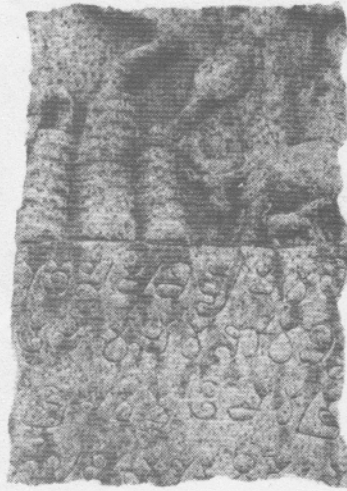




BANDIPURA NATIONAL PARK
PROJECT TIGER
A PROFILE





Bandipura: A Brief History

Halfway down the Mysore-Ooty highway, the Deccan Plateau rises to meet the wrinkled folds of the Western Ghat Mountains. Here lies one of India's best-known wildlife reserves—Bandipura National Park. It is situated within Chamarajanagar district in the southern Indian state of Karnataka, and abuts the states of Tamil Nadu and Kerala. Endowed with a moderate climate and diverse geographical features, the Park supports a remarkable variety of flora and fauna, making it a veritable paradise for wildlife.

Bandipura is the southernmost of the 9 reserves specially established under Project Tiger in 1973. It has a long and distinguished past. Right at the commencement of this century, the need to conserve wildlife was realised in the princely state of Mysore, and the Mysore Game and Forest Preservation Regulation was passed. In 1931, a 90 km² sanctuary was set up in the Chamarajanagar State Forest, but soon it was felt that it was too small for effective conservation, and in 1941 the ambitious Venugopala Wildlife Park was constituted, extending over 800 km², right from the Moyar river forming the natural southern border of the state towards the Nilgiris, northwards towards Gundlupet to include the 1455 m. high range of Gopalaswamy Betta: the Park was named after the deity of the shrine atop the hill,

Venugopala, worshipped by the former Maharajas of Mysore. Bandipura, the 60 km² *sanctum sanctorum* of the Park, has long been famed for its faunal richness, and in it, no forestry operations have been permitted, so that in spite of its dominantly deciduous complexion it still holds many magnificent trees.

The Tiger Reserve today comprises most of the forests of the old Venugopala Park, and is 880 km² in extent. The present core has been shifted outside the old *sanctum* of Bandipura to comparatively primitive forests to the west and slightly to the north of it; it is now fully 523 km², in area, and includes parts of the Begur, Ainurmarigudi, Beerambadi, Katwal and Bandipura Reserve Forests.

The tourism zone covers 82 km², the main portion of which is the old *sanctum* of Bandipura. A 1 km² administrative zone houses the offices and tourist accommodation. Bandipura is one of the best-developed sanctuaries in India, and unlike most sanctuaries has a very long fair season that extends, practically, right through the year. It caters to every class of visitor, from city-dwellers seeking forest recreation and an authentically wild environment, to serious students of plant and animal life of Karnataka. Here, over the years, a regu-

lar grid of motorable roads has been laid carefully; these roads pass close to a number of pools to which elephants and other animals come, and there is ample natural forest in between the roads, so that motoring along them one has excellent opportunities for seeing the animals, and the trees and ground flora. Riding elephants are also available, and there are some watch-towers overlooking pools.

Bandipura is the southernmost part of Karnataka and borders the northeastern slopes of the Nilgiri range of Tamil Nadu and Kerala. In the past, this entire tract comprising the junction of the three states, was broadly termed the Wynaad, and its territorial affinities have had a fluctuating history, with Mysore, Kerala and old Madras Presidency claiming varying parts of it from time to time. During this time, a number of small settlements were established in the Wynaad forests, and subsequently abandoned for reasons now unknown. These were not major colonies but modest hamlets (some tribal settlements and military camps) right inside the forests, and they have been abandoned so long that only the more securely built remnants of them now survive as crumbling, run-down fort walls, village tanks, stone shrines, carvings and memorial tablets. Such relics may still be seen in the Bandipura area. These carvings follow their own iconography, interestingly different from that of the classical periods of southern sculpture. In places, old village tanks still survive and are used by the animals. The presence of huge, old tamarind (*Tamarindus indica*) trees often marks these abandoned settlements; the tamarind is an exotic brought to India from its native Africa centuries ago, and the sour pulp of the fleshy pods has long been an important ingredient of south Indian cookery; the tree was specially planted around forest hamlets on this account.

