CHAPTER IV

BIRDS OF PREY: THE DOMINANT GROUP OF BIRDS IN SHOOLPANESHWAR WILDLIFE SANCTUARY

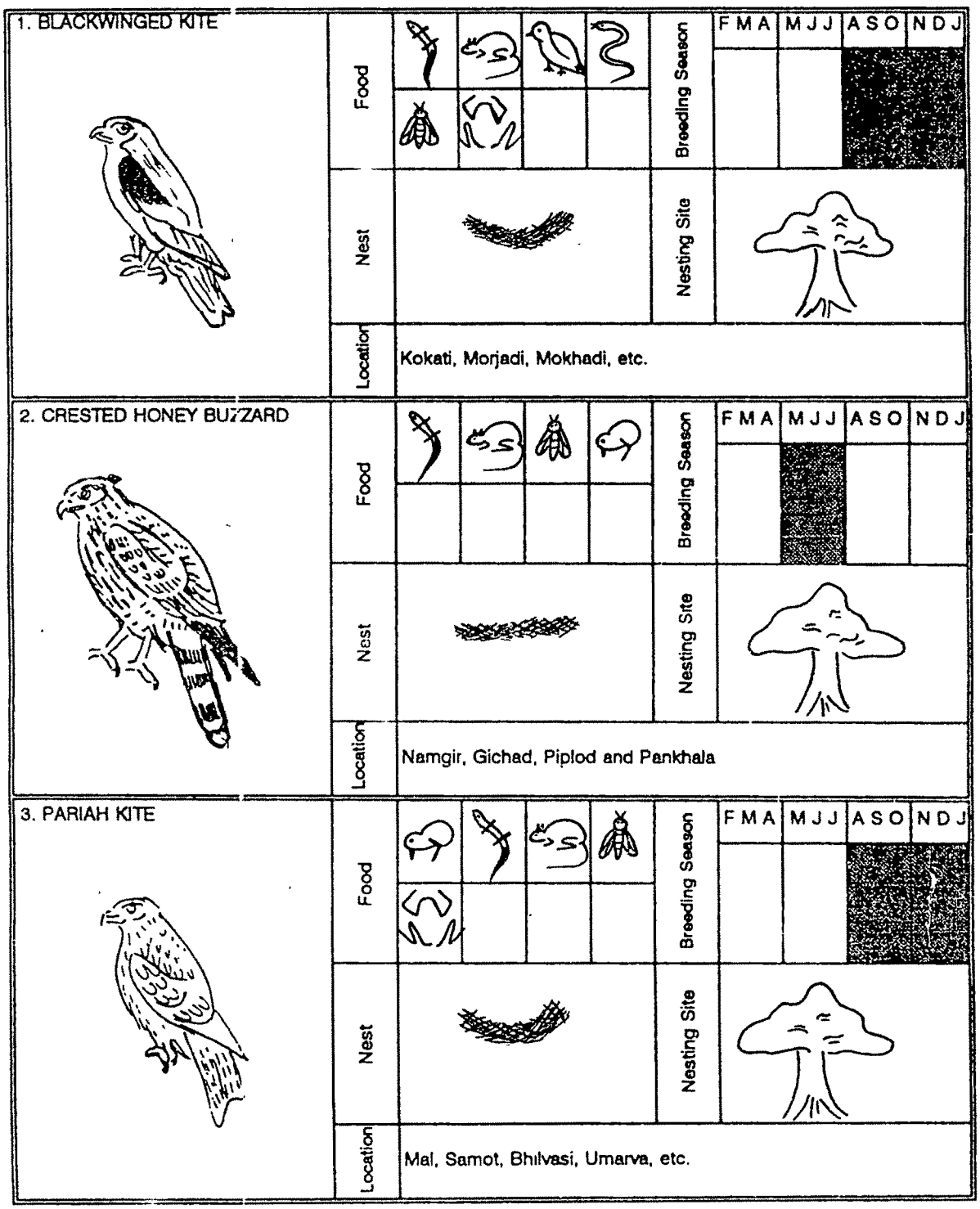
Monga and Naoroji, had surveyed a part of the present sanctuary in 1984 and recognised for the first time, the richness of raptors in this area. On Naoroji's recommendation, part of the adjoining land was added to the then Dumkhal Sloth bear Sanctuary, that has at present attained the status of Shoolpaneshwar Wildlife Sanctuary.

