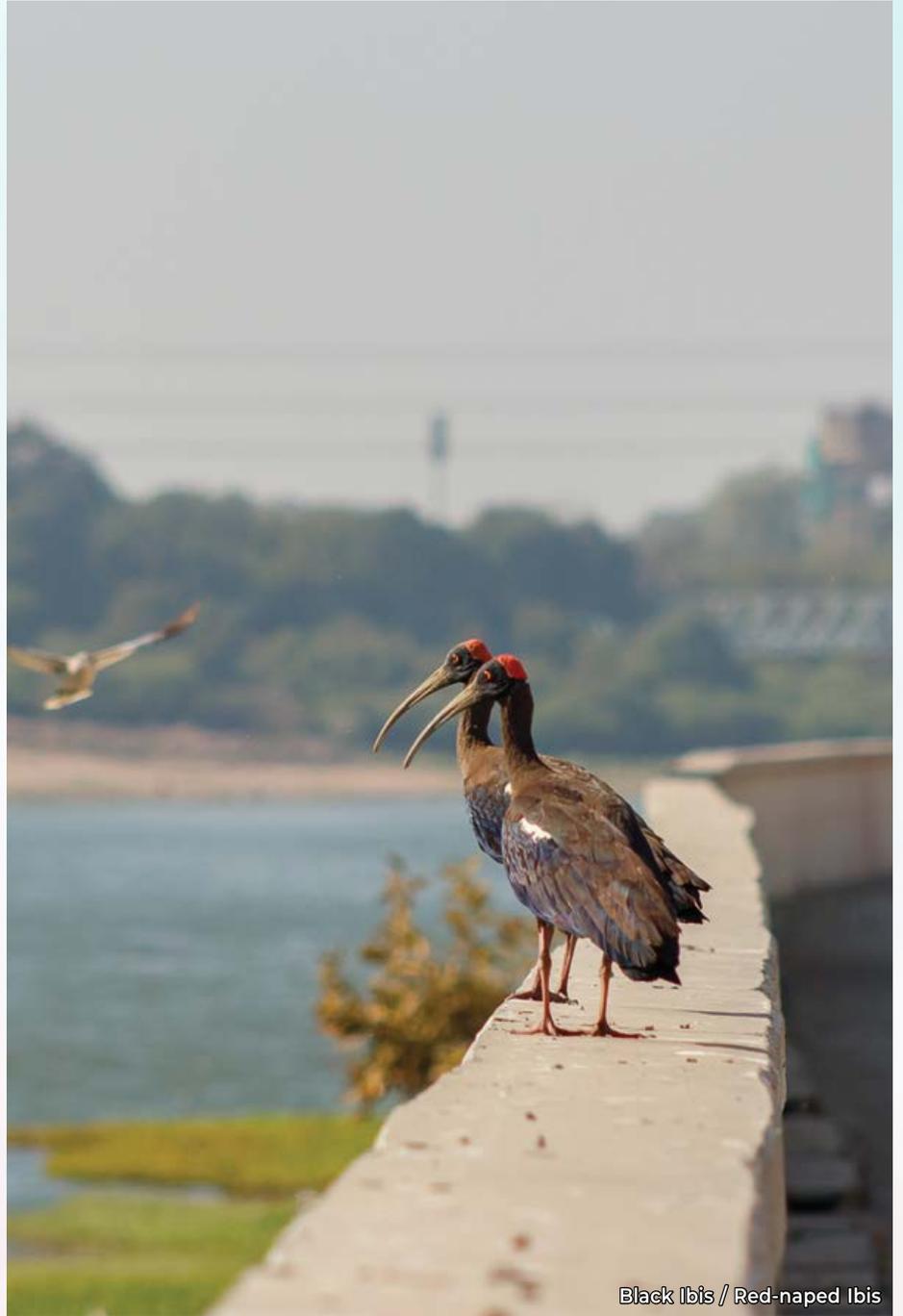


Rosy Starling



Black-winged Stilt





Black Ibis / Red-naped Ibis





Wagtails are passerine, or insectivore, birds that are famous for their conspicuous tail-wagging behavior. The family name Motacillidae originated from the Latin word *motare* “to move about” and *cilla* stands for tail. As per studies, the tail-wagging behaviour is associated with signalling and flushing insect prey out and is also one of the preening activities. They efficiently capture insects on the ground and through aerial maneuverability. Six species of Wagtails are recorded from Gujarat, of which five species are found in the Riverfront.

