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As a passionate nature lover, he also writes frequently in a number of national publications on conservation related issues. Wetlands are one of Ronald's passion and the pictures in this book reflects that through his lens.

photo : Samiul Mohtasin



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IN FOCUS TANGUAR HAOR



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IN FOCUS

TANGUAR HAOR

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INTRODUCTION TO TANGUAR HAOR

A globally significant wetland, *Tanguar Haor* in north-eastern part of Bangladesh, adjacent to the Indian border, is part of a wetland/floodplain complex of the *Surma* river basin. Administratively, one third of *Tanguar Haor* lies in the *Tahirpur Upazilla* (sub-district) and the reminder in *Dharmapasha Upazilla*, both within the *Sunamganj* District of the *Sylhet* Division (See map). Although several hundred kilometers from the sea, the *Tanguar Haor* is located at an elevation of only 2.5 - 5 meters above sea level, and water movement is generally sluggish.

During the monsoon, the *beels* merge into one large body of water in a natural depression between the levees of several rivers. During this season (June - September), *Tanguar Haor* is entirely under water except for villages, mostly locate in the periphery, constructed on raised mounds, appear as small islands in this vast body of fresh water. In the dry season waters recede into the rivers and all that remain are some 50 *beels*, which cover about 25 - 30% of the *haor* area. These deeper bodies of water are heavily fished. They attract many waterfowl during the winter season. The *Tanguar haor* is considered to an important breeding ground of many species of fish.

Waters in *Tanguar Haor* consist mainly of water backing up in the *Surma* river system, south of the *haor*, although some water is received from streams flowing from the *Meghalaya* Hills in India to the North. Although rich in nutrients, waters are generally clear, especially in the dry season. The *Jadukata* river, to the north-east, brings large amounts of sand to this part of the *Sylhet* basin.

Tanguar Haor provides immediate subsistence and livelihoods to some 40,000 people residing in some 46 - 50 villages located in its periphery. Standards of living are very poor. The principal economic resource is fish. .

In 1999, the Government of Bangladesh, recognizing the ecological importance of the area and the over-exploitation of resources declared the *Tanguar Haor* an "Ecologically Critical Area". In 2002 the *Tanguar Haor* was listed as the country's second RAMSAR site - wetland of

international importance. The management of the *haor* was transferred from the Ministry of Land to the Ministry of Environment and Forests in 2001.

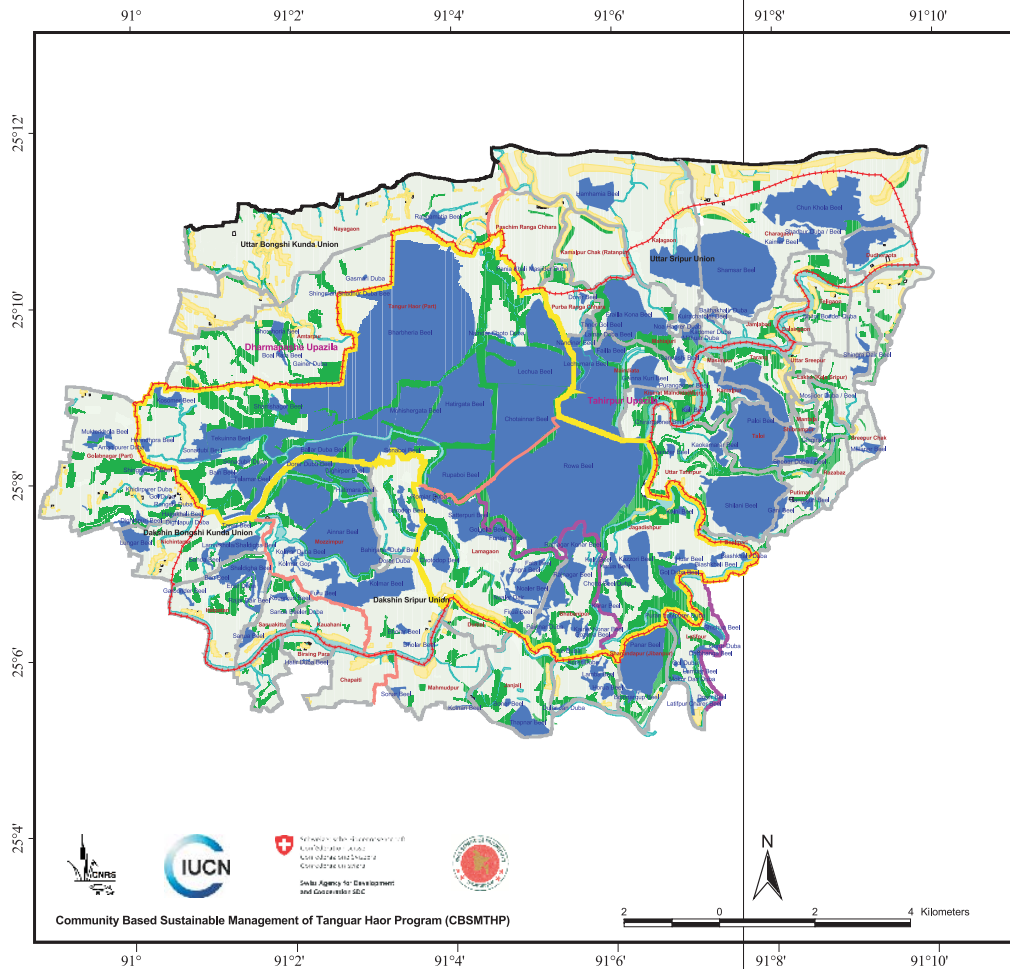
Wetland ecosystems are of great importance to Bangladesh because of their extent and of the critical economic and ecological role that they play in sustaining life and livelihoods in the country. Wetlands provide short- and long-term benefits and services to the people of Bangladesh including crop and fish production, swamp forest and reed land maintenance, and regulation of water flow. Wetland resources are of particular importance in the context of livelihood strategies of the poorest segments of society. Nowhere in the world are the lives of so many people so intricately linked to the productivity of wetlands. The cultural and economic functions of wetlands contribute in many ways to satisfying essential needs of large parts of the population. Wetlands are under threat from encroaching and competing forms of land-use, and the resources they contain are exploited in unsustainable ways.

