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Short Communication

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Nesting pattern of birds in Jahangirnagar University Campus, Bangladesh

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Abstract: Based on a study on nesting behavior conducted in Jahangirnagar University Campus between 2009 and 2011 brief descriptions are given of nest site preferences in a diverse habitat, variation in nest shape against height above ground, and materials used for constructing nests in different tree species. The study found that April is the peak time for nesting due to food availability. High competition for tree holes as nest sites forced some species to build nests in unusual sites, for example Rose-ringed Parakeet *Psittacula krameri*, Asian Pied Starling *Sturnus contra*, Common Myna *Acridotheres tristis*, and Jungle Myna *A. fuscus*, Oriental Magpie-robin *Copsychus saularis* showed better adaptation to the campus environment than other birds. Predation risk was found to be higher for non-hole nests than for hole nests. To minimize predation pressure, birds were seen to adopt passive protection by making false nests and constructing well-camouflaged nests. Besides predation, human disturbance was observed on low height nests in roadside vegetation resulting in breeding failure. Reducing human disturbance is needed if birds are to achieve better reproductive success in the campus. The most commonly used trees were *Albizia* spp. (native or long naturalized species) whereas no nest was found in *Eucalyptus* spp. and only a few nests were found in *Acacia moniliformes*, both are exotic trees which have been planted in huge numbers in the campus, indicating that birds do not prefer exotic tree species for nesting. It is recommended to plant more native tree species, which may also help birds to nest in usual sites rather than unusual sites (such as electrical pillars, electrical boxes, air conditioner boxes, and building holes). Regular monitoring in support of native tree planting and raising awareness to reduce disturbance, could enhance the successful reproduction of birds in Jahangirnagar University Campus. Finally, an update to the avifauna of the campus is presented, with 17 species added in this study or from other recent reports, bringing the total to 195 species, including one globally 'Near Threatened' species, the Brown-winged Kingfisher *Pelargopsis amauroptera*.

Keywords: Birds, nest, Jahangirnagar University, pattern, exotic, native.

Birds are expert nest-builders among animals and they build their nests chiefly to protect their eggs and young from predators and from adverse weather during the breeding season, the most vulnerable period in the life cycle. They make nests using many different materials (e.g., twigs, leaves, dry grass, fibers, feathers, etc.,) and in a bewildering variety of forms and locate them in more varied sites than other animals (Welty & Baptista 1988). The adaptations of animals can only be fully understood by making observations in the natural environments in which they have evolved (Baker 1938; Lack 1965; Wesołowski 1983; Tomiałojc´ et al. 1984). As

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such, studies of a range of resident bird species in the diverse habitats of Jahangirnagar University Campus were conducted to investigate nesting patterns which have not been well documented before.

Jahangirnagar University Campus (JUC) is notable for the diversity of bird species found. The richness of bird species in the campus is due to diverse habitats and limited human disturbance (Mohsanin & Khan 2009). The diverse habitats of the campus provide a potential breeding ground for many resident birds (Feeroz et al. 1988; Khan et al. 1999; Begum et al. 1993, 1994, 2011; Begum 2001, 2002, 2003; Akhter et al. 2007; Sultana et al. 2004; Jahan et al. 2016). A total of 180 species of birds were previously reported from JUC of which 74 species are breeding residents that nest to complete their breeding cycle in the university (Mohsanin & Khan 2009). This study aimed to investigate the nesting pattern of different species over three years (2009–2011) and improve understanding of the adaptations of birds in JUC. In addition an update to the avifaunal checklist of JUC is presented based on observations during this nest study and compilation of other data recorded by other bird watchers.

Methods

Study Area

The Jahangirnagar University Campus (90.259–90.273^{0}N & 23.867–23.898^{0}E) is located 32km northwest of Dhaka city in central Bangladesh, and is about 280ha in area (Fig. 1). The area was formerly part of a vast tract of "Sal" *Shorea robusta* forest and is now dominated by secondary vegetation. The campus comprises different habitats including wetlands, grasslands, open scrub jungle, cultivated land, woodland and human habitation. There are monotypic plantations of medicinal plants and fruit trees. The campus harbours 230 plant species belonging to 159 genera and 62 families (Hossain et al. 1995). The wetlands consist of permanent water bodies and marshy areas, around 22ha, and support a large number of resident and migratory birds (Akhter et al. 2007). In winter marshy areas are used as agricultural lands. Grassland is found in the southwestern portion of the campus, dominated by the common sun grass *Imperata cylindrica,* mixed with diverse sedges and isolated patches of tall grasses, plants such as *Cassia occidentalis, Croton banpiandianum, Desmodium triflorum, Mimosa pudica* are common in this area. Bushes are distributed in the northern, southern and eastern parts of the campus dominated by *Ichnocarpus frutescens, Mimosa pudica, Panicum repens, Sida acuta* and *Urena lobata*. Open scrublands and woodlands are characterized by *Acacia pinnata, Aegle marmelos, Syzygium cumini, Zizyphus* sp., *Artocarpus heterophyllus, A. chaplasha, Acacia moniliformes, Eucalyptus* sp., *Mangifera indica, Tectona grandis, Swietenia mahagoni* and *Shorea robusta* (Hossain et al. 1995). The campus ground is slightly undulating and the soil is deep brown to yellowish-red due to high iron content. All the large wetlands, together with the grasslands and bushes in the south and the woodlands in the central part of the campus serve as hotspots for feeding, roosting and nesting of birds (Mohsanin & Khan 2009).

The climate of JUC is characterized by three main seasons: summer (March–May), monsoon (June–October) and winter (November–February). During the study period summer was warm, rainy and humid, like the monsoon, whereas winter was cool and dry. April has the highest average temperature of 33.9^{0}C, whereas January has the lowest average temperature of 13.7^{0}C, humidity varied between 72.2% and 89.8%, and total annual rainfall was about 1,800mm (Department of Geography and Environment, Jahangirnagar University).

Nesting data

Nesting was studied over three breeding seasons - 2009, 2010 and 2011. The breeding season of most resident passerine birds in JUC is from January to August (Begum et at. 2011) while it is varied in non-passerine residents over the year (Begum 2003; Sultana et al. 2004; Akhter et al. 2007; Jahan et al. 2016). Data was collected on daily walks through the campus using binoculars and telescope. To find nests, birds' movements were carefully observed in the field with special attention given to those birds carrying nest materials. Nesting birds were observed from natural hides near the nesting tree by maintaining a sufficient distance away from the birds to minimize disturbance. A small boat was used to search for kingfisher nests in the earthen banks of ponds.

The fieldwork was carried out between 06:00–18:00 hr. Nesting materials were examined after the chicks successfully left the nest. In hole nests, materials were examined by pulling them out, using a ladder where necessary, while non-hole nest materials were examined by taking down the nest using a ladder after completion of the breeding cycle. The plant species on which nests were placed were also identified and recorded.