General Account

Bandipura National Park (11°35'34"N, 76°12'17"E – 11°57'02"N, 76°51'32"E) is flanked by Karnataka's Nagarhole National Park to its northwest, Tamil Nadu's Mudumalai Wildlife Sanctuary to its south, and

Kerala's Wynaad Wildlife Sanctuary to its southwest. Together, these four protected areas constitute the Nilgiri Biosphere Reserve, which is arguably the best remaining stretch of habitat for the Asian elephant and the tiger. It is also India's first Biosphere Reserve, and encompasses an area of about 5500 km².

The Park is full of rocky hills and valleys drained by the Rivers Kabini, Nugu, Moyar and numerous small streams. The enchanting Nilgiri Mountains and their cloud-covered peaks form a picturesque backdrop of the Park. The Himavad Gopalswamy Hill (1455 metres) is the highest peak within the Park, with the lowest point being 680 metres above sea level. The spectacular Moyar gorge marks the boundary between Bandipura and Mudumalai, and is as deep as 260 metres at some places.

One of the features of Bandipura is its many pools and tanks, some of them perennial and some drying up in summer. These attract the animals, particularly the larger herbivores, and the roads have been so laid that they pass close by these pools, enabling visitors to see the animals coming to the water. Except across the deep Moyar gorge, animals commute freely between the Bandipura and Mudumalai reserves across valleys and fords, as seasonal movements impel them, unmindful of political frontiers.

Bandipura receives two monsoons: the south-west monsoon from about mid-June to September, with the heaviest rains in July, and the north-east monsoon in October-November, with the rains comparatively light. The average rainfall in the Reserve varies from 625 to 1250 mm. (east to west) annually. The climate is equable, with a mean temperature of about 24° C and even in the cold weather the days are sunny, except when there is wind and rain; the nights are cool. The maximum temperature is around 35° C and the minimum about 10° C. The sun is strong in summer, and the forests, dry and dusty from February to April.

The underlying rocks of Bandipura are mainly metamorphic (gneiss, quartzite, mica and hornblende schists), with some igneous material (granite and charnockite) appearing as outcrops through the meta-

morphic rocks. The Reserve has clayey black soils of gneissic origin as well as the more common red loamy soil, which is derived from granites and gneisses. The best forests are found on deep, well-drained loamy soils, while the clayey soil does not usually favour tree growth. Patches of shale mixed with powdered quartz are found in the reserve. They contain minerals and salts, and form natural salt-licks for animals.

Because of its open forests, rich ground vegetation, easily traversed terrain, and many pools and tanks, there are interesting animals and plants to be seen at Bandipura all the year round. Except during the heaviest rains, when an outing may not be possible, a visit to Bandipura should prove rewarding to those who go over, not with the fixed, preconceived idea of getting a close view of wild elephants (though this, too, is usually possible), but with a broader and more enterprising interest in the varied attractions of the sanctuary.

Life keeps changing in the deciduous forests from season to season, almost from week to week. Early in the hot weather, the flowering trees burst into dramatic bloom, suddenly suffusing the bare, leafless forest with colour and opulence. By midsummer small pools dry up, tall grasses wither and die down, and most trees are leafless and dry. Then come the late summer rains, the 'mango showers', as they are called. Practically overnight, the dead-looking trees sprout leaf-buds and the new leaves cover the trees again in bright green, and even in a coppery red, and for a month the foliage overhead is almost translucent. The dusty, brown earth is green again with the up-and-coming grass, and throughout summer, with visibility in the treetops excellent and the flowering and fruiting of the forest trees attracting them, many forest birds are much in evidence. With the monsoons, the flora goes into a vegetative phase, the pools fill up, and these are the months of the insects and amphibians. After the rains, there is again a floral burst, with many herbs and shrubs, and even a few trees, coming into flower late in the year.

Approach and facilities

Bandipura is easy to get to, being only 80 km. from Mysore city almost midway on the main road from

Mysore to Ooty. Buses ply regularly along this road, and taxis can be hired, both from Mysore and from Ooty: the Bandipura campus is right beside the road, and all buses stop at this point. The nearest airport is Bangalore, 138 km. from Mysore. There are several lodges at the campus to accommodate visitors, and the Reception Office at the entrance to the campus provides such information and help as may be required by visitors.