The present study on the avifauna of the SWS (Chapter II) revealed that the sanctuary harbours many species of raptors and owls (birds of prey). In all, there are 26 species of birds of prey observed from this area. Abundance of this group of birds can be accredited to the availability of ample prey base and roosting as well as nesting sites (Chapters I and III). However, the coexistence of so many birds occupying the same trophic level might not be possible without selective preference for diverse resources. Hence, in the current study an attempt was made to analyse pattern of resource utilization among various birds of prey.

FOOD PREFERENCE (Figure IV.1)

Food abundance is known to influence the number of birds in the forests. The type of food and its pattern of availability in the ecosystem have significant effects on the birds found there (Holmes and Sturges, 1974).

Figure 1 Food, Nest, Nesting Site and Breeding Season of Birds of Prey in the Study Area



4 BRAHMINY KITE

Food

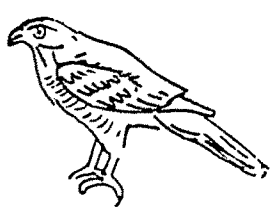
Breeding Season: F M A | M J J | A S O | N D J

Nest

Nesting Site

Location: Bogach village near Fulsar, Moti Daberi, etc.

5. SHIKRA



Food

Breeding Season: F M A | M J J | A S O | N D J

Nest

Nesting Site

Location: Dhirkhadi, Kelda Khadi, Mozda, etc.

6 SPARROW-HAWK

Food

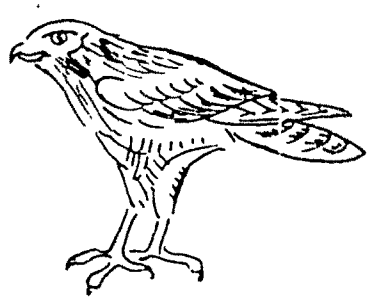
Breeding Season: F M A | M J J | A S O | N D J

Nest

Nesting Site

Location: Kalwat and Chopdi

7. WHITE-EYED BUZZARD-EAGLE



Food

Nest

Location: Andu, Mathavali, Kokati, etc.

