It had not been possible to check the contents of the nest and establish the exact date of laying because the nest tunnel was high up in an inaccessible position. On 20 March one of the parents carried the first food item into the tunnel, indicating that the young were hatched. The other parent also carried food into the nest soon after the other bird emerged.

In summary, it appears that in Bangladesh the Chestnut-headed Bee-eater starts nesting activities in January (mid winter), lays eggs in mid February (late winter), and the first nestlings hatch by mid March, indicating the incubation period of about a month.

The feeding sorties continued until almost the end of April. The prey identified included small moths Lepidoptera and dragonflies Odonata. The adults arriving with food paused only very briefly at the entrance to the nest tunnel before slipping inside. After the young had flown I measured the nest tunnel; it was about 30 cm deep and 8 cm in diameter.

By mid January, the Green Bee-eater started appearing on the steep slope of Prabartak hill, where the Chestnut-headed Bee-eater was already digging its nest. However, there were dozens of Green Bee-eaters and, by the end of January, 13 pairs had built nest tunnels within 5 m of the Chestnut-headed Bee-eaters nest. The digging of the nest tunnels, incubation period and care of the nestlings by the Green Bee-eaters appeared quite similar to those of the Chestnut-headed. The Green Bee-eaters fed their chicks almost entirely with dragonflies, supplemented with smaller insects occasionally. Before entering the nest tunnels they paused for a couple of seconds on a nearby perch, perhaps to check for imminent danger.

Four species of bee-eaters *Merops* have been recorded in Bangladesh (Khan 1982). Khan (1987) noted that both the Chestnut-headed and Green Bee-eaters lay eggs during summer (April to July). The Chestnut-headed was stated to lay in holes made on hill slopes or river banks, while the Green occupied holes in the isles dividing paddyfields, or in the earth banks alongside highways.

The above observations indicate that both species may start breeding in Bangladesh as early as January, and that they may both occupy an urban habitat. The observations also constitute the first detailed observations of the breeding of bee-eaters in Bangladesh.

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K. M. Nurul Huda, Department of Zoology, Chittagong University, Chittagong, Bangladesh.

Birds feeding on flowers in India

V. SANTHARAM

Between the months of November and January in 1991-1992 and 1992-1993, I saw birds feeding on the flowers of *Clitoria ternatea* (Fabaceae), a common climber at the Peech-Vazhani Wildlife Sanctuary (Trichur District, Kerala). Four bird species: Asian Koel *Eudynamys scolopacea*, White-cheeked Barbet *Megalaima viridis*, Asian Fairy Bluebird *Irena puella*, and Red-vented Bulbul *Pycnonotus cafer* were observed feeding on the flowers on at least 16 occasions. While some birds consumed the whole flowers, the others discarded the large (standard) petal. Up to three flowers were consumed in succession by the birds. Apart from the above-mentioned species, I have noticed Purple Sunbird *Nectarinia asiatica*, Vernal Hanging Parrot *Loriculus vernalis* and Golden-fronted Leafbird *Chloropsis aurifrons* consuming nectar (and also possibly eating pollen) from these flowers without damaging them. On 27 November 1992, I saw a Red-vented Bulbul feed on a *Clerodendron infortunatum* (Verbenaceae) flower. Earlier, in January 1988 at the Mundanturai Tiger Reserve, Tamil Nadu, I had seen Plum-headed Parakeets *Psittacula cyanocephala* plucking *Helicteres isora* flowers which were then squeezed with the mandibles for nectar and discarded (Santharam 1996).

References about flower-eating by birds are scanty in standard works on pollination biology (e.g. Faegri and Pijl 1978). Welty (1979) mentions that some birds eat flowers and flower buds. In Africa, the habit of flower-eating is more common and widespread than seems generally appreciated. There, bulbuls, starlings and weavers were noticed feeding on flowers (Pettet 1977, Oatley and Skead 1972). In the Neotropics and West Indies, there are very few reports of birds consuming flower parts (Skutch 1944, Feinsinger *et al.* 1979, Janson *et al.* 1981, Riley and Smith 1986), and the bird species involved are Prong-billed Barbet *Semnornis frantzii*, Emerald Toucanet *Aulacorhynchus prasinus*, saltators *Saltator* and parrots Psittacidae. In Sri Lanka, the Yellow-browed Bulbul *Iole indica* was seen feeding on flowers and flower buds of *Apama siliquosa* in the Makandawa Forest Reserve (Mahendra Shiriwardhane pers. comm.).