Bird diversity

The checklist of birds was updated by reviewing past records and adding some species that had not been reported in the previous checklist (Mohsanin & Khan

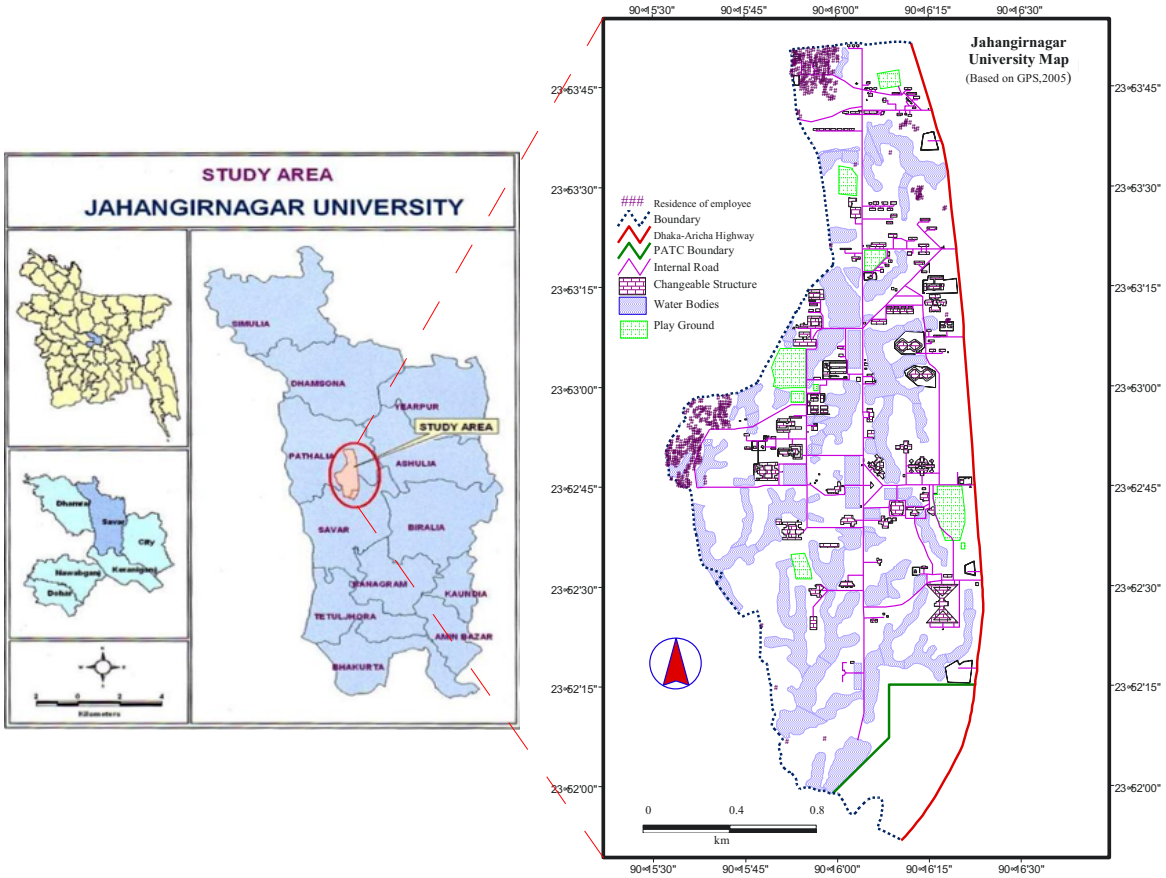

Figure 1. Map of Jahangirnagar University Campus (GIS resource laboratory, Jahangirnagar University)

2009) using observations during this study and other reports received from bird watchers on the campus. Only species with confirmed identification (using Grimmett et al. 1999a) are listed, and records of special note and associated identifications are briefly discussed. Taxonomy and sequence follows HBW and BirdLife International (2016).

Results and Discussion

A total of 321 nests of 45 species belonging to 23 families were observed in the campus (Images 1–20). The highest number of nests recorded were made by Asian Pied Starling *Sturnus contra* (n=68), followed by House Sparrow *Passer domesticus* (n=56) and Common Myna *Acridotheres tristis* (n=18). The number of nests found varied by month: the highest number found was in April (n=96) while the lowest number found was in January (n=8). This suggests that semi-arid conditions are suitable for breeding, and that nesting birds make use of local peaks of insect abundance before the onset of the monsoon in late May or early June, as parents need more insects to feed nestlings frequently at that time. The pre-monsoon showers may influence the start of breeding activity (Kushlan 1983). Cool and dry winters probably result in insufficient food (insects) for nesting at that time. So, those birds that are not dependent on insects for food tend to nest in the dry season, e.g., Indian Pond Heron *Ardeola grayii* and kingfishers.

Nest site characteristics

Five types of nesting sites were recognized for nests in JUC. Most of the species, about 71% (n=37), built nests on trees; 14% (n=8) in building spaces (roof, cornice, hole, crevice in wall, intersecting corner of building wall, ventilator); 6% (n=3) in earth banks of lakes or ponds; 6% (n=3) in electrical pillar, electrical box or air condition box; and 2% (n=1) on aquatic vegetation. Some species nested in more than one type of nest sites: Rose-ringed Parakeet *Psittacula krameri*, Oriental Magpie-robin *Copsychus saularis*, Common Myna, Jungle Myna *Acridotheres fuscus* and Asian Pied Starling all were found building nests in tree holes and in building spaces.

Although most of the species built nests on trees, variation was seen in this - using tree top branches, forks

in branches, peripheral branches, the centre of a tree, holes in tree trunks, bamboo bushes and crevices in tree trunk. Asian Pied Starling built their nests in different positions in trees including tree top, fork, periphery and centre of tree. Oriental Magpie-robin and Great Tit *Parus major* built their nests both in tree trunk holes and crevices of tree logs.

Competition for nesting holes was seen among hole nesting birds such as Jungle Myna, Fulvous-breasted Woodpecker *Dendrocopos macei*, Coppersmith Barbet *Psilopogon haemacephalus*, Oriental Magpie-robin, and Great Tit. A pair of Fulvous-breasted Woodpecker tried to oust a Great Tit pair from a nest hole during the nest building period. A fight was observed among three species—Jungle Myna, Common Myna and Oriental Magpie-robin for nesting in the same tree hole and finally Common Myna succeeded in occupying that hole. A month after the mynas completed their breeding cycle, Black-rumped Flameback *Dinopium benghalense* was found nesting in the same hole. No other birds were seen fighting for the hole that time, presumably because the woodpecker has a stronger beak and other species avoided conflict with it.

A dearth of normal nesting sites may force birds to choose usual sites. With Rose-ringed Parakeet, two nests were found in *Albizia procera* and *Swietenia mahagoni* trees, but two other nests were found in a ventilation hole in a building and in a crevice in a wall. With Oriental Magpie-robin, out of 13 nests, six were found in tree holes the others were in building holes, in a hole in an electrical pillar, and in a hole just under the roof of a house. With the Common Myna, five out of 18 nests were found in tree holes, while the others were in building holes, in holes in electrical pillars, and in an electrical box. With the Jungle Myna, one nest was in a tree hole, one in an air conditioner box, and one in the intersecting corner of a building. With the Asian Pied Starling, 10 nests were found in various building spaces though the majority was on tree branches (Fig. 2). The reason for choosing diverse nesting sites could be high competition for tree holes in the campus. Nesting in varied locations by these birds showed they are better adapted to campus conditions than other birds.