Breeding Season: F M A | M J J | A S O | N D J

Nesting Site

8. CRESTED HAWK-EAGLE

Food

Nest

Location: Piplod, Kokam and Shisha

Breeding Season: F M A | M J J | A S O | N D J

Nesting Site

9. BONELLI'S EAGLE

Food

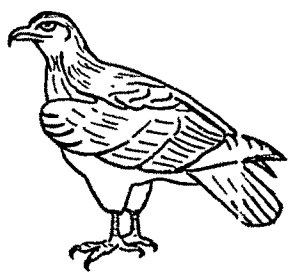
Nest

Location: Kokam, Ninai Ghat and Vav

Breeding Season: F M A | M J J | A S O | N D J

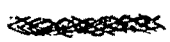
Nesting Site

10. GREYHEADED FISHING EAGLE



Food

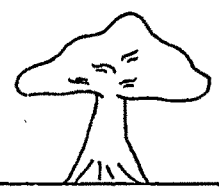
Nest



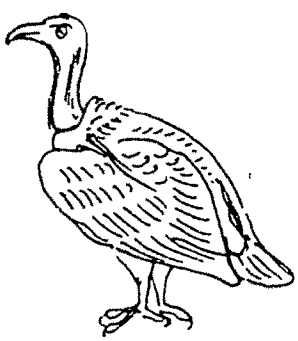
Location: Piplod and Pankhala

Breeding Season: F M A | M J J | A S O | N D J

Nesting Site



11. LONGBILLED VULTURE



Food

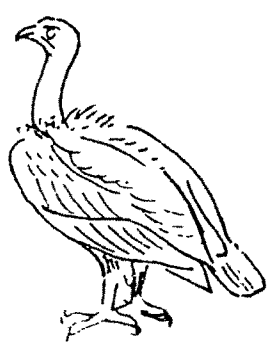
Nest

Location: Bhilwasi, Saribar and Samariya

Breeding Season: F M A | M J J | A S O | N D J

Nesting Site

12. WHITEBACKED VULTURE



Food

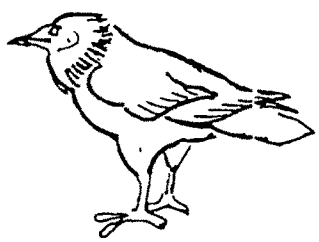
Nest

Location: Saribar, Bhilwasi, Samariya, etc

Breeding Season: F M A | M J J | A S O | N D J

Nesting Site

13. EGYPTIAN VULTURE



Food

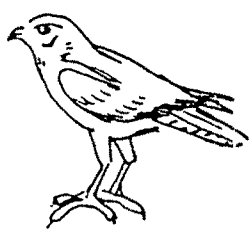
Breeding Season: F M A | M J J | A S O | N D J

Nest

Nesting Site

Location: Bhilwasi and Sanbar

14. PALE HARRIER



Food

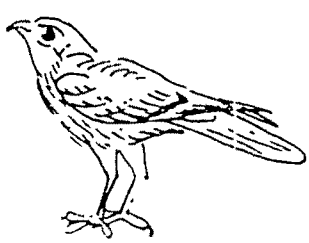
Breeding Season: F M A | M J J | A S O | N D J

Nest

Nesting Site

Location: Mozda and Moti Singloti

15 MARSH HARRIER



Food

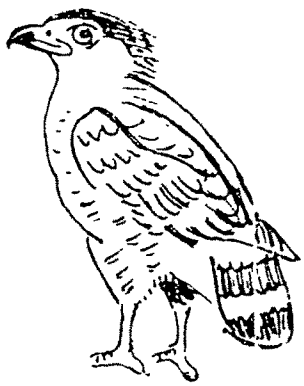
Breeding Season: F M A | M J J | A S O | N D J

Nest

Nesting Site

Location: Karjan reservoir, Surpan and near Narmada river

16 CRESTED SERPENT EAGLE



Food

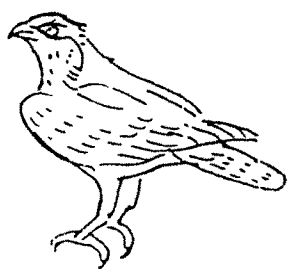
Nest

Location: Sagai, Namgir, Kanjal, Thavadia, etc

Breeding Season: F M A | M J J | A S O | N D J

Nesting Site

17. OSPREY



Food

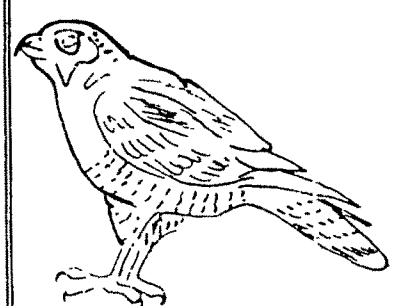
Nest

Location: Karjan reservoir (Moti Daberi) and Fulsar

Breeding Season: F M A | M J J | A S O | N D J

Nesting Site

18 SHAHEEN FALCON



Food

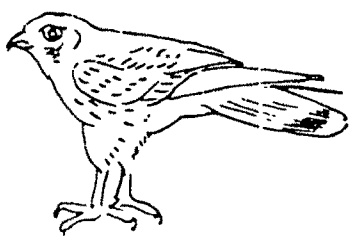
Nest

Location: Dhamanmal and Kalvat

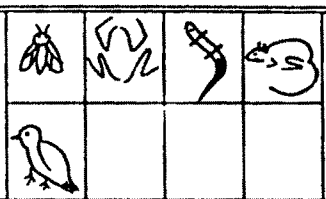
Breeding Season: F M A | M J J | A S O | N D J

