of eggs laid, egg-loss, number of hatchlings and hatchling mortality was recorded. The nests were monitored till the time the chicks reached juvenile stage and subsequently weaning success was calculated. Six Sarus Crane families were chosen and intensively monitored till the hatchling reached the weaned stage. It was found that fledgling success was affected both by natural causes such as predation, wetness of nesting site, food availability, as well as by anthropogenic causes such as egg robbing and prevalent agricultural practices. Mortality of Sarus Crane recorded in the study area for two consecutive years has been shown in Table 1.

Table 1: Mortality of Sarus Crane young in Kota district (2000-2001)

Year	Total no. of chicks hatched	Reasons for Mortality			
		Dog	Marsh Harrier	Human-related	Unknown
2000	17	2	0	1	12
2001	34	0	1	0	16

The chosen focal-families were also examined for parent-chick interactions using the scan sampling method. During the course of these observations on one of the focal families, consisting of two chicks 40 and 39 days old, an incident of chick predation was noted. While the parents were feeding one of the chicks, the second chick which was feeding alone 25-30 m away from the parents, was left unattended for a brief period. A Marsh Harrier attacked this chick and repeatedly pecked its head, causing severe injury, but flew away without feeding on the chick. Although the harrier was clearly preying upon on the chick, the reason for abandoning the prey is not clear. The injured chick died within two hours and the parent birds left the feeding area and moved away.

Predators previously recorded for Sarus Crane chicks include jackals (Walkinshaw 1973; Ramachandran and Vijayan 1994) and dogs (Mukherjee and Borad, *pers. obs.*). Although an observation of a male Sarus Crane calling loudly and chasing a Marsh Harrier from its nesting territory has been recorded previously, indicating the possibility of chick predation by large raptors (Iqubal 1992; Mukherjee *et al.* 2002), the present study confirms and records predation by Marsh Harrier.

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9. THE LESSER KESTREL *FALCO NAUMANNI* AND AMUR FALCON *FALCO AMURENSIS* IN THE GARO HILLS, MEGHALAYA, INDIA

Both the Lesser Kestrel *Falco naumanni* and Amur Falcon *F. amurensis* are mainly passage migrants to India. The Amur Falcon, which migrates in countless swarms in autumn, is also a scarce breeder in north-eastern India (Baker 1928; Samant *et al.* 1995). Both species are often seen together and migrate on a broad front, with confirmed sightings throughout many areas in the Indian subcontinent. Visual records are mainly between October and early-January, but little is known of this large-scale migration involving thousands of birds. The weather pattern that triggers these migrations is also not known. Ali and Ripley (1978) had collated all available records till 1970. With the upsurge of interest in

bird watching and ornithology, additional sightings have recently been recorded from Wynaad, Kerala (Zacharias and Gaston 1993); Sri Lanka (Hoffmann 1996); Corbett Tiger Reserve, Uttaranchal (Naoroji 1999); Kaziranga National Park, Assam (Barua and Sharma 1999); Dera Ismail Khan, NW Pakistan (Kylanpaa 2000); Mysore, Karnataka (Thejaswi *et al.* 2004). It is important to record all these observations for a composite, overall picture of this migration and stop-overs throughout the Indian subcontinent. Prey availability also affects stop-over schedules. Therefore food and feeding behaviour is also described.

Our aim in visiting Meghalaya was to observe the migration of the Amur Falcon and Lesser Kestrel. The main passage period of Amur Falcon in the Northeast is end October when thousands pass through (Baker 1928). In 2000, the first author (RN) had observed only the Lesser Kestrel in and around Balphakram National Park: December 26, 2000, more than 10 birds at Durpeta between 1600-1700 hrs; December 28, 2000 at 1640 hrs, 30 birds wheeling above a harvested slope near Durpeta; December 29, 2000, more than 15 in the morning, 3 km from New Rompa Inspection Bungalow. The same day, four individuals were seen on Bagmara / Tura highway just before Hiringiri village at 1300 hrs.

In 2001, we missed the peak passage spectacle in October. However, at 1500 hrs on November 11, en route to Tura from Guwahati on an overcast day with intermittent heavy drizzle, we observed at least 15 Lesser Kestrel. At 1540 hrs, just before the bifurcation to William Nagar (15 to 20 km before Tura), we observed a large flock of Amur Falcons, estimated between 400 and 800. The falcons milled around, flying in one direction, milling and then streaming off in another direction, throughout uttering high-pitched whistles '*chichek*'. As we neared Tura at dusk around 1600 hrs, an extension of the main flock was observed.

In the South Garo hills from New Rompa (Balphakram National Park headquarters) to Mahesh Khola, from November 11-17, 2001, we occasionally saw a few individuals of the Lesser Kestrel along the road at dusk, feeding on insects.