Some birds were seen seeking passive protection during nesting. Yellow-footed Green Pigeon *Treron phoenicopterus* nests were found near the nest of a Black Drongo *Dicrurus macrocercus*, and a Red Collared Dove *Streptopelia tranquebraica* nest was found near an Ashy Wood Swallow *Artamus fuscus* nest, probably to benefit from protection by the other species because Black Drongo and Ashy Wood Swallow aggressively defend their nests from predators.

The habit of making false nests near the real nest was observed during the study. For example, out of 33 nest holes made by Pied Kingfisher *Ceryle rudis,* 26 were false nests; White-breasted Waterhen *Amaurornis phoenicurus* made three false nests near two real nests; and five false nests were found out of 17 nests of Scaly-breasted Munia *Lonchura punctulata*. Pied Kingfisher is known to make false nest holes to misguide predators and protect eggs (Cramp et al. 1988) from predators such as Bengal Monitor *Varanus bengalensis,* Yellow Monitor *Varanus fasciatus*, and Small Indian Mongoose *Herpestes auropunctatus*. Bengal Monitor and Small Indian Mongoose were also seen attempting to predate on eggs of White-breasted Waterhen. Scaly-breasted Munia prefer nesting in *Ixora* sp., *Araucaria cookie* and *Polyalthia longifolia* at 2–7 m height, which could

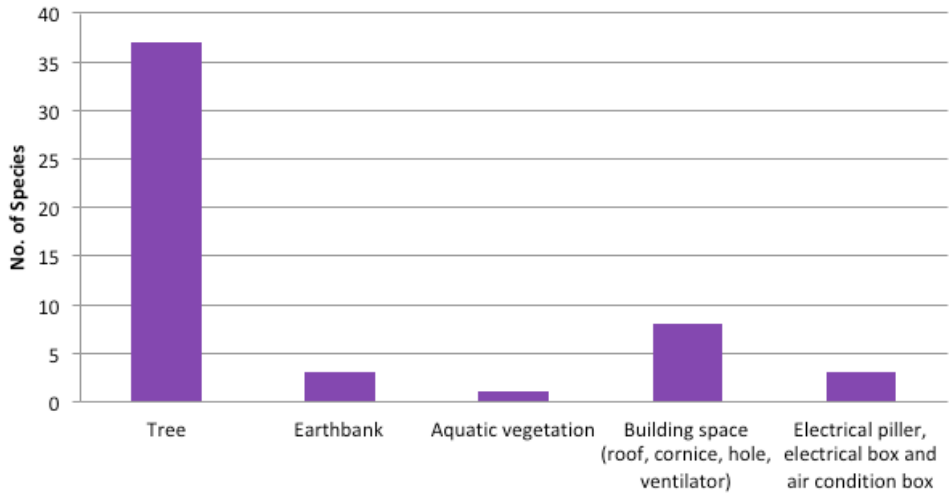

Figure 2. Percentage of species recorded nesting by type of nest site preferred in Jahangirnagar University Campus

Table 1. Nest structures recorded in different bird species

Nest structures	# Bird species	Bird species nesting
1. Tunnel-shaped	11	Black-rumped Flameback, Fulvous-breasted Woodpecker, Common Kingfisher, White-throated Kingfisher, Pied Kingfisher, Great Tit, Coppersmith Barbet, Rose-ringed Parakeet, Jungle Myna, Ashy Wood Swallow, Chestnut-tailed Starling
2. Domed-shaped	3	Greater Coucal, Asian Pied Starling, Scaly-breasted Munia
3. Shallow cup-shaped	11	White-breasted Waterhen, Brahminy Kite, House Crow, Large-billed Crow, Rufous Treepie, Indian Pond Heron, Rock Pigeon, Spotted Dove, Red Collared Dove, Yellow-footed Green-pigeon, Common Myna
4. Deep cup-shaped	12	Long-tailed Shrike, Black-hooded Oriole, Small Minivet, Black Drongo, Orange-headed Thrush, Red-vented Bulbul, Jungle Babbler, Striated Babbler, Black-headed Cuckooshrike, Common Iora, Common Woodshrike, Oriental White-eye
5. Flat-shaped	2	Bronze-winged Jacana, Red-wattled Lapwing
6. Building hole	6	Rose-ringed Parakeet, Oriental Magpie-robin, House Swift, House Sparrow, Common Myna, Jungle Myna
7. Hanging nest	3	Purple Sunbird, Asian Palm Swift, Common Tailorbird

be attacked by mongoose, this species could also be vulnerable to local children who were seen to have killed Great Tit nestlings and stolen Red–vented Bulbul *Pycnonotus cafer* eggs during this study. These threats may be reasons why munias build false nests, which are presumed to reduce risks from predation pressure and human disturbance.

Nest structure

It was observed that 33% of nesting species preferred nesting in holes (in trees, buildings, electrical pillars and earth bank) and two-thirds of species were non-hole nesters (Table 3). Only the Common Myna makes both types of nests; this species used various materials when constructing nests in electrical boxes and among tree branches, but gathered fewer materials when it nested in holes (tree, building, and electrical pillar). Non-hole nests were of seven types of which a deep cup-shaped nest was more common, followed by tunnel-shaped nests, shallow-cup shaped nests, domed-shaped nests, flat-shaped nests, hanging nests on tree leaves and nests in building hole (Table 1).

Nest height

Species nesting on the ground or on floating vegetation built their nests lower than other species. Kingfisher nests of all species were excavated 1–2 m above water surface in earthbanks, while Bronze-winged Jacana *Metopidius indicus* nests were recorded on floating aquatic vegetation. Excluding these species, the highest recorded nest was a Brahminy Kite *Haliastur indus* nest (33m), followed by a Rose-ringed Parakeet and a Rufous Treepie *Dendrocitta vagabunda* (32m) while the lowest (1m) was a Purple Sunbird *Cinnyris asiaticus* nest.

Human disturbance was observed at lower height (1–5 m) nests in addition to predation. Risk from predation and disturbance was estimated to be double for low height nests compared with nests above 5m. Other than this factor, variation in nest height might occur due to availability of suitable sites and choices by birds to minimize conflicts within and between species.

Predation pressure was observed in all heights from low to high above ground, but was lower for hole nests than non-hole nests. Nest content is more visible to predators from a long distance in non-hole nests. The avian predators in this study (Brahminy Kite *Haliastur indus*, Crested Serpent Eagle *Spilornis cheela*, Large-billed Crow *Corvus macrorhynchos*, House Crow *C. splendens* and Rufous Treepie *Dendrocitta vagabunda*) were seen attacking Blue Rock Pigeons, Black Drongo, Small Minivet *Pericrocotus cinnamomeus*, Red-vented Bulbul and Indian Pond Heron nests during nesting. Rufous Treepie was seen attacking a Black-hooded Oriole *Oriolus xanthornus* nest and grabbing the eggs. Among hole nesters, Great Tit nests were attacked by House Crow and Oriental Magpie-robin during incubation. Use of false nests by some species to divert predators was recorded. The terrestrial predators active close to ponds were Bengal Monitor, Yellow Monitor, Small Indian Mongoose and various snake species, which normally attempt to predate on kingfisher nests, and White-breasted Waterhen nests.