The Ministry of Environment and Forests (MoEF), under the National Conservation Strategy Implementation project, sponsored a number of studies to determine the potential in natural resources of *Tanguar Haor* and to identify the causes of observed resource depletion. These studies identified that lack of income and employment opportunities for the people of the basin (who live isolated on islands during the entire rainy season) as a major cause of resource depletion. The swamp forests have diminished as local people harvest wood for use as fuel, reed beds have depleted due to unsustainable harvesting practices and the fish stocks had been seriously diminished due to over-exploitation by leaseholders. The lack of any system for recognizing customary rights of use and related management schemes has alienated the *haor* residents and precluded the emergence of management schemes that could ensure that exploitation levels are sustainable.

With these observations, the Government of Bangladesh prepared a comprehensive management plan for *Tanguar Haor*, introducing the concept of "wise-use" of wetland resources based on the wise-use principles of the RAMSAR convention in 2005.

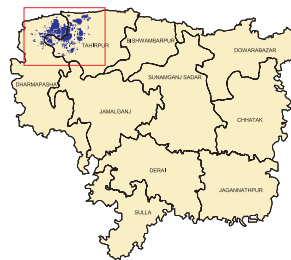
Traditional allocation of fishing right to highest bidder is no longer practiced. Rather, under the “Community-based Sustainable Management of the *Tanguar Haor* Project” was taken up for implementation in December 2006 with support of the Swiss Agency for Development and Cooperation (SDC). The project aims to successfully engage community in managing the resources of the *Tanguar Haor*.

Tanguar Haor still remains a pristine and undisturbed spot of natural beauty. Photographs contained in this book provide some evidence of the unspoiled nature and its interaction with people living around it.



Tanguar Haor

Sunamganj District



LEGEND

- International Boundary
- Upazila Boundary
- Union Boundary
- Mouza Boundary
- Proposed Tanguar Haor Boundary (by IUCN & CNRS)
- Tanguar Haor Boundary (by district administration)
- Beel
- River/ Khal
- Kanda
- Village
- Crop Land

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Chapter 1



Landscape

Chapter 1.1 Summer Landscape

A *'haor'* is a bowl-shaped depression between natural levees of river network that readily become submerged in the monsoon months.