Observations of birds feeding on flowers in India are scattered in the literature. In Table 1, I present a summary of these reports, and Table 2 gives some details of the flower species. A total of 30 species of birds from 13 families has been reported feeding on flowers in India, including the present observations. The majority of the birds involved are basically frugivorous or granivorous species, and some are generalized feeders. However, most of these species are known to feed on nectar (Ali and Ripley 1983). Records of birds feeding on flowers at Peechi have been in the late wet season or the dry season. Riley and Smith (1986) have observed birds feeding on flowers both

Table 1. Observations of birds feeding on flowers in India.

Bird family	Bird species	Plant species	References
Picidae	Brown-capped Pygmy Woodpecker *Dendrocopos nanus*	*Madhuca indica*	Ali & Ripley 1983
	Yellow-crowned Woodpecker *Dendrocopos mahrattensis*	*Firmiana colorata*	Ali & Ripley 1983
Megalaimidae	Great Barbet *Megalaima virens*	*Rhododendron*	Ali & Ripley 1983
	Brown-headed Barbet *M. zeylanica*	*Bauhinia*	Ali & Ripley 1983
	White-cheeked Barbet *M. viridis*	*Cullenia exarillata* *Clitoria ternatea*	T. Ganesh *pers. comm.* This study
Bucerotidae	Malabar Grey Hornbill *Ocyceros griseus*	*Bombax ceiba*	Nair 1994
	Indian Grey Hornbill *O. birostris*	Petals e.g. *Bauhinia*	Ali & Ripley 1983
	Great Hornbill *Buceros bicornis*	Flowers and buds	Hume 1890
Cuculidae	Asian Koel *Eudynamys scolopacea*	*Clitoria ternatea* *Carica papaya*	This study Jose 1996
Psittacidae	Plum-headed Parakeet *Psittacula cyanocephala*	*Bombax ceiba*	Nair 1994
	Malabar Parakeet *P. columboides*	*Bombax ceiba*	Nair 1994
	Vernal Hanging Parrot *Loriculus vernalis*	*Palaquium ellipticum*	T. Ganesh *pers. comm.*
Accipitridae	Black Kite *Milvus migrans*	*Tubobea*	Khacher 1987
Irenidae	Asian Fairy Bluebird *Irena puella*	*Clitorea ternatea*	This study
	Blue-winged Leafbird *Chloropsis cochinchinensis*	*Pithecolobium dulce*	Prasad & Kumar 1992
Corvidae	White-bellied Treepie *Dendrocitta leucogastra*	*Bombax ceiba*	Nair 1994
	Black-naped Oriole *Oriolus chinensis*	*Erythrina*	Ali & Ripley 1983