On November 16, 2001 along the New Rompa / Rongra road, community feeding was observed amongst Lesser Kestrel, Amur Falcon and other bird species. At 1610 hrs about 50 Jungle Crows *Corvus macrorhynchos* were seen feeding on a swarm of emerging winged termites, soon joined by 2 Common Kestrel *Falco tinnunculus*, 1 Lesser Kestrel, 20+ Amur Falcons (including adult males), later joined by 3 Brahminy Kites *Haliastur indus*, 4-5 Ashy Wood Swallows *Artamus fuscus*, 1 Common Hill Myna *Gracula religiosa*, 3 Ashy Drongos *Dicrurus leucophaeus*, 7-8 Spangled Drongos *Dicrurus hottentottus*, 4-5 Asian Palm Swifts *Cypsiurus balasiensis* and Indian Roller *Coracias benghalensis*. By 1620 hrs, the termites disappeared and the feeding stopped. On November 17, 2001 at 1640 hrs at Gasuapara (on the Balphakram/Tura highway), 2 Amur Falcons were observed community feeding on winged termites.

Both species, especially the Amur Falcon, possibly perform the most remarkable migration known in any bird of prey: a total distance of approximately 10,000 to 11,000 km (Brown and Amadon 1968; Ferguson-Lees and Christie 2001). Their long distance migration is from East Asia and in the case of the Amur Falcon to the northern extremity of South Africa, apparently crossing 3,000 km over the Indian Ocean, returning via East Africa and across southern areas of the Asian continent (Ferguson-Lees and Christie 2001). Little is known about this migration through the Indian subcontinent, especially the sea crossing. More information is required on the main passage period and fluctuations of dates depending on weather. It would be interesting to monitor the migration of these two species as and when a lightweight satellite transmitter is developed, which should be no more than 4 percent of the falcon's weight. Even rough estimates of numbers and locations recorded throughout the Indian subcontinent will, over time, indicate the extent of the passage and routes taken.

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10. THE DIET OF THE NICOBAR MEGAPODE *MEGAPODIUS NICOBARIENSIS*, IN GREAT NICOBAR ISLAND

The Nicobar Megapode *Megapodius nicobariensis*, a mound nesting bird, is endemic to Nicobar Islands. Megapodes are a unique group of birds as they utilise external sources of heat to incubate their eggs (Jones *et al.* 1995). They forage by scratching and raking the debris on the ground (Jones *et al.* 1995). Different types of food items have been reported, including both plant and animal matter (Cleland 1912; Booth 1986). Leaf-litter invertebrates and seeds are the major food items of megapodes (Gill 1970; Brookes 1919), but in captivity they consume mice, tadpoles and snails (Coles 1937). Stomach contents of a Nicobar Megapode specimen from Tillanchong contained a beetle *Scarabus plicatus* and a snail *Helicina zelebori* (Ali and Ripley 1983). Detailed information on the diet of the mound building Nicobar Megapode has not been published so far. Hence, the diet of a population of the Nicobar Megapode *Megapodius nicobariensis* at the Great Nicobar Island was studied.

This study was carried out from December 1995 to May 1998 at the southern tip of the Great Nicobar I. (6° 76' to 6° 79' N, 93° 81' to 93° 84' E). The study area was a narrow strip of forest, between 40 and 300 m wide, bound by the beach to the east and by wetlands or forests to the west. The foraging megapodes were intensively observed from hides constructed at four different places, following focal animal sampling (Altmann 1974). Apart from this, the diet of the Nicobar Megapode was analysed from gut samples of three dead specimens that were acquired from tribals. The gut contents were identified and then grouped. The stomach contents of two dead chicks were also examined.

A plastic tube of 4 mm diameter, attached to a 500 ml plastic bottle filled with saline, was moistened with saline solution for lubrication and inserted into the mouth of the bird. The bird was then inverted over a plastic cup, so that as the fluid was forced into its stomach, the excess fluid plus the stomach contents flowed into the cup (Hess 1997). Five megapode stomachs were flushed by this method. After the flushing, the birds were seen resuming their activities without any abnormal behaviour, showing that this method was not stressful to the birds. The preference rank of each food item consumed by the Nicobar Megapode was arrived at by both the Volumetric and Occurrence Method (Kennedy and Fitzmaurize 1972).

The Nicobar Megapode was observed eating soil invertebrates, flying insects and vegetable matter. The stomach contents reveal that the primary food items of the Nicobar Megapode were cockroaches, beetles, ants, lizards, snails, grasshoppers, hermit crabs, seeds of *Macaranga peltata* and rotten vegetable matter. One bird was observed chasing an agamid lizard on the ground. Megapodes have also been observed feeding on the tissue of dead red crabs.

Seeds of *Macaranga peltata* dominated among the stomach contents of this species (Table 1). Cockroaches and snails were the major animal food items. Some beetles in the megapode diet were *Anomala andamanica*, *A. rhodomela*, *A. varicolor*, *Alissonotum piceum*, *Parastasia luteola*, *Heteronechus lioderes*, *Rhyssemus germanus*, *Aphodius moestus*, *Holotrichia nicobarica*, *Apogonia nicobarica*, and *Dasyvalgus insularis*. These megapodes were also seen consuming centipedes, lepidopterans, termites and tadpoles. Like many other birds, they ingested grit in order to help break down their food. They were occasionally observed drinking rainwater. Of the stomachs of the two dead chicks that were analyzed, one chick, which was partially eaten by a hermit crab, contained only the seeds of *Macaranga peltata* in its stomach. Another chick that was most likely attacked by a raptor, contained nothing in its stomach.