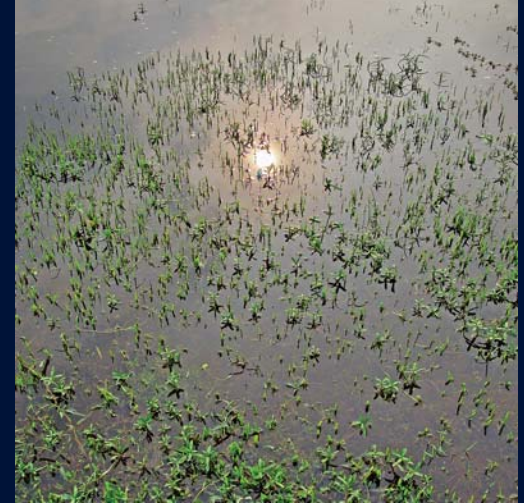
A true plant species of the freshwater swamp. The Hijal tree (*Barringtonia acutangula*) can withstand submersion for four to six months.



The serene landscape of the winter months transforms into a churning ocean during the monsoon.



For most of the inhabitants in this watery world, the only way to eke out a living is fishing during the monsoon.



The last few blades of grass strain to catch the fading rays of sunlight before being engulfed by water for the next six months.



A child with his fishing net and pot. Fishing is a favorite pastime for many children in the wetlands during the monsoon season.



As the water rises and completely surrounds the wetland communities, even a small task becomes a chore.



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A typical village in the haor basin during monsoon, only a sliver of land breaks the surface of the vast expanse of water.



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The change in season alters the fishing methods. During the annual monsoon floods fishhooks are more widely used than nets.

Chapter 1.2 Winter Landscape

As the land resurfaces at the end of an annual flood, the rice planting season begins in earnest to ensure an early harvest. Flash floods originating from early monsoon rainfall in nearby Garohills are persistent threat, just before harvesting time. A stand of *Koroj* (*Pongamia pinnata*) (inset).



While floodwaters recede some areas will remain submerged year round; individually these are known as 'Beels'. Within Tanguar Haor there are 47 of these water bodies.

Protecting the wetland from poachers (inset)





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The winter landscape is a mosaic of colors in the wetlands. Numerous perennial plants come into bloom such as Spider flower, (*Cleome hassleriana*) (pictured above)



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Most wetland villages are built on naturally occurring levees that are at least fifteen feet above the winter water level, the average water level difference between the monsoon and winter months.