Nesting Site

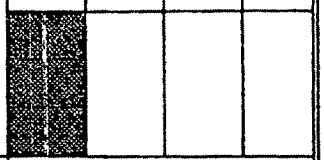
19 KESTREL



Food



Breeding Season



Nest

Nesting Site

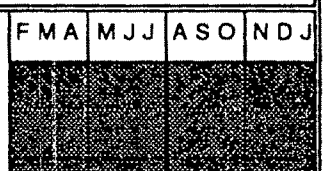
Location

Karjan reservoir and near Devganga river

20. BARN OWL

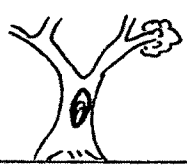
Food

Breeding Season



Nest

Nesting Site

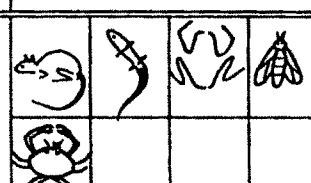


Location

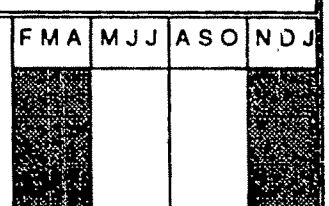
Kelda Khadi and near Piplod

21 GREAT HORNED OWL

Food



Breeding Season



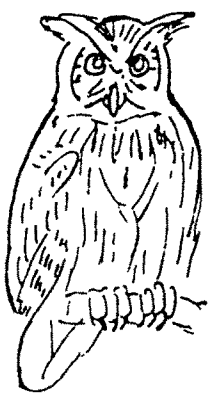
Nest

Nesting Site

Location

Surpan, Jharvani, Dhirkhadi, etc

22. BROWN FISH OWL



Food

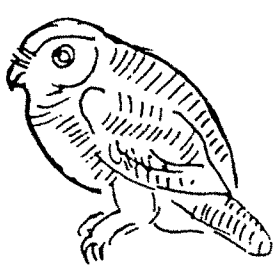
Breeding Season: F M A | M J J | A S O | N D J

Nest

Nesting Site

Location: Kalvat and near Mozda

23 BARRED JUNGLE OWLET



Food

Breeding Season: F M A | M J J | A S O | N D J

Nest

Nesting Site

Location: Shisha, Sagai, Kanjal and Namgir

24. BROWN HAWK-OWL

Food

Breeding Season: F M A | M J J | A S O | N D J

Nest

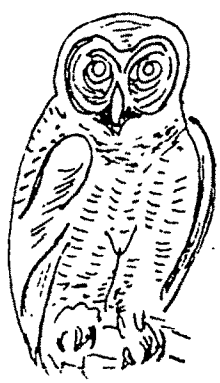
Nesting Site

Location: Fulsar and Sagai

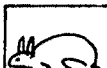
25. SPOTTED OWLET

Food		Breeding Season: F M A M J J A S O N D J
Nest		Nesting Site: 
Location	Sagai, Fulsar, Mathavali, Mal, Samot, etc.	

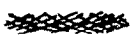
26. MOTTLED WOOD OWL



Food		Breeding Season: F M A M J J A S O N D J
Nest		Nesting Site: 
Location	Namgir, Gichad and near Sagai	

	Small Mammals		Chicks and Nestlings
	Rodents		Snakes
	Bats		Lizards
	Small and Sick Birds		Amphibians

	Fish		Snails
	Large Insects		Carrion Feeders
	Crabs		

	Platform Nest		Tall Trees - Deciduous
	Cup-shaped Nest		Large Trees - Evergreen
	Tree Hole		Ancient or Dead Trees
	Cliffs		Scrape on the Ground
	Nest on the Crotch of Branches		Nest on Mounds