Nesting materials

In nest construction, 33 types of materials were recorded of which twigs were the most used materials (27 species), other materials found in nests included: leaves, grass blades, fibers, feathers, dry sticks, cobwebs, straw, creepers, saliva of birds, cotton, plastic or polythene, wool, human hair, papers, grass roots, coir, rubbish, bones of fishes, rootlets, barks, dry paddy, lichens, animal fur, rope, net, pieces of cloth, ribbons, glossy chocolate paper, moss, honeycombs and aquatic

weeds.

Oriental Magpie-robin used twigs, roots, dry grass blades and fibers in tree hole nests, but used straw, plant fibers, grass blades, coir, wool, human hair and cotton in building hole nests including a hole just under the roof of a house. The Jungle Myna gathered twigs, roots, feathers and grasses in tree hole nest but used numerous pieces of paper in an air conditioner box and used twigs, dead leaves, papers and miscellaneous rubbish materials when nesting in the intersecting corner of a building.

The Common Myna used bamboo sticks, straw, fine twigs, leaves, feathers, a piece of plastic and glossy chocolate wrapper when making a nest in electrical boxes and tree branches while it gathered twigs, leaves, and straw for nesting in tree holes, building holes and electrical pillar holes. The availability and abundance of materials near nest sites is probably important in the choices made by the birds.

Three Yellow-footed Green Pigeon nests were found: two in two separate *Albizia procera*, and one in a *Dalbergia sissoo*. Relatively more twigs were used to make nests in *Albizia procera*, whilst more leaves were used when constructing the nest in *Dalbergia sissoo*. This was probably to better camouflage the nests, because the former tree had more twigs and the latter had more foliage. Well-camouflaged nests were built by many species of birds in the campus and were difficult to detect during study time, e.g., Small Minivet, Red-wattled Lapwing *Vanellus indicus*, Bronze-winged Jacana. Better nest camouflage is a strategy evolved by birds to avoid predators.

Nest host plant

Nests were found in 33 tree species, of which *Albizia sp*. was the most frequently used tree hosting 13 species of bird (including Black-rumped Flameback, Large-billed Crow, Black Drongo, Oriental Magpie-robin, Asian Pied Starling), other trees found hosting nests included: *Azadirachta indica*, *Bambusa* sp., *Ficus benghalensis*, *Delonix regia, Lagerstroemia speciosa, Tectona grandis*, *Terminalia catappa, Cocos nucifera, Araucaria cookie*, *Anthocephalus chinensis*, *Swietenia macrophylla, Shorea robusta Lagerstroemia indica, Alstonia scholaris, Roystonea regia, Spondias cythera, Leucaena leucocephala, Caryota urens, Zizyphus mauritiana, Areca catechu, Magnolia grandiflora,* and *Carica papaya* (Table 2).

Albizia spp. are common in the campus, which might account for the numbers of nests found in these trees, but no nest was found in *Eucalyptus* sp. (exotic trees) and only a few nests were found in *Acacia moniliformes* (exotic tree), yet these have been planted in huge numbers in the campus. This indicates that birds do not prefer exotic tree species for nesting. Also the habit of nesting in unusual places (crevices in building walls, intersecting corners of buildings, electrical pillar holes, electrical boxes and air conditioner boxes) might be due to insufficient suitable large trees in the campus, so it is recommended to allow native trees to grow to maturity and to plant more native trees which may help birds to avoid nesting in unusual sites.

The study found that birds built nests in various positions in large canopy trees mostly to avoid predation, which was also reported by Gajera et al. (2009), but in this study birds were found to prefer roadside large trees for nesting despite human disturbance due to nest visibility. A total of 99 nests were found in roadside vegetation during the study. Risks were higher for nests at low height (2–4 m), yet the Great Tit preferred to make its nest in the same tree species at a low height in different years, and was vulnerable to predation by local children. Disturbance could be reduced by raising awareness among local people, which might enhance reproductive success of birds in Jahangirnagar University Campus.

Bird Diversity

A total of 17 bird species were added (Table 4) to the existing avifaunal checklist (Mohsanin & Khan 2009) bringing the total to 195 species confirmed for JUC of which as many as 76 species are breeding residents.

Out of the newly recorded species, one species is globally 'Near Threatened' Brown-winged Kingfisher *Pelargopsis amauroptera* (BirdLife International 2017). This bird was observed in three winters from 2013 to 2015 at the same pond near the Wildlife Rescue Centre. JUC is over 200km as the kingfisher flies from the Sundarbans - the closest area of its usual mangrove habitat. A Little Grebe *Tachybaptus ruficollis* nest was first sighted in 2016 on aquatic vegetation near the gymnasium of JUC, and the birds hatched young. Lineated Barbet *Psilopogon lineatus* was considered a non-breeding resident in the previous list but an active nest was found in 2014. Nesting Lineated Barbet and Little Grebe added with the previous list gives a total 76 of breeding species in JUC.

The JUC supports several globally threatened and near-threatened birds. Three birds—Grey-headed Fish-eagle *Ichthyophaga ichthyaetus* (Near Threatened), Greater Spotted Eagle *Clanga clanga* (Vulnerable) and Red-breasted Parakeet *Psittacula alexandri* (Near Threatened)—were seen many times during the study

