

Foraging ecology of Red-vented Bulbul *Pycnonotus cafer* in Haridwar, India

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The foraging ecology of some Indian bird species has been studied in cultivated and natural habitats (Dhindsa and Saini 1994). Thirteen species of birds of agricultural importance have been studied in detail. Most of the studies were based on food preference in captivity and analysis of gut contents (Mathew 1976, Mathew *et al.* 1980, Dhindsa and Toor 1990, Saini and Dhindsa 1993). However, when feeding ecology is studied to estimate the impact of a species on agriculture, gut content analysis alone is insufficient. For instance, Dhindsa and Toor (1990) found that rice was the principal food type in the guts of three species of Weavers *Ploceus* in Punjab; field observations, however, revealed that most of the rice grains taken by these birds had been left in the stored straw or shed during the crop harvest and thus were already wasted.

The Red-vented Bulbul *Pycnonotus cafer* is very widely distributed throughout the Indian sub-continent, and divided into seven races. It is a resident arboreal species commonly found in gardens and in forest. It is non-territorial, and can occur in pairs or large flocks. In the present study, data have been collected on the foraging behaviour of Red-vented Bulbul, and attempts have been made to analyse the economic importance of this species in terms of loss, if any, it causes to horticulture/agriculture. The study was carried out from April 1995 to April 1997 in and around Gurukul Kangri University campus, Haridwar (29°55'N 78°8'E), India. Typical trees and shrubs of this suburban habitat include *Polyalthia longifolia*, *Hibiscus* sp., *Rosa* spp., *Mangifera indica*, *Litchi chinensis*, *Pithecellobium dulce*, *Clerodendron indicum* and the species listed in Table 1. The study site was visited once every week and dawn to dusk

observations were made on feeding behaviour. When a single individual, pair or flock was seen feeding, it was considered as one observation.

In the non-breeding season, flocks of 8 to 24 individuals were seen to feed together, while in the breeding season feeding birds were seen either alone or in small flocks (2 to 5 individuals). In the study area 17 types of plant species were used as a food resource (Table 1). Out of these plants, the unripe fruits of *Solanum torvum* were consumed most frequently (17.0% of the total observations). The second and third preferences were the leaves of *Medicago sativa* and ripe fruits of *Lantana camara*, respectively. Of 377 observations made on feeding behaviour, 55.9% involved the consumption of ripe fruits, 17.0% unripe fruits, 13.8% nectar and 13.8% leaves. Although only 22.7% of all ripe fruits were from cultivated plants, this could be significant economically if a lot of birds were present. It appears that, though birds were living in suburban areas, they were still more dependent on wild plant species for food as compared to other frugivorous birds, thus causing minimal harm to human crops. However, the birds do contribute to the dispersal of unwanted shrubs, such as *Lantana camara* and *Solanum torvum*, whose fruits formed 27% of the observed diet (Table 1). An important observation on the foraging behaviour of this bird is that it sometimes feeds on the nectar of a few plants, including the Bottlebrush *Callistemon utilis*, Sambal *Bombax ceiba* and Banana *Musa paradisiaca*. Recently Parasharya *et al.* (1995) reported that the Red-vented Bulbul is not a serious pest of sorghum crops. The relative abundance of this species among feeding birds was very low (4.34%) as compared to Scaly-

Table 1. Plant species and their edible parts used by the Red-vented Bulbul *Pycnonotus cafer* for feeding in India.