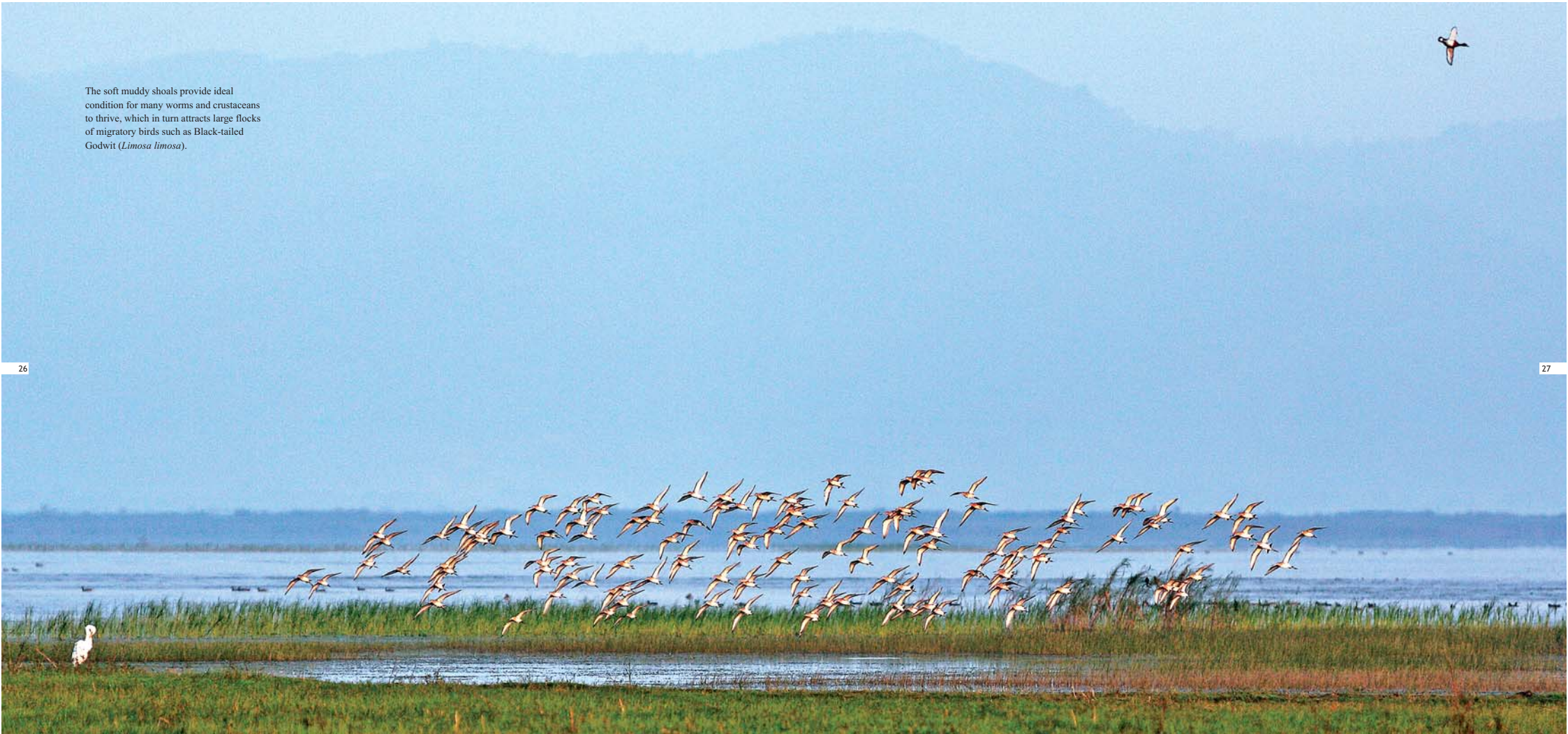


Winter signals the arrival of thousands of migratory birds that transform the landscape.

Extensive grasslands emerge once the water has completely drained away.



The soft muddy shoals provide ideal condition for many worms and crustaceans to thrive, which in turn attracts large flocks of migratory birds such as Black-tailed Godwit (*Limosa limosa*).





Wooden boats are the only mode of transport on the wetlands



Chapter 2
Birds

Chapter 2.1
Residents



An abundant supply of seeds from a variety of grasses and aquatic plants provide enough food for year-round survival of seed-eating birds such as the Eurasian Collared Dove (*Streptopelia decaocto*) (left) and Spotted Dove (*Streptopelia chinensis*) (right).



The Purple Heron (*Ardea purpurea*) is a rare resident of Bangladesh. Places like Tanguar Haor are their last refuge.

Striated Heron (*Butorides striata*) (left) and Great Egret (*Casmerodius albus*) (right) are two common residents of the wetland.



A flock of Grey Herons (*Ardea cinerea*) and a resting pair of Spot-billed Ducks (*Anas poecilorhyncha*).

Birds such as the Little Cormorant (*Phalacrocorax niger*) (left) and Great Cormorant (*Phalacrocorax carbo*) (right) depend on sanctuaries such as Tanguar Haor for their survival.



The Darter (*Anhinga melanogaster*), globally classified as near threatened, finds refuge in this wetland.



Extensive grassland emerge at the end of the flood cycle, feeding large flocks of seed-eating birds like the Black-headed Munia (*Lonchura malacca*).





Striated Grassbird
(*Megalurus palustris*) (upper left)
and Purple Swampfen
(*Porphyrio porphyrio*) are two
common residents of Tanguar Haor.



Eurasian Coot (*Fulica atra*) taking flight.



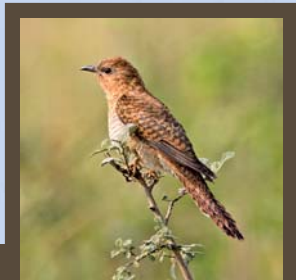
Pheasant-tailed Jacana (*Hydrophasianus chirurgus*) (top left), a common resident of the wetlands. Ruddy-breasted Crake (*Porzana fusca*) (top right) and Watercock (*Gallinix cinerea*) (bottom) are two of the most elusive birds of the wetlands.



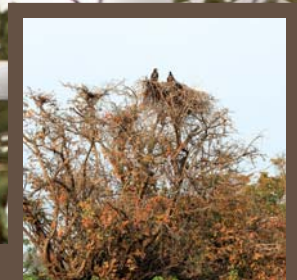
White-throated Kingfisher (*Halcyon smyrnensis*) has a voracious appetite for almost anything that moves.