The **Yellow wagtail**, **Grey wagtail**, **Citrine wagtail** and **White Wagtail** are wintering birds, while the **White-browed Wagtail** is a resident bird.





Little Egret



Greater Coucal or Crow Pheasant, a resident bird of the Riverfront, is closely related to cuckoos. The bird is a weak flier and can be seen clambering in vegetation foraging for insects, caterpillars, lizards, and small snakes. The resonant call of Coucal is produced in a similar manner to doves and is considered an omen in many parts of India.



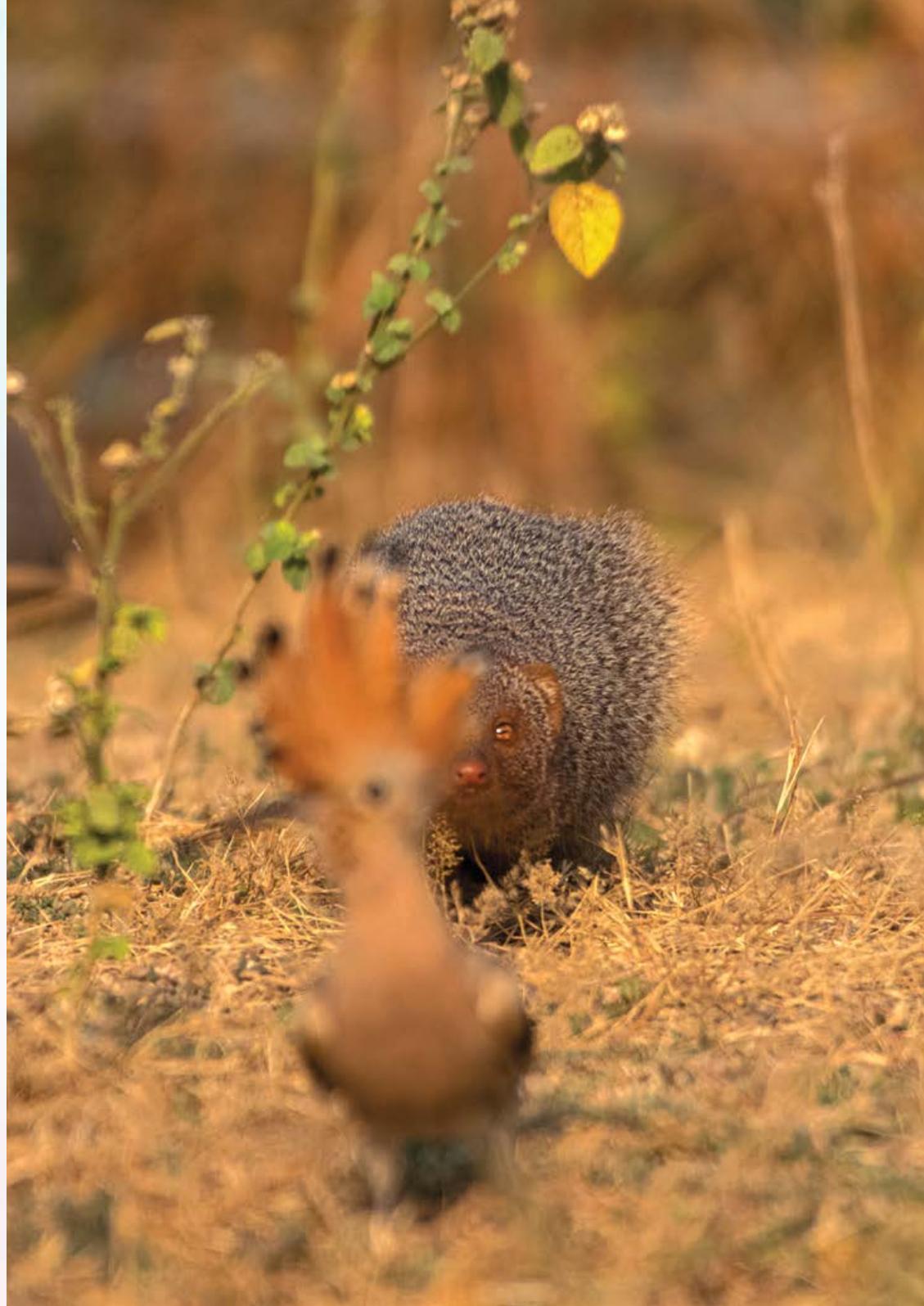












A **Common Hoopoe**, a potential prey for an Indian Grey mongoose. The Hoopoe was foraging on the ground when the mongoose appeared from bushes at the back, looking for predation. The photographer was lucky to capture the predator and prey perspective in a single frame.