Plant species	Common name	Family	Edible part	Observations (%)
Indigenous				
<i>Azadirachta indica</i> *	Neem	Meliaceae	Ripe fruit	1.1
<i>Bombax ceiba</i>	Semal	Bombacaceae	Nectar	12.2
<i>Clerodendron infortunatum</i> *		Verbenaceae	Ripe fruit	2.6
<i>Coccinia indica</i>	Kanduri	Cucurbitaceae	Ripe fruit	9.0
<i>Ficus bengalensis</i>	Banyan	Moraceae	Ripe fruit	7.4
<i>Ficus glomerata</i>	Cluster fig	Moraceae	Ripe fruit	2.9
<i>Ficus religiosa</i>	Pipal	Moraceae	Ripe fruit	5.8
<i>Medicago sativa</i>	Jangali mathi	Papilionaceae	Leaves	13.8
<i>Syzygium jambolanum</i> *	Jamun	Myrtaceae	Ripe fruit	1.3
Exotic				
<i>Annona squamosa</i> *	Sugar apple	Annonaceae	Ripe fruit	1.6
<i>Callistemon utilis</i> *	Bottlebrush	Myrtaceae	Nectar	1.1
<i>Lantana camara</i>	Gandy	Verbenaceae	Ripe fruit	10.1
<i>Musa paradisiaca</i> *	Banana	Musaceae	Ripe fruit / nectar	1.6 / 0.5
<i>Psidium guajava</i> *	Guava	Myrtaceae	Ripe fruit	2.1
<i>Solanum nigrum</i>	Makoai	Solanaceae	Ripe fruit	5.3
<i>Solanum torvum</i>	Bhat	Solanaceae	Unripe fruit	17.0
<i>Vitis vinifera</i> *	Grape	Vitaceae	Ripe fruit	5.6

* Cultivated

breasted Munia *Lonchura punctulata* (23.13%), Baya Weaver *Ploceus philippinus* (29.33%), and Common Rosefinch *Carpodacus erythrinus* (22.76%).

In the present study, Red-vented Bulbuls were also observed feeding on a number of animal species (88 observations in total). These were as follows: small-sized insects, including mosquitos and mayflies (caught in flight), dipteran larvae, aphids, ants (56.8%); large-sized insects, including crickets, cockroaches, winged termites, grasshoppers (37.5%); vertebrates (7 to 9 cm in length), including house lizards, skinks (5.7%). Birds were also observed to feed upon discarded sweets and over-ripe fruits in garbage.

Bulbuls are dominant or important frugivores and seed dispersers of open secondary vegetation throughout tropical and subtropical Asia (Lever 1987, Corlett 1998). Until now very little information was available on the feeding behaviour of the Red-vented Bulbul (Parasharya *et al.* 1995, Dhamke 1997). The consumption of leaves of *Medicago sativa* was an interesting observation because leaf consumption is rare in birds. Recently, we also observed Red-vented Bulbuls feeding on petals of the flowers of *Bauhinia variegata*, *Tecomella undulata* and *Pisum sativum* in an agricultural area outside the study area.

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Observations on the Oriental Bay Owl *Phodilus badius* and range extension in the Western Ghats, India

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The Oriental Bay Owl *Phodilus badius* is a poorly known species restricted to the tropical moist forests of south and south-east Asia. Three disjunctly distributed subspecies are known from the Indian subcontinent (Ali and Ripley 1983). In Sri Lanka, the subspecies *assimilis* occurs in the wet zone and hills up to 1,200 m (Henry 1955, Liyanage 1972, Ekenayake 1994). The species has also been reported from the Nelliampathy and Anamalai hills of the southern Western Ghats mountains of India (subspecies *ripleyi*, Hussain and Khan 1978, Kannan 1993, Mudappa 1998). These two subspecies are quite distinct in plumage from the other forms that occur in Nepal, the eastern Himalaya, and north-east hill states of India (subspecies *saturatus*), and in South-East Asia (King *et al.* 1975, Ali and Ripley 1983, Boonsong Lekagul and Round 1991). The distributional pattern

corresponds roughly to the distribution of tropical evergreen rainforest, the habitat to which this species is mostly confined (Ali and Ripley 1983).

Oriental Bay Owls were seen on three occasions between February and June 1998 in Sengaltheri (8°31'N 77°26'E) within the Kalakad-Mundanthurai Tiger Reserve, Tamil Nadu, India. All sightings were in tropical wet evergreen forest at an altitude of 1,040–1,050 m above sea level.

The first sighting was on 19 February 1998. At 20h15, an unfamiliar three-noted whistle was heard from rainforests near the base camp at Sengaltheri. Four observers (Divya Mudappa, N. M. Ishwar, the author, and a field assistant) located the calling bird at 20h30. The bird was spotted in mid-storey vegetation, perched on a branch 8–10 m above the ground. Its flight was

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