Table 2. Tree species used for nesting by different bird species trees

Tree species	Coverage of the area by the tree	# Bird species	Bird species nesting
Azadirachta indica	C	5	Black-rumped Flameback, Oriental Magpie-robin, Asian Pied Starling, Chestnut-tailed Starling, Jungle Myna
Albizia sp.	C	13	Black-rumped Flameback, Large-billed Crow, Black Drongo, Oriental Magpie-robin, Asian Pied Starling, Chestnut-tailed Starling, Rose-ringed Parakeet, Yellow-footed Green-pigeon, Red Collared Dove, Rufous Treepie, Ashy Wood Swallow, Coppersmith Barbet, Common Woodshrike
Anthocephalus chinensis	UC	1	Fulvous-breasted Woodpecker
Acacia moniliformes	A	6	Spotted Dove, Brahminy Kite, Black Drongo, Oriental Magpie-robin, Asian Pied Starling
Artocarpus heterophyllus	C	4	House Crow, Oriental Magpie-robin, Asian Pied Starling, Red-vented Bulbul
Alstonia scholaris	R	1	House Crow
Areca catechu	UC	1	Jungle Babbler
Araucaria cookii	R	2	Asian Pied Starling, Scaly-breasted Munia
Bambusa sp.	C	2	Greater Coucal, Black-hooded Oriole
Borassus flabellifer	UC	1	Asian Palm Swift
Casuarina sp	UC	3	House Crow, Large-billed Crow, Asian Pied Starling
Carica papaya	C	1	Jungle Babbler
Cocos nucifera	C	2	Oriental Magpie-robin, Common Myna
Caryota urens	UC	1	Common Myna
Delbergia sissoo	C	6	Yellow-footed Green-pigeon, Long-tailed Shrike, Small Minivet, Black Drongo, Asian Pied Starling, Common Myna
Delonix regia	C	2	Red Collared Dove, Asian Pied Starling
Ficus benghalensis	UC	2	Spotted Dove, Asian Pied Starling
Ixora sp.,	C	5	Red-vented Bulbul, Striated Babbler, Purple Sunbird, Scaly-breasted Munia, Common Tailorbird
Lagerstroemia speciosa	UC	2	White-breasted Waterhen, Striated Babbler
Leucaena leucocephala.	R	1	Chestnut-tailed Starling
Lagerstroemia indica	R	1	Great Tit
Mangifera indica	C	4	Long-tailed Shrike, Red-vented Bulbul, Jungle Babbler, India Pond Heron
Magnolia grandiflora	UC	1	Jungle Babbler
Ptearigota alata	UC	1	Common Tailorbird
Polyalthia longifolia	C	9	Spotted Dove, Brahminy Kite, House Crow, Large-billed Crow, Asian Pied Starling, Common Myna, Red-vented Bulbul, Jungle Babbler, Scaly-breasted Munia
Roystonea regia	UC	1	Large-billed Crow
Swietenia mahagoni	C	10	Black-rumped Flameback, Red Collared Dove, Oriental Magpie-robin, Asian Pied Starling, Common Myna, Red-vented Bulbul, Coppersmith Barbet, Black-headed Cuckooshrike, Common Iora, Oriental White- eye, Rose-ringed Parakeet
Swietenia macrophylla	UC	1	Red Collared Dove
Shorea robusta	C	1	Red Collared Dove
Spondias cythera	UC	1	Black-hooded Oriole
Tectona grandis	C	2	House Crow, Asian Pied Starling
Terminalia catappa	UC	2	Orange-headed Thrush, Red-vented Bulbul
Zizyphus mauritiana	UC	1	Red-vented Bulbul

The relative abundance of the trees used by birds was assessed as: A: Abundant (present in 75–100 % of area), C: Common (present in 50–74 % of area), UC: Uncommon (present in 25–49 % of area), and R: Rare (present in <25% of area).

period. In addition, there are several historic records of species that are now globally threatened or near-threatened in the previous avifaunal checklist by Mohsanin & Khan (2009): Baer's Pochard *Aythya baeri* (Critically Endangered, one in 2005), Lesser Adjutant *Leptoptilos javanicus* (Vulnerable), White-rumped Vulture *Gyps bengalensis* (Critically Endangered), Pallid Harrier *Circus macrourus* (Near Threatened) and Laggar Falcon *Falco jugger* (Near Threatened), but these are unlikely to occur now with declines in global populations

Table 3. List of nesting birds observed in Jahangirnagar University campus and their nest type.

	Species name & Scientific name	Total nest	Non-hole nest	Hole nest	Nest materials
	Picidae				
1	Black-rumped Flameback *Dinopium benghalense*	3		+	
2	Fulvous-breasted Woodpecker *Dendrocopos macei*	1		+	
	Megalaimidae				
3	Coppersmith Barbet *Psilopogon haemacephalus*	3		+	
	Alcedinidae				
4	Common Kingfisher *Alcedo atthis*	1		+	Litter of fish
	Dalcelonidae				
5	White-throated Kingfisher *Halcyon smyrnensis*	3		+	Litter of fish
	Cerylidae				
6	Pied Kingfisher *Ceryle rudis*	7		+	Litter of fish
	Centropodidae				
7	Greater Coucal *Centropus sinensis*	2	+		Grass, twigs, bamboo leaves & feathers
	Psittacidae				
8	Rose-ringed Parakeet *Psittacula krameri*	4		+	
	Columbidae				
9	Rock Pigeon *Columba livia*	6	+		Twigs & sticks
10	Spotted Dove *Streptopelia chinensis*	7	+		Twigs, grass blades, grass stem, creeper & dry leaves
11	Red Collared Dove *Streptopelia tranquebraica*	7	+		Twigs, grass roots, grass stems, creeper, dry grasses & feathers
12	Yellow-footed Green-pigeon *Treron phoenicopterus*	2	+		Twigs, grass stems, dry grasses, dry leaves & feathers
	Apodidae				
13	Asian Palm Swift *Cypsiurus balasiensis*	2	+		Saliva & feathers
14	House Swift *Apus affinis*	3		+	Grass, straw, feathers & papers
	Rallidae				
15	White-breasted Waterhen *Amaurornis phoenicurus*	2	+		Dry leaves and twigs of *Acacia*, dry stems of Assamlata (*Mikania cordata*), dry paddy, Few grass blade & leaves
	Jacanidae				
16	Bronze-winged Jacana *Metopidius indicus*	2	+		Stem & leaves of *Salvinia cucullata, Eichhornia crassipes* & *Cyperus sp* aquatic weeds & Green grasses
	Charadriidae				
17	Red-wattled Lapwing *Vanellus indicus*	2	+		Small concrete pieces
	Accipitridae				
18	Brahminy Kite *Haliastur indus*	3	+		Sticks, twigs, Wool, skin, rags & green leaves
	Ardeidae				
19	Indian Pond Heron *Ardeola grayii*	17	+		Sticks, twigs & leaves
	Laniidae				
20	Long-tailed Shrike *Lanius schach*	2	+		Grass blades, twigs, plastic web, grasses & fibers
	Corvidae				
21	Rufous Treepie *Dendrocitta vagabunda*	2	+		Twigs, leaves & rootlets
22	House Crow *Corvus splendens*	9	+		Sticks, twigs & fibers
23	Large-billed Crow *Corvus macrorhynchos*	5	+		Sticks, twigs, grass blades, leaves, coir, wool, fibers, grass roots
24	Ashy Wood Swallow *Artamus fuscus*	1		+	Twigs, grass roots, dry leaves, feathers & fibers
25	Black-hooded Oriole *Oriolus xanthornus*	3	+		Bamboo leaves, grass blades, twigs, cob web, Cotton, plant fibers & feathers