Visitors are taken along the forest roads during the mornings and afternoons in the vans of the reserve, at prescribed charges. Because of the essentially flat nature of the terrain, it has been possible to so lay the motor roads that practically all reaches of the area, and most of the tanks and pools, can be reached in the course of van-rides. A guide accompanies the visitors and sees to their safety.

Riding elephants are also available at Bandipura for hire. Though an elephant ride necessarily limits one's traversing range of the forests to a few kilometres, it offers an intimate and leisurely comprehension of the wildlife far better than can be had from a van. It is possible to get quite close to the many herds of arrestingly beautiful chital that live around the tourist complex by this means. Pig, dhole (the wild dog), occasionally wild elephants, and many birds may be encountered in the course of such a ride, and of course one gets a much closer look at the trees and other plants. There are natural salt-licks in places, as at Uppuneerhalla. Artificial licks are also provided at suitable locations.

There are sanctuaries in India where the visitors are taken for van-rides at night to see the animals with the aid of spotlights, because in them the animals, though diurnal by nature, do not come out of cover until dark. Bandipura after sunset belongs entirely to its wildlife, and no night-drives are allowed. Where wild elephants are so common on the forest roads at night, this is a wise precaution, but that is not the only reason for the prohibition of nocturnal van-rides. It is necessary to assure the animals of freedom from human disturbance to the extent possible, and since here they are freely out by day, there is no need to go seeking them at night.

The Flora

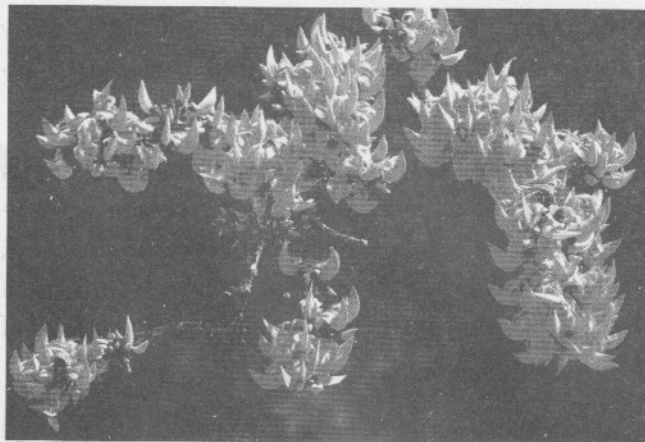
Bandipura has been designated a Southern Tropical Dry Deciduous Forest. The scrub jungles towards the eastern limits of the Park consist of stunted trees, interspersed with bushes and open grassy patches. Towards its northwestern fringes, there is a gradual shift in the vegetation from open dry deciduous forests to tropical mixed deciduous forests. The main trees and other plants of Bandipura are also the main species of other forests in the Wynaad, except where they are of a mixed ever-green complexion.

For example, the 'ganté-mara' (*Schrebera swietenoides*, a tree of the jasmine and the olive family, formerly valued for its closegrained timber), the 'naviladi' (*Vitex altissima*, which belongs to the family of the teak, and has a heavy, very hard wood) and the white-flowered *Radermachera xylocarpa* ('udi-mara'), which are typical of the forests of the Wynaad and the middle section of the Western Ghats, are all common in Bandipura.

Teak grows naturally in this part of the Western Ghats, while the other trees well known in it are the gum-kino ('honné', *Pterocarpus marsupium*), *Terminalia* species (especially *T. chebula* and *T. bellerica* ('thaaré'), both yielding myrobalans, and *T. tomentosa* ('maththi') which has a highly-fissured bark resembling crocodile-skin), the 'dindaga' (*Anogeissus latifolia*) which sometimes forms gregarious stands, the 'nelli' (*Phyllanthus emblica*), the 'paadri' (*Stereospermum tetragonum*) and the 'bende' (*Kydia calycina*) notable for occurring gregariously in almost pure patches while still in the sapling stage, whereas the mature trees are found spaced well apart and mixed with other trees in the forest.

Trees characteristic of the more moist mixed deciduous forests of the Western Ghats include the dark rosewood ('beeti', *Dalbergia latifolia*), one of the handsomest and costliest timbers in the world. Near pools and watercourses, *Adina cordifolia* and *Mitragyna parviflora* are common. They are both stately trees of the coffee family valued for their light-coloured, evenly-grained timber.

The main palm of Bandipura is *Phoenix humilis*



Flame of the forest (*Butea monosperma*)

('kirichalu'), found on hill-slopes and in hollows. The kitul palm (*Caryota urens*, 'baini'), whose pith is converted into sago by men, is not as common here as it is elsewhere in the Western Ghats.