The 26 bird species, preying upon invertebrates and smaller vertebrates, had distinct food choices. There are some birds of prey which were found feeding upon large insects and crabs. They include White-eyed Buzzard, Great Horned Owl and Mottled Wood Owl. Nevertheless, majority of invertebrate feeders were found preferring large insects than crabs. They are Blackwinged Kite, Crested Honey Buzzard, Pariah Kite, Shikra, Pale Harrier, Marsh Harrier, Kestrel, Barred Jungle Owlet, Brown Hawk Owl and Spotted Owlet, whereas only Brahminy Kite was found feeding on crabs.

Among reptiles, lizards formed the chief food source of birds *viz.*, Blackwinged Kite, Crested Honey Buzzard, Pariah Kite, Brahminy Kite, Shikra, White-eyed Buzzard, Crested Hawk Eagle, Pale Harrier, Crested Serpent Eagle, Kestrel, Great Horned Owl, Brown Fish Owl, Barred Jungle Owlet, Brown Hawk Owl, Mottled Wood Owl and Spotted Owlet, whereas snakes were preferred by Blackwinged Kite, Brahminy Kite, White-eyed Buzzard and Crested Serpent Eagle.

Fishes, as expected, were the choicest food for piscivorous raptors. They include Brahminy Kite, Greyheaded Fishing Eagle, Marsh Harrier and Osprey. Only one species of owl i.e. Brown Fish Owl, was found feeding upon fish.

Birds such as Blackwinged Kite, Pariah Kite, Brahminy Kite, Egyptian Vulture, Pale Harrier, Marsh Harrier, Crested Serpent Eagle, Kestrel, Great Horned Owl, Brown Fish Owl and Brown Hawk Owl were found chiefly thriving upon amphibians. Mammals, especially the smaller ones like mice, field rats, squirrels, hares and bats were also preyed upon by these birds. Among these mammals, mice, rats and squirrels were found to be preferred by Blackwinged Kite, Crested Honey Buzzard, Pariah Kite, Shikra, White-eyed Buzzard, Crested Hawk Eagle, Greyheaded Fishing Eagle, Pale Harrier, Marsh Harrier, Crested Serpent Eagle, Kestrel, Barn Owl, Great Horned Owl, Brown Fish Owl, Barred Jungle Owlet, Brown Hawk Owl, Spotted Owlet and Mottled Wood Owl. On the other hand, hares and other such small mammals fell prey to birds such as Shikra, Crested Hawk Eagle, Bonelli's Eagle and Greyheaded Fishing Eagle. Bats were found to be preyed upon only by a single species of bird (Shaheen Falcon).

Raptors and owls, having larger body size can even prey upon other birds (small and sick) and their nestlings. There are some raptors in the sanctuary which preyed upon all the three food items (small and sick birds as well as their nestlings). They are Crested Serpent Eagle, Bonelli's Eagle, Crested Hawk Eagle and Sparrow Hawk, whereas birds like Blackwinged Kite, Shikra, Greyheaded Fishing Eagle, Pale Harrier, Marsh Harrier,

Shaheen Falcon, Kestrel, Barn Owl, Brown Fish Owl, Barred Jungle Owlet and Mottled Wood Owl, preferred small and sick birds as food items. However, Spotted Owlet and Crested Honey Buzzard were observed to be preferring chicks and nestlings.

All the three species of vultures were largely carrion feeders. Piscivorous birds were found to thrive upon fishes that are present in all the major water bodies and perennial water courses.

From the above observations it can be deduced that no two species of birds have exactly similar food preference. This would greatly reduce the competition among various species of raptors and owls, as individual species have definite trophic niche.