Bird family	Bird species	Plant species	References
Paridae	Great Tit *Parus major*	Flower buds	Ali & Ripley 1983
	Green-backed Tit *P. monticolus*	Flower buds	Ali & Ripley 1983
Pycnonotidae	Red-whiskered Bulbul *Pycnonotus jocosus*	Flower buds *Tabernaemontana divaricata*	Ali & Ripley 1983 Siromoney 1963
	Red-vented Bulbul *P. cafer*	*Magnolia* *Clitoria ternatea* *Clerodendron infortunatum* *Tabernaemontana divaricata*	Johnson 1980 This study This study Siromoney 1963
	White-browed Bulbul *P. luteolus*	*Tabernaemontana divaricata* *Argyreia campanulata*	Siromoney 1963 Siromoney 1963
	Yellow-browed Bulbul *Iole indica*	*Cullenia exarillata*	T. Ganesh *pers. comm.*
Nectariniidae	Thick-billed Flowerpecker *Dicaeum agile*	*Madhuca indica*	Ali & Ripley 1983
Passeridae	House Sparrow *Passer domesticus*	*Canna*	Desai 1967
	Chestnut-shouldered Petronia *Petronia xanthocollis*	*Madhuca indica*	Bharos 1992
Fringillidae	Common Rosefinch *Carpodacus erythrinus*	*Cullenia exarillata* Flower buds	T. Ganesh *pers. comm.* Ali & Ripley 1983
	Spot-winged Rosefinch *C. rodopeplus*	*Rosa*	Ali & Ripley 1983
	Red-fronted Rosefinch *C. puniceus*	Flower petals	Ali & Ripley 1983
	Scarlet Finch *Haematospiza sipahi*	Flower buds	Ali & Ripley 1983

Species	Family	Colour	Comments
Argyreia campanulata	Convulvulaceae	pale mauve	
Bauhinia	Caesalpiniaceae	?	
Bombax ceiba	Bombaceae	red	nectar
Canna	Cannaceae	?	nectar
Carica papaya	Caricaceae	yellowish-white	nectar
Clerodendron infortunatum	Verbenaceae	white	nectar
Clitoria ternatea	Fabaceae	blue	nectar
Cullenia exarillata	Bombaceae	brownish-white	nectar, pollen
Erythrina	Fabaceae	scarlet	nectar
Firmiana colorata	Sterculiaceae	scarlet	tubular flower, nectar present
Madhuca indica	Sapotaceae	cream	corolla has sugar
Magnolia	Magnoliaceae	white	
Palaquium ellipticum	Sapotaceae	white	nectar
Pithecolobium dulce	Mimosaceae	greenish-white	
Rhododendron	Ericaceae	?	nectar
Rosa	Rosaceae	?	
Tabernaemontana divaricata	Apocynaceae	white	
Tubobea	Bignoniaceae	?	

Table 2. Plant species with flowers eaten by birds in India.

in dry and wet seasons. All reports of flower-eating by birds in the neotropics are by frugivorous species. Further, they found Emerald Toucanets feeding on flowers when fruits were readily available.

These reports indicate that eating flowers by birds is widespread but not very frequently reported. Flowers are perhaps consumed to access the nectar and pollen that are otherwise difficult to obtain by birds. Nectaries may be located along petals of some flowers, making them attractive to birds that seek nectar (T. Ganesh pers. comm.). Flowers in general probably supply a high energy mixture of lipids, proteins and carbohydrates, particularly if the entire flower is consumed (Riley and Smith 1986).

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V. Santharam, 68, I Floor, Santhome High Road, Madras - 600 028, India.

Unusual feeding behaviour of Black-faced Spoonbills Platalea minor

DESMOND ALLEN

The Black-faced Spoonbill *Platalea minor* is regarded as a Critically Endangered species (Collar *et al.* 1994) but, unfortunately, the details of its biology are still poorly known, and this poses problems for its conservation (Chong *et al.* 1996). Ten to twenty birds overwinter in north Kyushu, Japan, preferring narrow river mouths with tidal mudflats and stands of reeds; in this area, at least, they appear to feed more actively than the Eurasian Spoonbill *Platalea leucorodia*, sometimes running after prey; they seem to have a more stabbing feeding action, and hold their bills slightly wider open, and they have been regularly observed to feed on fish of up to 20 cm length (Niall Moores pers. comm.).

On 27 December 1994, I observed a pair of Black-faced Spoonbills feeding co-operatively in the shallow water of the Hakata Bay mudflats, Kyushu, probably for fish. At about 17h00 on 27 December 1994 I was watching a single Eurasian Spoonbill feeding in shallow water in Hakata Bay. At about 17h30, as the light began to fade, ten Black-faced Spoonbills left a small shrubby island where they had been roosting; eight of them flew singly or in pairs along the bay and out of sight. Two all-white birds (i.e. in non-breeding