Flowering peaks

Except during heavy rains, some plant or other may be in flower in every month, but there are two well-defined flowering seasons in Bandipura, the first in summer from February to May, and again after the rains, from October to December.

One of the loveliest of all flowering trees is the Indian laburnum (*Cassia fistula*, 'kakke') which is leafless or almost so, and heavily draped with pendent racemes of the purest lemon yellow flowers and bell-shaped buds, about midsummer. It is planted in urban areas and formerly was much planted around villages, for it is sacred to Shiva, but to feel the full impact of its beauty one must come across it in the forest, suddenly round a bend in a forest road or path.

A much more modest and less profuse yellow flower is that of *Gmelina arborea* ('shivani'), but is not without its charm – angular, cadmium-yellow flowers with a shading of rust-red, borne sparsely on a spreading crown, looking rather like candle-flames.

The Flame of the Forest (*Butea monosperma*, 'muththuga') is one of the commonest trees here. The boldly-shaped crowded flowers are vermilion or an orange-vermilion in colour, with the sepals dark, and to know why it has its name one should see a clump of

these trees in bloom from a distance, when they really suggest a raging forest fire. *Erythrina indica*, the Indian coral tree, is also in flower in summer.

The red silk-cotton ('booruga', *Bombax ceiba*) is a tree which attains a more imposing stature; in summer it sheds its palmately-lobed leaves, and the big, crimson, stellate flowers open high above the ground in a regal, red canopy, one of the authentic spectacles of Indian forests.

White is a conspicuous colour in the forest, and the masses of fragrant white flowers covering the crown of *Radermachera xylocarpa* compel notice even from afar. The flowers are succeeded by the characteristic long, cylindrical, spiky fruits, covered with woody tubercles, that hang from the tree for months. The 'paadri' (species of *Stereospermum*, especially *S. tetragonum*) belongs to the same family, but is neither white-flowered nor so conspicuous. Other white-flowered trees common in the area, although they do not flower *en masse* but are borne here and there on the tree, include *Randia dumetorum*, *R. uliginosa*, and *Careya arborea* ('gowlu').

Quite a few exotic trees have been planted in and around the tourist complex: blue gum (*Eucalyptus* spp.) from Australia, gulmohur (*Delonix regia*) and jacaranda (*Jacaranda mimosifolia*) from tropical America, and *Kigelia pinnata* from Africa, whose huge, woody sausage-shaped fruits identify it at once.

Lantana, flowering in the cold weather, can look quite attractive. Another bush of the same family (the teak family, well represented in Bandipura) is *Clerodendron* of which there are several species here, one with beautiful blue flowers. Another blue-flowered plant of this family, with the flowers borne on a spike, is the herb, *Stachytarpheta*, in bloom in October.

Many shrubs and herbs come into flower after the rains of September. In October, the vivid red and yellow flowers of *Gloriosa superba* ('kolikalu'), a wild lily fully worthy of its extravagant name, are all over the forests. The flowers of this climber are yellow on opening and then the long, wavy-edged petals turn to vermilion and then to scarlet, and flowers of all three

colours can be seen on the plant; the root is poisonous.

Towards Atnikatte and Chamanhalla, a shrub bearing large, strikingly yellow hibiscus-like flowers on an erect, slim stem is conspicuous on the forest floor in the cold weather. This is *Decaschistia crotonifolia* (a bit of a tongue-twister, but though it is common and arresting in its looks, there seems to be no popular, non-technical name for it).

Ground orchids flower in the cold weather, particularly species of *Habenaria*, with small but beautifully intricate flowers of a pure white (one is yellow). One has to look for them, but *Platanthera susannae*, gorgeously white, large-flowered and endowed with a delicate fragrance, cannot be overlooked. It seems to favour much the same locations as *Decaschistia*.

A great many other small plants, mainly herbs, are in flower at this time of the year, and some of them have charm and vividness of colour, but they cannot even be listed here. However, a low bushy plant typical of this part of the Wynaad, *Argyreia cuneata* ('kallamele') should be mentioned: it is a plant of the morning glory family, noted for its ornamental creepers, but it is a bush and no creeper or straggler; it is thickly covered with shiny, elliptic leaves, and its flowers are a deep purple.