	Species name & Scientific name	Total nest	Non-hole nest	Hole nest	Nest materials
26	Black-headed Cuckooshrike *Coracina melanoptera*	1	+		Twigs, rootlets, cob web, leaves & fibers
27	Small Minivet *Pericrocotus cinnamomeus*	2	+		Bark, stems, lichens, fine roots, dry leaves, saliva & cob web
28	Black Drongo *Dicrurus macrocercus*	8	+		Twigs, grass blades, leaves, human hair, animal fur, plant fibers, saliva, cobweb & fibers
29	Common Iora *Aegithina tiphia*	1	+		Grass blade, Saliva, cobweb & fibers
30	Common Woodshrike *Tephrodornis pondicerianus*	2	+		leaves, twigs, grass blade, saliva, cobweb & fibers
	Muscicapidae				
31	Orange-headed Thrush *Zoothera citrina*	3	+		Twigs, grass blade, sticks & dry leaves
32	Oriental Magpie-robin *Copsychus saularis*	13		+	Twigs, roots, grass blade, straw, human hair, coir, fibers, wool & cotton
	Sturnidae				
33	Asian Pied Starling *Sturnus contra*	68	+		Grass blades, twigs, straw, leaves, plastic, rope, net, ribbons, rubbish materials, Piece of cloth, paper and cotton
34	Chestnut-tailed Starling *Sturnus malabaricus*	6		+	Straw, twigs, leaves & feathers
35	Common Myna *Acridotheres tristis**	18	+	+	Twigs, sticks, straw, leaves, rubbish materials fibers, feathers, plastic & glossy chocolate wrapper
36	Jungle Myna *Acridotheres fuscus*	3		+	Twigs, roots, dead leaves, grass blade, feathers, rubbish materials, sometime use only pieces of paper
	Paridae				
37	Great Tit *Parus major*	3		+	Twigs, moss, wool, hair & feathers
	Pycnonotidae				
38	Red-vented Bulbul *Pycnonotus cafer*	9	+		Twigs, grass blade, leaves, coir, human hair, saliva, cobweb, fibers (Palm) & cotton
	Zosteropidae				
39	Oriental White-eye *Zosterops palpebrosus*	2	+		Twigs, creeper, grass blade, coir, saliva, cobweb & Plant fibers
	Sylviidae				
40	Common Tailorbird *Orthotomus sutorius*	3	+		Leaves, Twigs, grass blade, cotton, fibers, plastic, coir & cobweb
41	Jungle Babbler *Turdoides striatus*	6	+		Grass blades, twigs, grass stems, creeper, leaves, plastic & Plant fibers
42	Striated Babbler *Turdoides earlei*	2	+		Twigs, creepers, Grass blade & leaves
	Nectariniidae				
43	Purple Sunbird *Cinnyris asiaticus*	3	+		Bark, leaves, fibers, saliva, honey combs & cobweb
	Passeridae				
44	House Sparrow *Passer domesticus*	56		+	Straw, grass blades, rubbish materials & Pieces of papers
45	Scaly-breasted Munia *Lonchura punctulata*	12	+		Grass blades, plant fibers & feathers
	Total	321	31	15	

*Common Myna prefer both type of nest

and changes in campus habitat. Detailed observational records of the Pallid Harrier and Laggar Falcon need to be published as they are both considered rarities in Bangladesh. There are also at least two species previously listed that should be considered unconfirmed and are not included in the total of 194 species: Long-billed Plover *Charadrius placidus* (which has only three national records, most recent being 1991 (Thompson et al. 1993; Thompson & Johnson 2003), is difficult to identify, and for which no details of the JU sighting are available) and Solitary Snipe *Gallinago solitaria* (a species which winters at high altitudes although sometimes down to 950m (Grimmett et al. 1999b) and which has never been confirmed in Bangladesh, and for which no details of the JUC claim are available).

Although the previous checklist and this study depict the campus as a good reservoir for avifaunal species, birds are facing threats from continuous habitat loss

Table 4. Annotated Checklist of bird species recorded in Jahangirnagar University Campus

	Common name	Scientific name	Breeding status
1. Anatidae			
1	Fulvous Whistling-duck	*Dendrocygna bicolor*	NBr
2	Lesser Whistling-duck	*Dendrocygna javanica*	Br
3	African Comb Duck	*Sarkidiornis melanotos*	NBr
4	Cotton Pygmy-goose	*Nettapus coromandelianus*	NBr
5	Baer's Pochard †	*Aythya baeri*	Mw
6	Ferruginous Duck	*Aythya nyroca*	Mw
7	Tufted Duck	*Aythya fuligula*	Mw
8	Garganey	*Spatula querquedula*	Mw
9	Northern Shoveler	*Spatula clypeata*	Mw
10	Gadwall	*Mareca strepera*	Mw
11	Northern Pintail	*Anas acuta*	Mw
2. Podicipedidae			
12	Little Grebe[1]	*Tachybaptus ruficollis*	Br
3. Columbidae			
13	Rock Pigeon	*Columba livia*	Br
14	Oriental Turtle-dove[2]	*Streptopelia orientalis*	NBr
15	Eurasian Collared-dove	*Streptopelia decaocto*	Br
16	Red Turtle-dove	*Streptopelia tranquebarica*	Br
17	Eastern Spotted Dove	*Spilopelia chinensis*	Br
18	Grey-capped Emerald Dove	*Chalcophaps indica*	NBr
19	Yellow-footed Green-pigeon	*Treron phoenicopterus*	Br
4. Caprimulgidae			
20	Large-tailed Nightjar	*Caprimulgus macrurus*	NBr
5. Apodidae			
21	Asian Palm-swift	*Cypsiurus balasiensis*	Br
22	Pacific Swift	*Apus pacificus*	Mw
23	House Swift	*Apus nipalensis*	Br
6. Centropodidae			
24	Greater Coucal	*Centropus sinensis*	Br
25	Lesser Coucal	*Centropus bengalensis*	NBr
7. Cuculidae			
26	Green-billed Malkoha	*Phaenicophaeus tristis*	NBr
27	Jacobin Cuckoo	*Clamator jacobinus*	Br, Ms
28	Western koel	*Eudynamys scolopaceus*	Br
29	Plaintive Cuckoo	*Cacomantis merulinus*	Br, Ms
30	Common Hawk-cuckoo	*Hierococcyx varius*	Br, Ms
31	Indian Cuckoo	*Cuculus micropterus*	Br, Ms
32	Common Cuckoo	*Cuculus canorus*	NBr, Ms
8. Rallidae			
33	White-breasted Waterhen	*Amaurornis phoenicurus*	Br
34	Watercock[3]	*Gallicrex cinerea*	NBr
35	Purple Swamphen[4]	*Porphyrio porphyrio*	NBr
36	Common Moorhen	*Gallinula chloropus*	NBr

	Common name	Scientific name	Breeding status
37	Common Coot	*Fulica atra*	Mw
9. Ciconiidae			
38	Lesser Adjutant †	*Leptoptilos javanicus*	NBr
39	Asian Openbill	*Anastomus oscitans*	NBr
10. Ardeidae			
40	Yellow Bittern	*Ixobrychus sinensis*	Br
41	Cinnamon Bittern	*Ixobrychus cinnamomeus*	Br
42	Black-crowned Night Heron	*Nycticorax nycticorax*	NBr
43	Green-backed Heron	*Butorides striata*	Br
44	Indian Pond-heron	*Ardeola grayii*	Br
45	Cattle Egret	*Bubulcus ibis*	NBr
46	Grey Heron	*Ardea cinerea*	NBr
47	Great White Egret	*Ardea alba*	NBr
48	Intermediate Egret	*Ardea intermedia*	NBr
49	Little Egret	*Egretta garzetta*	NBr
11. Phalacrocoracidae			
50	Little Cormorant	*Microcarbo niger*	NBr
12. Anhingidae			
51	Oriental Darter	*Anhinga melanogaster*	NBr
13. Charadriidae			
52	Little Ringed Plover	*Charadrius dubius*	Mw
53	Lesser Sandplover	*Charadrius mongolus*	Mw
54	Yellow-wattled Lapwing	*Vanellus malarbaricus*	Br
55	Grey-headed Lapwing	*Vanellus cinereus*	Mw
56	Red-wattled Lapwing	*Vanellus indicus*	Br
14. Rostratulidae			
57	Greater Painted-snipe	*Rostratula benghalensis*	Br
15. Jacanidae			
58	Bronze-winged Jacana	*Metopidius indicus*	Br
59	Pheasant-tailed Jacana[17]	*Hydrophasianus chirurgus*	NBr
16. Scolopacidae			
60	Temminck's Stint	*Calidris temminckii*	Mw
61	Little Stint	*Calidris minuta*	Mw
62	Pintail Snipe	*Gallinago stenura*	Mw
63	Common Snipe	*Gallinago gallinago*	Mw
64	Common Sandpiper	*Actitis hypoleucos*	Mw
65	Green Sandpiper	*Tringa ochropus*	Mw
66	Common Greenshank[5]	*Tringa nebularia*	Mw
67	Wood Sandpiper	*Tringa glareola*	Mw
68	Marsh Sandpiper[6]	*Tringa stagnatilis*	Mw
17. Turnicidae			
69	Yellow-legged Buttonquail[7]	*Turnix tanki*	NBr
18. Tytonidae			
70	Common Barn-owl	*Tyto alba*	Br