Black Drongo fights for food with **Common Hoopoe**.





Rosy Starling or Rose-colored Starlings or Rose-colored Pastors, migrates during winter in India. The murmuration of starlings is a beautiful phenomenon to witness. The large number of starlings perform aerial feats by moving in unison. They twist, turn, swoop, and swirl, performing a unique aerial dance and continuously forming different patterns in the sky. As per studies, murmuration is one of the methods through which birds can create confusion for predators, hence raising chances.



Purple Heron



Great Egret



Black-crowned Night Heron



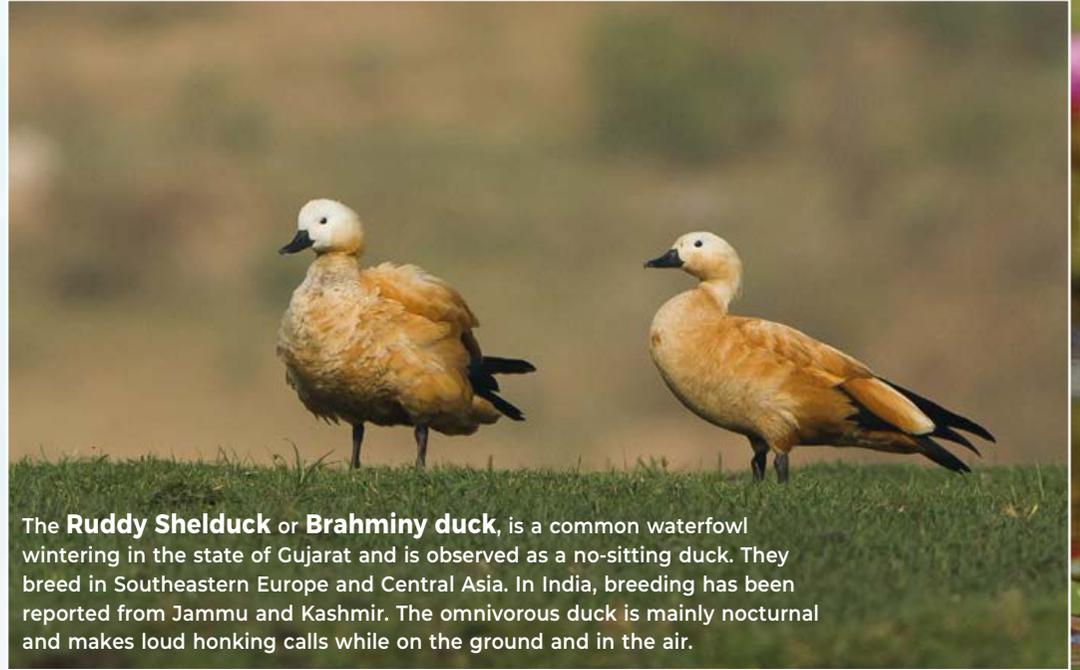
Grey Heron



Graceful Grey Heron taking off as a Painted Stork walks behind on a cantilever wood plank



Knob-billed Duck



The **Ruddy Shelduck** or **Brahminy duck**, is a common waterfowl wintering in the state of Gujarat and is observed as a no-sitting duck. They breed in Southeastern Europe and Central Asia. In India, breeding has been reported from Jammu and Kashmir. The omnivorous duck is mainly nocturnal and makes loud honking calls while on the ground and in the air.



The **Northern Shoveler** flies by the Torrent power plant. The bird is the most common wintering waterfowl in the state and can be spotted in a wide variety of aquatic habitats. Dabbling ducks are distinguished from other waterfowl by their long, broad bills.



Lesser Whistling Teal



Indian Spot-billed Duck



Scaly-breasted Munia



Ashy Prinia



Tricolored Munia



Common Chiffchaf



Sykes Warbler



Booted Warbler



Paddyfield Warbler



Zitting Cisticola



Lesser Whitethroat



Hume's Leaf Warbler

Warblers are small birds that are generally small in size, vocal, and insectivores. For any birdwatcher, field identification of warblers is a very tricky process. The method of field identification of warblers includes understanding some important characteristics like plumage pattern, body shape and size, voice, behavior, and habitat preferences. The winter migrating warbler performs a long migration with just a few grams of fat. Even though they effectively merge with their habitat, they can be spotted by their active and restless behaviour while foraging.