Plaintive Cuckoo (*Cacomantis merulinus*)
Male (left) and Female (right).



The Pallas's Fish Eagle (*Haliaeetus leucorhynchus*)
still survives in Tanguar Haor, however it is
listed as critically endangered in Bangladesh and
threatened worldwide.





Cotton Pygmy Goose (*Nettapus coromandelianus*) (left).
Spot-billed Duck (*Anas poecilorhyncha*) (inset) taking off.



A flock of Spot-billed Ducks (*Anas poecilorhyncha*).



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A flock of Fulvous Whistling Ducks (*Dendrocygna bicolor*),
Little grebe (*Tachybaptus ruficollis*) (inset).



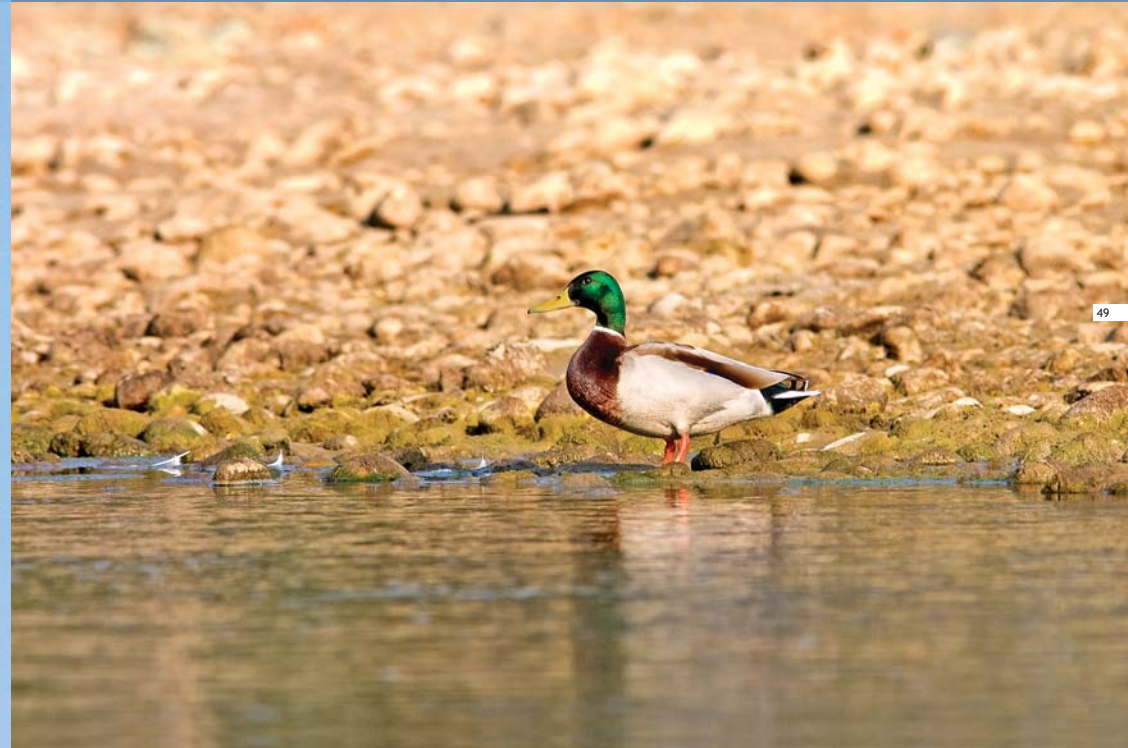
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Lesser Whistling Duck (*Dendrocygna javanica*); a common resident.

Chapter 2.2
Migratory birds



As winter commences up to 20 species of migratory ducks arrive at the wetlands, such as the Greylag Goose (*Anser anser*).
Mallard (*Anas platyrhynchos*) – Male.





Eurasian Teal (*Anas crecca*)
Male (left) Female (right)



Northern Shoveler (*Anas clypeata*) – Male (left) Female (right)
In flight - Male Shoveler (inset)

Eurasian Wigeon (*Anas penelope*)
Male (left) Female (right)



A rare winter visitor – Falcated Duck (*Anas falcate*) – Male

Garganey (*Anas querquedula*)
– Male (right) Female (left)
Garganey in flight (inset)



Gadwall (*Anas strepera*)
– Male (right) Female (left)
Gadwall in flight (inset)



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Baer's Pochard (*Aythya baeri*) – Male
– A globally threatened duck. Tanguar Haor is a safe refuge for this vulnerable species.