	Common name	Scientific name	Breeding status
19. Strigidae			
71	Brown Boobook	*Ninox scutulata*	Br
72	Spotted Owlet	*Athene brama*	Br
73	Collared Scops-owl	*Otus lettia*	Br
74	Brown Fish-owl	*Ketupa zeylonensis*	Br
20. Accipitridae			
75	Osprey	*Pandion haliaetus*	Mw
76	Black-winged Kite	*Elanus caeruleus*	NBr
77	Oriental Honey Buzzard	*Pernis ptilorhyncus*	NBr
78	Crested Serpent-eagle	*Spilornis cheela*	NBr
79	White-rumped Vulture †	*Gyps bengalensis*	NBr
80	Changeable Hawk-eagle[8]	*Nisaetus cirrhatus*	NBr
81	Greater Spotted Eagle	*Clanga clanga*	Mw
82	Steppe Eagle	*Aquila nipalensis*	Mw
83	Booted Eagle[9]	*Hieraaetus pennatus*	Mw
84	Pallid Harrier †	*Circus macrourus*	Mw
85	Shikra	*Accipiter badius*	NBr
86	Besra[10]	*Accipiter virgatus*	NBr
87	Eurasian Sparrowhawk	*Accipiter nisus*	Mw
88	Pallas's Fish-eagle	*Haliaeetus leucoryphus*	NBr
89	Grey-headed Fish-eagle	*Ichthyophaga ichthyaetus*	NBr
90	Brahminy Kite	*Haliastur indus*	Br
91	Black Kite	*Milvus migrans*	NBr
92	Eurasian Buzzard	*Buteo buteo*	Mw
93	Long-legged Buzzard	*Buteo rufinus*	Mw
21. Upupidae			
94	Common Hoopoe	*Upupa epops*	NBr
22. Meropidae			
95	Asian Green Bee-eater	*Merops orientalis*	NBr
96	Chestnut-headed Bee-eater	*Merops leschenaulti*	NBr
23. Coraciidae			
97	Indian Roller	*Coracias benghalensis*	NBr
24. Alcedinidae			
98	Common Kingfisher	*Alcedo atthis*	Br
25. Cerylidae			
99	Pied Kingfisher	*Ceryle rudis*	Br
26. Dalcelonidae			
100	Stork-billed Kingfisher	*Pelargopsis capensis*	Br
101	Brown-winged Kingfisher[11]	*Pelargopsis amauroptera*	NBr
102	White-throated Kingfisher	*Halcyon smyrnensis*	Br
27. Megalaimidae			
103	Coppersmith Barbet	*Psilopogon haemacephala*	Br
104	Lineated Barbet	*Psilopogon lineatus*	Br
28. Picidae			
105	Eurasian Wryneck	*Jynx torquilla*	Mw

	Common name	Scientific name	Breeding status
106	Black-rumped Flameback	*Dinopium benghalense*	Br
107	Rufous Woodpecker	*Micropternus brachyurus*	Br
108	Streak-throated Woodpecker	*Picus xanthopygaeus*	Br
109	Grey-capped Woodpecker	*Picoides canicapillus*	Br
110	Fulvous-breasted Woodpecker	*Dendrocopos macei*	Br
29. Falconidae			
111	Common Kestrel	*Falco tinnunculus*	Mw
112	Laggar Falcon †	*Falco jugger*	Mw
30. Psittacidae			
113	Red-breasted Parakeet	*Psittacula alexandri*	NBr
114	Rose-ringed Parakeet	*Psittacula krameri*	Br
31. Oriolidae			
115	Indian Golden Oriole	*Oriolus kundoo*	NBr
116	Black-naped Oriole[12]	*Oriolus chinensis*	Mw
117	Black-hooded Oriole	*Oriolus xanthornus*	Br
32. Campephagidae			
118	Small Minivet	*Pericrocotus cinnamomeus*	Br
119	Rosy Minivet	*Pericrocotus roseus*	Mw
120	Indian (Large) Cuckoo-shrike	*Coracina macei*	Br
121	Black-headed Cuckooshrike	*Lalage melanoptera*	Br
33. Artamidae			
122	Ashy Woodswallow	*Artamus fuscus*	Br
34. Vangidae			
123	Common Woodshrike	*Tephrodornis pondicerianus*	Br
35. Aegithinidae			
124	Common Iora	*Aegithina tiphia*	Br
36. Dicruridae			
125	Black Drongo	*Dicrurus macrocercus*	Br
126	Ashy Drongo	*Dicrurus leucophaeus*	Mw
127	Bronzed Drongo	*Dicrurus aeneus*	NBr
128	Lesser Racquet-tailed Drongo	*Dicrurus remifer*	NBr
37. Laniidae			
129	Brown Shrike	*Lanius cristatus*	Mw
130	Long-tailed Shrike	*Lanius schach*	Br
131	Grey-backed Shrike	*Lanius tephronotus*	Mw
38. Corvidae			
132	Rufous Treepie	*Dendrocitta vagabunda*	Br
133	House Crow	*Corvus splendens*	Br
134	Large-billed Crow	*Corvus macrorhynchos*	Br
39. Stenostiridae			
135	Grey-headed Canary-flycatcher	*Culicicapa ceylonensis*	Mw
40. Monarchidae			
136	Black-naped Monarch	*Hypothymis azurea*	NBr
137	Indian Paradise-flycatcher	*Terpsiphone paradisi*	NBr