The **Egyptian Vulture** or **Pharaoh's chicken**, is the smallest vulture in the world. The vulture is listed as endangered on the IUCN Red List. The scavenger is opportunistic and will also prey on small birds, reptiles, and mammals.

Egyptian vultures roost communally on large trees, buildings, cliffs, or high-voltage transmission poles. The roosting site is generally close to a dumping site or foraging site. The Egyptian vulture has been observed using tools like pebbles as hammers to break eggs.



Bluethroat a small passerine bird that can be identified by its striking blue throat, bordered below with black, white, and chestnut, and a flashing red tail. The winter migrant bird breeds in the palearctic and northern European regions.



Thick-billed flowerpecker is a tiny, hard to spot bird which is a resident bird of Gujarat and predominantly feeds on fruits, nectar, and insects. It prefers feeding on the epicarp of large seeds. The bird, while foraging, creates a “spick” call.



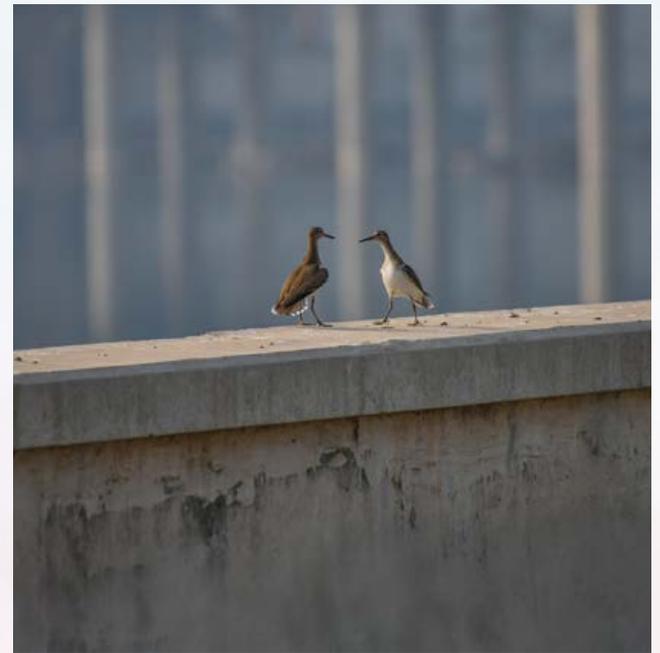
White-browed Bulbul



Grey-necked bunting is a rare wintering bird on the Riverfront.



Common Sandpiper





Wood Sandpiper



Little Stint



Black-winged Stilt a common resident wadler, is captured landing in perfect synchrony.



House Crow chasing a River Tern flying low over river sabarmati



Indian Golden Oriole



Purple-rumped Sunbird



Black-rumped Flameback



House Sparrow



Paddyfield Pipit



White-browed Fantail



Great Egret



Knob-billed Duck



Wire-tailed Swallow collecting mud for building nest.



Streak-throated swallow



Grey-headed Swamphen (above) and **Common Moorhen** (below) captured feeding their chicks over floating vegetation of Riverfront. Both birds prefer marshland and swamps with reeds. These birds prefer nesting building floating nest hidden inside reeds.



Chick of **Red-wattled Lapwing** moving around ground bushes at Riverfront Garden.



Pale colored Juvenile of **Common Moorhen** captured escaping in vegetation at Flower Park, Riverfront



Peregrine Falcon dives and dips in water for fish. The falcon is a winter visitor to the state and can be seen in high towers and buildings in Ahmedabad city. The bird, with its special morphology and speed, easily hunts down urban feral pigeons for food.



The Peregrine falcon is the fastest bird in the world and can dive at a speed of 320km/h. The bird's air nostril enables the bird to sustain air pressure and breathe at high speeds.