The Fauna

Besides the tiger, elephants (*Elephas maximus*), gaur (*Bos gaurus*) and chital or spotted deer (*Axis axis*) are the star attractions of Bandipura. After the disastrous rinderpest epidemic of 1968, gaur were almost wiped out from the Park, but there has been a remarkable recovery of the population, which numbers over 1000 today. Elephants occur in fluctuating transient populations and chital in several rather localised resident populations.

Unquestionably, both elephants and chital can seldom be seen in such numbers and from such close quarters as at Bandipura, but they are by no means the only faunal features of the sanctuary, and a great many other animals and interesting plants are usually overlooked by visitors in the preoccupation with wild elephants.

Only the animals likely to be encountered by visitors, including some which are not common, are listed here. For example, the slender loris (*Loris tardigradus*), which is small, furtive and nocturnal, is no doubt to be found in Bandipura (in the drier and more bushy locations) and it is seldom seen; again, the field-mice and field-rats are nocturnal, not easily told apart from one another in the brief, indistinct glimpses which is all that one can usually get of them, and unlikely to be seen by visitors, since visitors do not go out at night here. The tiger (*Panthera tigris*) and the leopard (*P. pardus*), though also mostly nocturnal, are much too 'major' animals not to be included, and moreover, though one may not see them, one is very likely to come across evidence of their presence in the area, such as their pugs on the forest floor. Strangely enough, the jackal (*Canis aureus*), still common enough in most open forests, is not common in the Tiger Reserve.

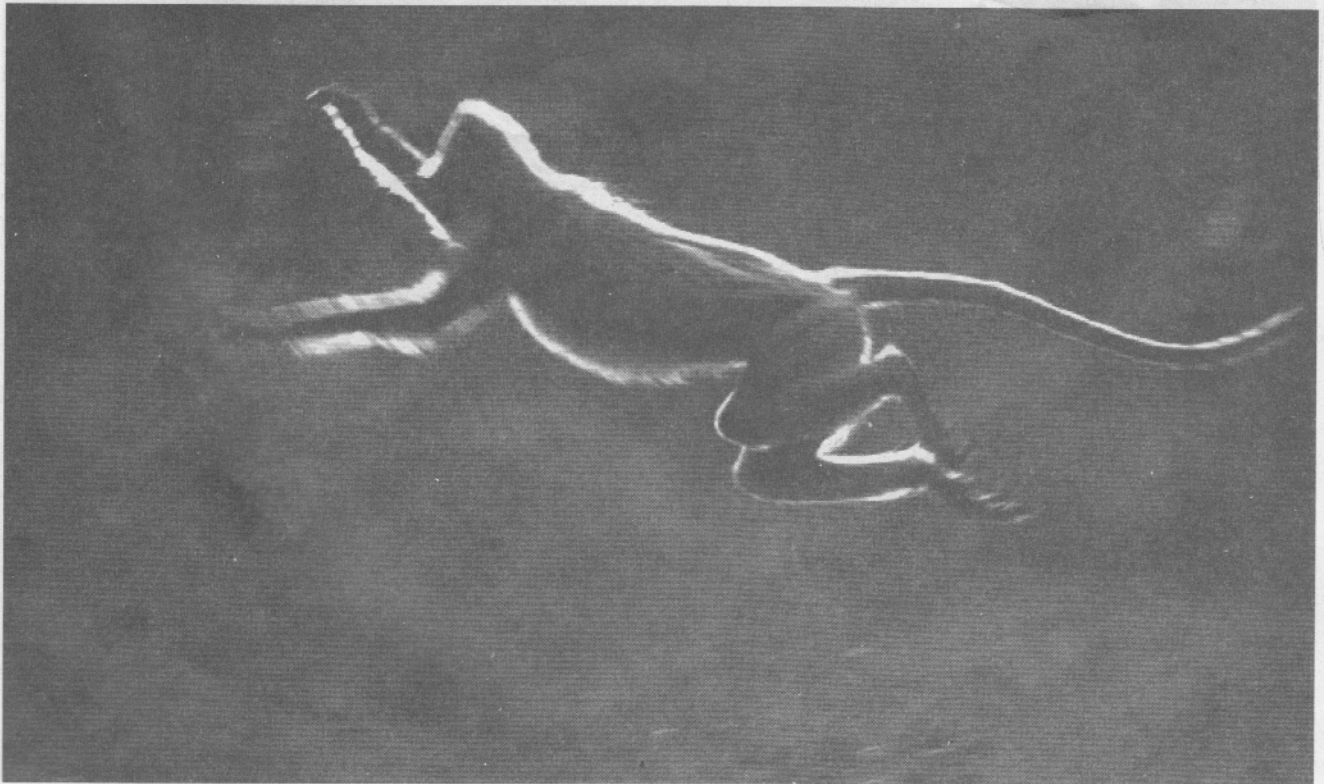
It may again be stressed that some animals that like bush cover, during the day at least, such as pig (*Sus scrofa*) and sambar (*Cervus unicolor*), are more likely to be seen during a traverse of the forest on elephant back

than during van rides.