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A flock of Red-crested Pochard (*Rhodonessa rufina*).
Red-crested Pochard – Male. (inset)



Common Pochard (*Aythya ferina*).



Ferruginous Duck (*Aythya nyroca*)
- Tanguar Haor provides shelter to some of the largest congregations of this globally threatened species.
Ferruginous Duck take flight (inset)



Tufted Duck (*Aythya fulgula*)



Tufted Duck (*Aythya fulgula*) - Male (right) Female (left)



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Northern Pintail (*Anas acuta*)



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Northern Pintail - taking off.



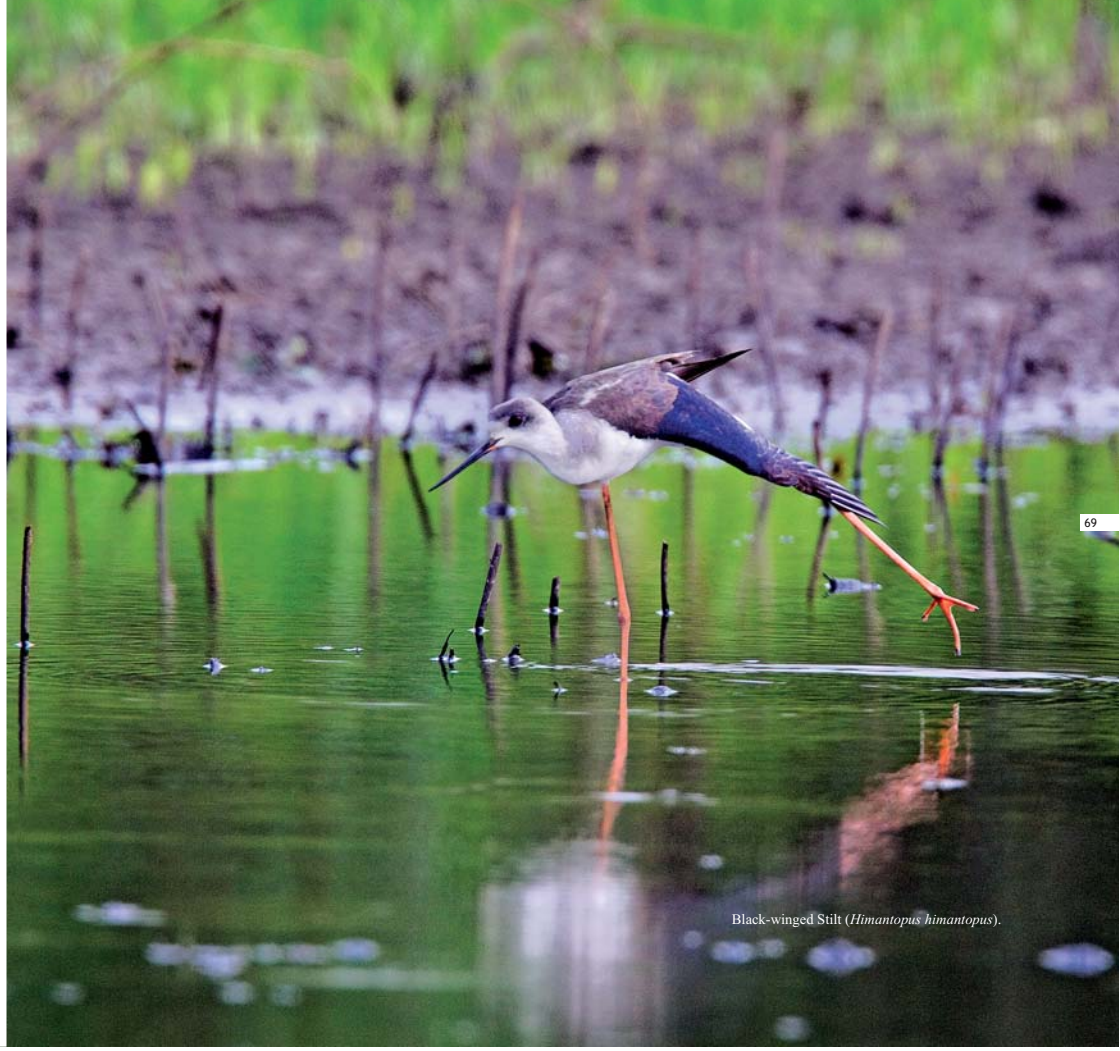
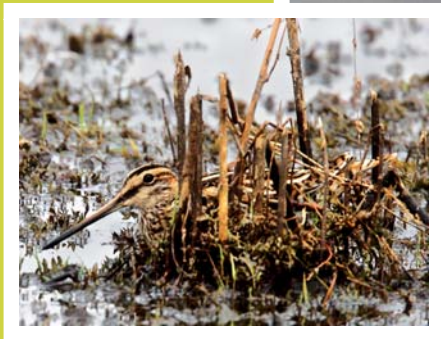
Ruddy Shelduck (*Tadorna ferruginea*)
- Tanguar Haor is one of the best known assembly points for large flocks of birds on return migration.