	Common name	Scientific name	Breeding status
41. Paridae			
138	Great Tit	*Parus major*	Br
42. Alaudidae			
139	Bengal Bush Lark	*Mirafra assamica*	Br
43. Cisticolidae			
140	Zitting Cisticola	*Cisticola juncidis*	Br
141	Grey-breasted Prinia	*Prinia hodgsonii*	Br
142	Plain Prinia	*Prinia inornata*	NBr
143	Common Tailorbird	*Orthotomus sutorius*	Br
44. Acrocephalidae			
144	Thick-billed Warbler	*Acrocephalus aedon*	Mw
145	Blyth's Reed-warbler	*Acrocephalus dumetorum*	Mw
146	Clamorous Reed-warbler	*Acrocephalus stentoreus*	Mw
45. Hirundinidae			
147	Red-rumped Swallow	*Hirundo daurica*	Mw
148	Barn Swallow	*Hirundo rustica*	Mw
46. Pycnonotidae			
149	Red-whiskered Bulbul	*Pycnonotus jocosus*	NBr
150	Red-vented Bulbul	*Pycnonotus cafer*	Br
47. Phylloscopidae			
151	Dusky Warbler	*Phylloscopus fuscatus*	Mw
152	Siberian Chiffchaff	*Phylloscopus tristis*	Mw
153	Greenish Warbler	*Phylloscopus trochiloides*	Mw
48. Zosteropisae			
154	Oriental White-eye	*Zosterops palpebrosus*	Br
49. Leiothrichidae			
155	Striated Babbler	*Turdoides earlei*	Br
156	Jungle Babbler	*Turdoides striata*	Br
157	Rufous-necked Laughingthrush	*Garrulax ruficollis*	NBr
50. Sturnidae			
158	Asian Pied Starling	*Sturnus contra*	Br
159	Brahminy Starling	*Sturnus pagodarum*	NBr
160	Chestnut-tailed Starling	*Sturnus malabaricus*	Br
161	Common Myna	*Acridotheres tristis*	Br
162	Bank Myna	*Acridotheres ginginianus*	NBr
163	Jungle Myna	*Acridotheres fuscus*	Br
51. Muscicapidae			
164	Plain-backed Thrush	*Zoothera mollissima*	Mw
165	Blue Rock Thrush	*Monticola solitarius*	Mw
166	Oriental Magpie-robin	*Copsychus saularis*	Br
167	Dark-sided Flycatcher	*Muscicapa sibirica*	Mw
168	Verditer Flycatcher	*Eumyias thalassina*	Mw
169	Blue-throated Blue Flycatcher	*Cyornis rubeculoides*	Mw
170	Siberian Rubythroat	*Calliope pectoralis*	Mw
171	Taiga Flycatcher	*Ficedula albicilla*	Mw

	Common name	Scientific name	Breeding status
172	Asian Brown Flycatcher[13]	*Muscicapa dauurica*	Mw
173	Brown-breasted Flycatcher[14]	*Muscicapa muttui*	Mw
174	Black Redstart	*Phoenicurus ochruros*	Mw
175	Eurasian Stone Chat	*Saxicola torquatus*	Mw
52. Turdidae			
176	Scaly Thrush[15]	*Zoothera dauma*	Mw
177	Orange-headed Thrush	*Zoothera citrina*	Br
53. Dicaeidae			
178	Pale-billed Flowerpecker	*Dicaeum erythrorynchos*	Br
54. Nectariniidae			
179	Purple-rumped Sunbird	*Leptocoma zeylonica*	Br
180	Purple Sunbird	*Cinnyris asiaticus*	Br
55. Ploceidae			
181	Baya Weaver	*Ploceus philippinus*	NBr
56. Estrildidae			
182	White-throated Munia	*Lonchura malabarica*	NBr
183	White-rumped Munia[16]	*Lonchura striata*	NBr
184	Scaly-breasted Munia	*Lonchura punctulata*	Br
185	Chestnut Munia	*Lonchura atricapilla*	NBr
57. Passeridae			
186	House Sparrow	*Passer domesticus*	Br
58. Motacillidae			
187	Forest Wagtail	*Dendronanthus indicus*	Mw
188	White Wagtail	*Motacilla alba*	Mw
189	White-browed Wagtail	*Motacilla madaraspatensis*	Br
190	Citrine Wagtail	*Motacilla citreola*	Mw
191	Western Yellow Wagtail	*Motacilla flava*	Mw
192	Grey Wagtail	*Motacilla cinerea*	Mw
193	Paddyfield Pipit	*Anthus rufulus*	Br
194	Olive-backed Pipit	*Anthus hodgsoni*	Mw
59. Fringilidae			
195	Common Rosefinch	*Carpodacus erythrinus*	Mw

Br = breeding resident; NBr = non-breeding resident; Mw = winter migrant Ms = summer migrant

† 'historical' records at JU, not expected now

[1] Ekhtiar Ahmed Bappy (student from Department of English) first sighted a nest with eggs near gymnasium, then several bird watchers photographed until hatched the young in 19 November 2016

[2, 3, 5, 6, 10] First sighted by Delip K. Das

[4] Sighted by Several observers

[7] First sighted by M. Monirul H. Khan in highland 100m west of JU gymnasium 6 May 2009 (07:30hr).

[8] First sighted by Ashis Kumar Dutta in 18 February 2013

[9] First sighted by Ashis Kumar Dutta in 28 January 2014

[11] First sighted by Md. Kamrul Hasan in winter 2013 at left pond near Wildlife Rescue Centre gate.

[12] First sighted by Ashis Kumar Dutta in 17October 2014

[13] Sighted by Several observers in January & February 2016

[14] First sighted by Ashis Kumar Dutta in 04 March 2014

[15] Sighted by Several observers at JU botanic garden between 2009 & 2017

[16] First sighted by Ashis Kumar Dutta in 19 February 2013

[17] First sighted by Niaj Murshed Abir 18 February 2018

(Mohsanin & Khan 2009). Conversion of bushy areas and grassland for construction of new buildings converts threatens birds dependent on those habitats such as Yellow-wattled Lapwing *Vanellus malarbaricus* which is considered a nationally threatened species (IUCN Bangladesh 2015). Attention is also needed to protect wetland habitat, which supports thousands of migratory ducks every year on the campus. Only two lakes are safe for waterbirds, the others are now used for fish culture for certain times of the year which destroys suitable habitat for migratory ducks, this has resulted a decline in wintering species' diversity. Only three species of ducks - Fulvous Whistling-duck *Dendrocygna bicolor*, Lesser Whistling-duck *D. javanica* , and Northern Pintail *Anas acuta* were seen in the last five years up to 2016.

This study concludes that the nesting habits and diversity of bird species in the campus are due to its diversified habitats. Many bird species, however, face threat due to habitat loss and human disturbance, regular monitoring and immediate habitat protection would enhance the successful reproduction as well as richness of birds in Jahangirnagar University Campus. More research and a habit of publishing the observations made by different researchers could also help protect the avifaunal wealth in JUC.

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Image 1. Rock Pegion nest

Image 2. Small Minivet nest

Image 3. Striated Babbler with nest

Image 4. Yellow-footed Green Pigeon nest

Image 5. Red-vented Bulbul nest

Image 6. Red-wattled Lapwing nest

Image 7. Purple-rumped Sunbird

Image 8. Black Drongo nest

Image 9. Jungle Myna nest

Image 10. Nest of Black-rumped Flameback

Image 11. Red Collared Dove

Image 12. Asian Pied Starling nest

Image 13. Common Woodshrike

Image 16. Common Iora nest

Image 15. Bronzed-winged Jacana with nest

Image 14. Black-headed Cuckooshrike with nets

Image 17. Common Myna nest in electrical box

Image 18. Great Tit nests

Image 19. Chestnut-tailed Starling feeding chicks

Image 20. Coppersmith Barbet

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