The two monkeys of the area are the bonnet macaque ('kapi', 'kothi', 'manga', *Macaca radiata*) and the common langur ('musiya', 'muchha', *Presbytis entellus*). The bonnet monkey is the familiar "red monkey" of south India, common around shrines and jungle-side towns. Actually, its coat is a warm grey, but its face is light red, and it has prominent cheek pouches like all the macaques. It is commoner elsewhere in Karnataka than at Bandipura, and here it is rather small-sized, and seldom found in the deeper forests. A few small troops may be seen around Thaavarékatté, Kolakumallikatté, and near the Kakkanhalla gate. Bonnet monkeys are often found near water, and are excellent swimmers. They are omnivorous.

Langur are commoner, and may be seen in fair numbers. They are folivorous, and the flowering of some trees (such as species of *Bauhinia*, *Radermachera xylocarpa*, and *Butea monosperma*) attracts them, as also the fruiting and coming into new leaf of many trees and bushes. Males are commonly heard in the morn-

Common Langur (*Presbytis entellus*)



Dr. Shivanandappa T.

ing giving a deep, resonant series of whoops, reminiscent of the sonorous hoots of the coucal (or crow pheasant). When these keen-sighted and highly arboreal monkeys sight a leopard or a tiger, or some other predator they fear, they burst into a frenzied, guttural, compulsive swearing from the treetops, their well-known alarm call, said to be a sure indication of the near presence of a predator, and kept up so long as the enemy is in sight. It is true that the langur alarm-call is often an indication of the presence of a predator, but it is by no means an infallible indication; langur utter similar calls even in the course of intraspecific threat-display between adult males, or when something excites them. Langur do not take to water, unless forced to. Newborn langur have dark coats and pink faces, but with maturation, this contrasting coloration between skin and coat is lost as they acquire grey coats and black faces.

The tiger ('huli') is an essentially nocturnal predator. It expertly detects the presence of other creatures the faintest sounds made by them. Even when active

by day, they keep to thick cover, making tiger sightings rare and exciting.

The leopard ('chirathe', 'ibba' or 'kiruba') is also crepuscular and nocturnal, but is often out by day as well, and may be seen in Bandipura on occasion – or it may be there, in sight and still unseen, for its beautifully patterned coat, so attractive when the animal is viewed from close quarters in a zoo, is most effectively cryptic in bush or grass cover. It is exceedingly difficult to spot a leopard crouching low and keeping still in the forest; the twigs and leaves partly obscuring it break up its outline, and the rosettes blend with the dappled light and shade of the forest floor. Even when it is moving fast over open ground, the leopard is not seen as a vividly spotted animal, but as a grey blur, and when more than 50 metres away, the spots on the coat coalesce with the ground colour to a warm, vibrant grey.

Few animals vary so much in size as the leopard: there are massive leopards almost 100 kg. in weight and

Leopard (*Panthera pardus*)



small, light animals only 30 kg. in weight, though fully adult. Leopards here are medium-sized or small. There are no records of black leopards in the area, but the coat colour may vary from a pale, greyish fawn to a rich golden brown or even burnt sienna. Leopards expertly climb trees, and prey on a range of animals, many of them are usually medium-sized or small, such as monkeys, hare, monitor, peafowl, other ground birds, and pond terrapins. At times they may even take sizeable prey, like adult chital, sambar, or pig.

Among the lesser felines of the area is the jungle cat (*Felis chaus*, 'kadu-bekku'), a tallish wild cat standing almost as high as a jackal, a warm grey with pointed ears, a short tail ringed at the tip, and much patience in hunting prey coupled with the ability to move very fast.

The small Indian civet (*Viverricula indica*, 'punginabekku') and the toddy-cat or common palm civet (*Paradoxurus hermaphroditus*, kabbekku) are the animals of the civet tribe here. Both are smallish, long and low-to-ground animals with long tails, only a little larger than a big mongoose, and nocturnal, so that they are unlikely to be seen commonly.