Moreover, the trophic structure of SWS (Figure III.2) clearly indicates that birds of prey play a major role in energy flow of the sanctuary. This is in contrast to the general view that birds have little direct effect or influence on overall energy flux in the forest ecosystem (Holmes and Sturges, 1974). The probable reason for this may be the scanty population of large carnivorous species that occupy the highest trophic level (the SWS has very few leopards as the predatory species), thus, leaving birds of prey as the chief occupant at the apex of the food pyramid. They keep all the prey species in check by way of predation and hence, maintain the delicate balance of the existing ecosystem and emerge as the prime group in the Shoolpaneshwar Wildlife Sanctuary.

NESTS AND NEST SITE PREFERENCE (Figure IV.1)

Although food is the main mechanism by which tree species influence bird communities, nest sites may be an important factor. Trees differ greatly in their structure—in terms of foliage density, availability of holes and dead wood. This will certainly affect the suitability of different trees as nesting sites (Fuller, 1995).

During the course of the present study, different types of nests were observed. The main types built and used by birds of prey are platform nest, cup-shaped nest and tree holes. The platform nests were usually made of twigs, whereas the cup-shaped nests had twigs as well as dry grass and other vegetation. There are 5 species of birds which build cup-shaped nests (Blackwinged Kite, Pariah Kite, Brahminy Kite, Shikra and Brown Fish Owl). They require large evergreen trees with good foliage as well as big branches. In the sanctuary, cup-shaped nests were observed on *Dalbergia, Mangifera* and *Morinda*. Crested Honey Buzzard, White-eyed Buzzard, Crested Hawk Eagle, Bonelli's Eagle, Greyheaded Fishing Eagle, all the three species of vultures, Crested

Serpent Eagle and Shaheen Falcon use platform nests. They require large leafy trees as well as tall deciduous trees *viz.*, *Ficus, Mangifera, Tectona, Madhuca* and *Terminalia*. Though Longbilled Vulture and Shaheen Falcon are platform nest users, their requirement for nest site differs in that, they prefer cliffs for nesting. This is a good example of niche preference which minimizes competition for nesting sites.

Majority of the owls use natural tree holes in old or dead trees. Presence of seven species of owls suggests that there has to be plenty of such trees available. This observation is supported by the fact that the sanctuary harbours several hole nest makers in seven species of woodpeckers, two species of barbets and Grey Hornbill (Chapters II and III). Such structural 'micro feature' (tree holes) is of vital importance to these birds. Nesting in tree holes appears to be a good strategy for hole nesting species, because holes offer nest sites that are relatively safe from predators (Nilsson, 1986).

BREEDING SEASON (Figure IV.1)

The birds of prey in the sanctuary were observed breeding mainly during two different seasons—summer and winter. White-eyed Buzzard, Egyptian Vulture, Crested Serpent Eagle, Shaheen Falcon and Barred Jungle Owlet were found breeding only during summer. The winter breeders include Crested Hawk Eagle and Bonelli's Eagle. However, there are some birds which have extended breeding seasons. They include Blackwinged Kite, Pariah Kite, Brahminy Kite, Greyheaded Fishing Eagle, Longbilled Vulture, Whitebacked Vulture, Great Horned Owl, Brown Fish Owl, Brown Hawk Owl, Spotted Owlet and Mottled Wood Owl. Only a single species of birds of prey (Barn Owl) was found breeding throughout the year.

Food availability for the chicks is likely to be the main factor that determines the time at which birds nest/breed. The length as well as timing, of the breeding season can be broadly related to food supply (Fuller, 1995). Bird species that co-occur in a habitat might breed at different times of the year and thereby avoid severe competition with each other. Since most of the raptors and owls share a common breeding habit, this separation in breeding season might be to avoid competition for food and nesting site. Raptors occupy high canopy for nesting which may enable them to avoid competition for nesting sites with other small birds which breed in summer. Moreover, defoliation in summer makes the favoured prey species like lizards, snakes and rodents more visible for predation by the raptors. This, along with the chicks of other breeding birds provide enough food supply to breeding birds of prey during summer. In the sanctuary, it was

observed that relatively few species of birds of prey breed in winter. This facilitates those birds of prey which breed during colder months to capture enough prey as food and also lesser competition for nest building materials.