A variety of small birds come to this wetland during the winter months, the Marsh Sandpiper (*Tringa stagnatilis*) and Black-faced Bunting (*Emberiza spodocephala*) (inset) are two such birds.



Baillon's Crake (*Porzana pusilla*)
– a secretive winter migrant to our wetlands.

A Whiskered Tern (*Chlidonias hybridus*) in search of food (right).
The Common Snipe (*Gallinago gallinago*) uses its camouflage to blend in with the surroundings (inset).



Black-winged Stilt (*Himantopus himantopus*).



An alarmed flock of Northern Pintail (*Anas acuta*) and Black-tailed Godwit (*Limosa limosa*).



Black-tailed Godwit (*Limosa limosa*).

Some of the small birds that migrate to the Tanguar Haor wetlands, such as the Dusky Warbler (*Phylloscopus fuscatus*), may travel nearly four thousand kilometers each year.

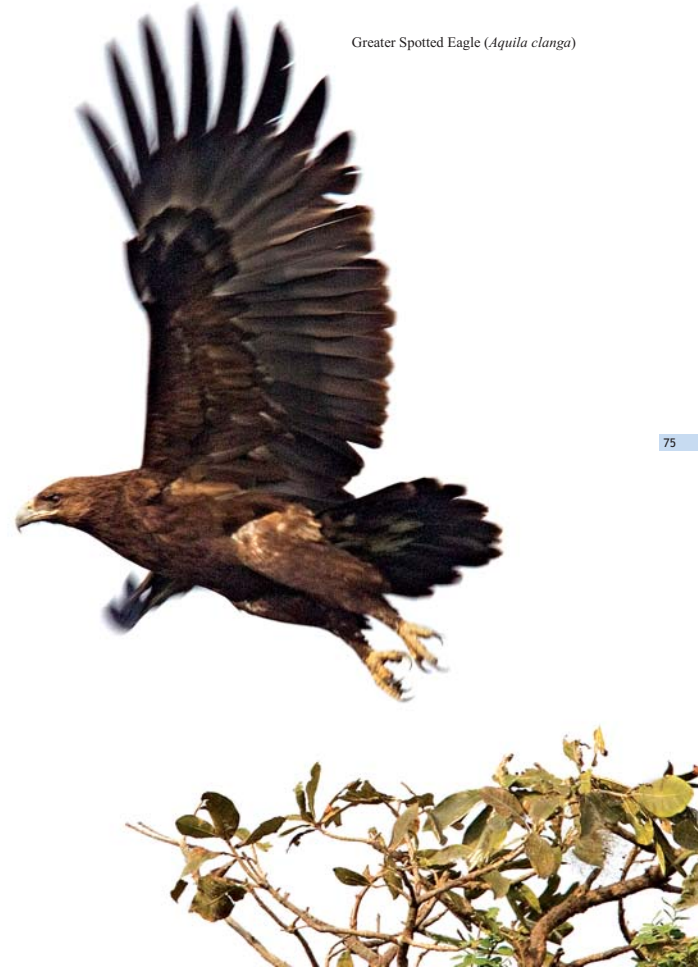


Bluethroat (*Luscinia svecica*)
– A common migratory species to the wetlands.

Osprey (*Pandion haliaetus*)
– A superb hunter of the wetlands.



Greater Spotted Eagle (*Aquila clanga*)







A mixed flock in motion.



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Grey-headed Lapwing (*Vanellus cinereus*) (left) and Water Rail (*Rallus aquaticus*) (right) are two winter migrants to our wetlands.