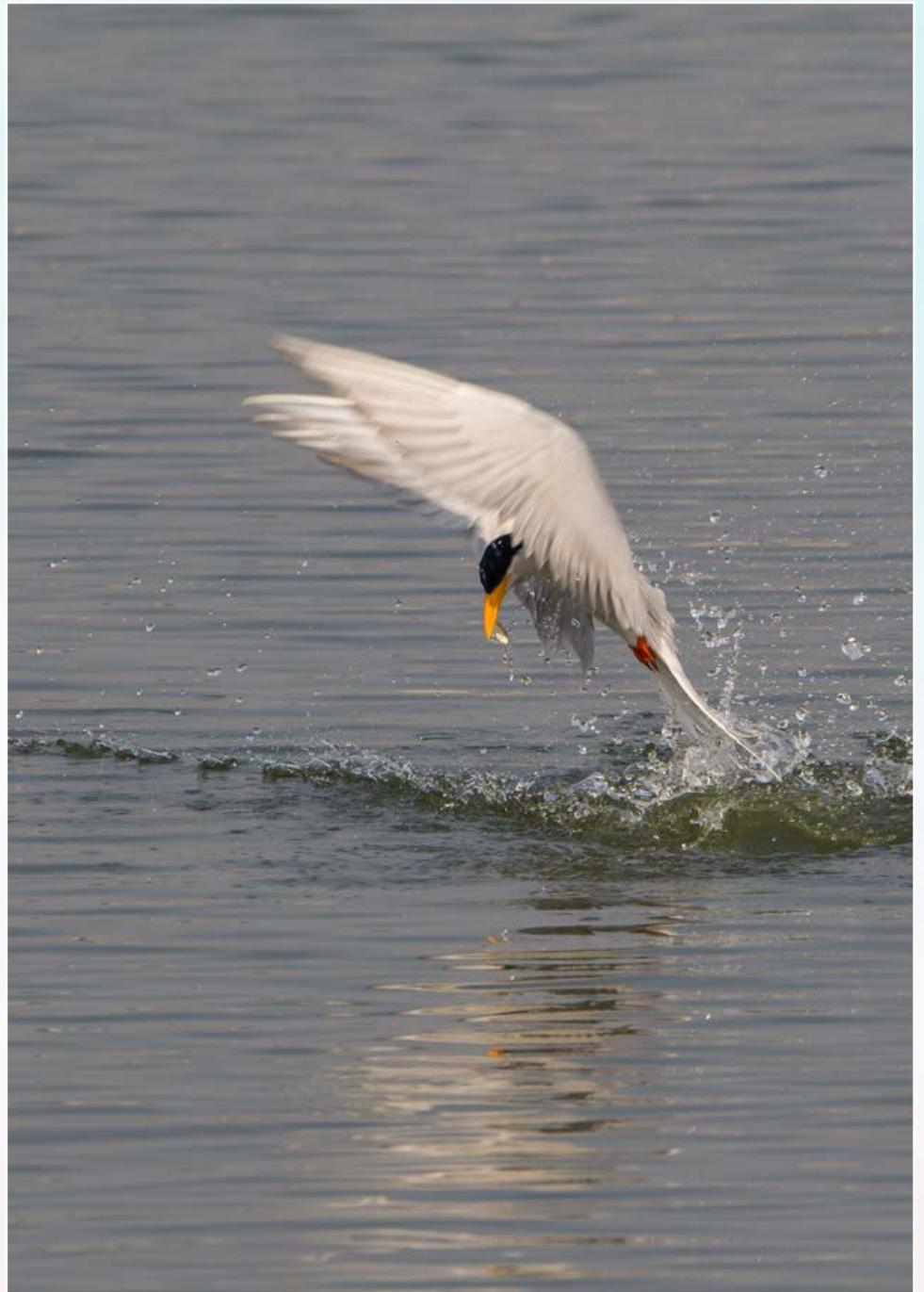
The falcon has a flicker fusion frequency of 129Hz (flicker frequency of humans is up to 80Hz), which is much faster compared to mammals and other birds of its size, hence making its vision the fastest in the animal kingdom.



Black Drongo performs aerial manoeuvres to catch insects in the air.



A juvenile **River Tern** flies by while playing with freshly caught fish.





Great Cormorant





Green Bee-eater



A **Black Drongo** feeding its hatchling. As black drongos are observed to be very aggressive during nesting, other birds get the benefit of territory protection, further ensuring free nest protection.



The most common nocturnal bird on the riverfront is the **Spotted Owlet**.



Tailor bird quenches thirst to the last drop captured at Riverfront Garden.



Little Cormorant



During dawn and dusk, one can observe large numbers of rose-ringed parakeets transiting in and out of their roosting point at Dudheshwar Waterworks. Over the years, the large, tall tree at Waterworks has become a perfect roosting site for many birds and mammals (Indian flying fox). One can observe and understand the importance of old urban trees when thousands of parakeets enter and exit the point at a dedicated time. During winter, the view becomes swashbuckling when the rising pandemonium of parakeets intermingles with the murmuration of starlings. Surprisingly, it occurs at a time when many aircraft are on a low trajectory and gaining height for transit.



Rose-ringed Parakeet



Rose-ringed Parakeet



Plain Prinia catches Lynx spider while foraging for food.



Indian Thick-knee



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