Chapter 3.1 Aquatic plants

Tanguar Haor is filled with a myriad of aquatic and semi-aquatic plants and shrubs. Every inch of marshland and open water is choked with plant life. Many of the herbivorous fishes and birds owe their survival to this abundance of vegetation (right).

A cluster of *Nymphoides indicum* with frilled white flowers (right). *Polygonum sp.* (left).





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After the annual floods, the wetland waters become still and many species of aquatic plants start to bloom (or come into flower).



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Dense vegetation provides shelter to many small birds that skulk along the water's edge, as well as many larger migratory ducks such as these Northern Pintails (*Anas acuta*).

Chapter 3.2 Terrestrial plants

Each year flood waters inundate and destroy these pink perennial flowers (*Cleome hassleriana*) and surrounding grasses. However these vegetations spring back to life once the water recedes; almost six months after the onset of floods.



This fragrant wild rose (*Rosa bengalensis*) attracts numerous pollinating insects. To exploit this source of prey this spider mimics the rose's color to improve its hunting success.



A threatened species of plant, the Wild Rose of Bengal (*Rosa bengalensis*) still thrives in Tanguar Haor.



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The delicate flowers of Murta (*Schumannianthus dichotoma*).
This plant is used for making fine quality bed mats.



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This beautiful flower (*Clematis sp.*) thrives among the reeds and
grasses in the wetland.

Many of the aquatic and semi-aquatic plants come into bloom with the arrival of the dry season such as these *Polygonum glabrum* (right) and *Rotala indica* (inset).



Flood tolerant tree Borun (*Crataeva magna*) in bloom.

New leaf of Koroj (*Pongamia pinnata*) (right). A Monarch Butterfly on a Bon tulshi flower (*Lippia geminate*) (inset).



Trees provide important roosting and breeding places for the wetland birds.



Finding shelter from the sun, a Two-striped grass frog (*Hylarana taipehensis*) out of water.

Chapter 4 Other Residents



A Fishing Cat (*Felis viverrina*) on the prowl



The wetlands are home to around 147 different species of freshwater fishes, including these Barbs.



Greater Bandicoot Rat (*Bandicota indica*) searching for a meal.
A toad in this wetland is a rare sight (inset).



Freshwater Pike.



Chapter 5
Life in the Wetlands

Processing mats out of the marsh plant Murta (*Schumanniathanthus dichotoma*) is a labour intensive task requiring extremely skilled hands. In some villages whole communities specialize in mat making. Well known for its suppleness and cool feeling to the touch in summer months; some of the best woven 'Shitol Pati' can fetch handsomely, providing a good source of income for the wetland dwellers.



A boy with his fishing equipment returning home.



Religion plays an important role for all communities living in the wetlands.

The many 'tools of the trade' of workman tilling the land.



Fish is the center of their world where water reigns. Mending nets (left), going spear-fishing (bottom right).



A leisurely days worth of catch.



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A father and son struggle up a breach in the dyke, with their boat.



113

Winter is the time for boat repairs.



To catch fish within the dense aquatic vegetation fishermen employ a different strategy, using fish-traps instead of nets.



Everyone in the community joins the fishing effort as the water levels recede.



Chapter 6
Threats and Conservation Work

Wetlands are some of the most fragile ecosystems and they are extremely vulnerable to degradation. An entire ecosystem can be destroyed or changed dramatically by the over exploitation of its natural resources or changes in land-use such as draining the area for farming.

It is vitally important for animals, plants and the associated communities that natural environment of areas such as Tanguar Haor remain as pristine as possible. While safeguarding large areas of grasslands, which emerges only after flooding abates, may seem unproductive, it is still essential to be left fallow for the wildlife.

Cattle grazing and duck farming, in areas where huge congregation of water birds gather is a huge risk to both the wild bird population and domestic flocks from cross contamination of diseases.





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Over harvesting of reeds from the edge of the wetland degrades the environment, rendering it unsuitable as wildlife habitat.



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Swampy areas drained for agriculture is a major cause of wetland degradation.



122



Hunting and trapping of wildlife poses a serious threat to the survival of many species of water birds.

Habitat loss can occur by destruction of the reed beds (below) or through peat extraction (inset) leaving little shelter and foraging grounds for wildlife.



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Tanguar Haor is a wetland of international significance, let it remain a safe haven for the thousands of wild birds and fishes.