The small Indian civet, beautifully marked with black streaks and spots in transverse rows and with its tail heavily ringed with black, is a smooth-coated handsome little animal, and was much caged formerly for the sake of the secretion of the gland at its rear end from which the scent 'civet' was extracted. Even otherwise, this civet has long associations with Karnataka and narrowly missed being its chief domesticated animal. About a century ago, this civet which tames easily, is tidy in its ways and wholly silent, was much kept as a household pet in preference to the cat, being considered a superior ratter: a tamed civet given the run of the house will not run away, and makes a very useful and undemanding pet.

Bandipura, particularly the open glades around the tourist complex is one of the few places where the common mongoose (*Herpestes edwardsi*, 'keeri') is really common. The much larger and more powerful striped-necked mongoose (*Herpestes vitticollis*, 'kempukeeri') is also found here – the distinctive stripe

along the neck that is its hallmark is often not clear when the animal is some distance away, but a big, dark, thickset mongoose with dark red hair on its back can be no other animal.

The striped hyena (*Hyaena hyaena*), the only hyena of India ('kaththekiruba') likes to spend the day in a cave or other shelter, and is seldom seen. It is not common here.

Among the members of the dog family, the jackal, strangely, is rare in Bandipura. The dhole or wild dog (*Cuon alpinus*, 'kennai') is more common here, and easily sighted especially in September-October. Dhole are only slightly larger than jackals – a big specimen may weigh 18 kg. Hunting prey several times their size in a pack (a small animal cannot feed the entire pack), such as pig, chital and sambar, they depend on pack strength and strategy. They tire down the quarry by a long chase, or drive it towards a detachment of the pack lying in wait, and then kill it, not instantly, but by each dhole tearing mouthfuls off it – such piecemeal killing may seem revolting to us, but they cannot hunt large prey any other way, and moreover even the mighty tiger often takes as long as dhole do to kill the same prey. At times, especially when the pack breaks up to breed, dhole may hunt smaller animals, like hares and even lizards. They are on the move at night as well, but their hunting is done mainly by day.

Dhole, along with other large carnivores, help maintain a balance between predators and prey in the reserve. Though the dhole does not belong to the same genus as the domestic dog (as wolves and jackals do) it looks very like a prick-eared red-coated village dog with a bushy black tail and a compact, well-balanced build, and the name "red dog" by which it is known in many Indian languages is quite appropriate.

The sloth bear (*Melursus ursinus*, 'karadi') has declined to rarity in many of its former homes. Soon after the first rains late in summer, when the new grass is lush and tender, sloth bears are frequently out even by broad daylight; but there are only a few of them here and the forests are so extensive, and in consequence one's chances of seeing a sloth bear are mainly depen-

dent on luck. For all its awkward looks and shambling gait, the sloth bear is adept at climbing trees. Among the things it feeds on are honey (which it sucks by climbing up to hives and demolishing them), mahua flowers, a great variety of forest fruits, tender grass and shoots, and grubs and termites which it digs up with its strong, white claws. The footprints of this bear look remarkably human.

The Indian giant squirrel (*Ratufa indica*, 'kend alilu') is one of the largest and handsomest of all squirrels, almost a metre long (more than half that length is its bushy tail) and robustly built, black on the tail and with the black of the body relieved by brilliant chestnut, with the face creamcoloured and cream facings to the limbs. It is arboreal and diurnal, but in spite of its size and vivid colouration, is oftener heard than seen; its loud, rattling, somewhat metallic call is unmistakable and can be heard from a distance, whereas the animal itself, hidden by the foliage high up, may not be readily seen. It builds a globular nest of small leafy twigs in the top branches of trees, conspicuous football-sized nests inside which it sleeps at night.

The other diurnal squirrel of the area is the familiar threestriped palm squirrel (*Funambulus palmarum*, 'alilu'). The fascinating large brown flying squirrel (*Petaurista petaurista*, 'haaruvabekku') is even bigger than the giant squirrel, and lives in hollows in the boles of tall trees; inside these retreats it sleeps all day and is out at night. It does not fly, but can cover 60 metres in a glide, airborne on the flaps of skin on either side which expand to a parachute, from treetop to tree trunk. It is a dark brown animal and when squatting hunched up on a branch it does look rather like a long-tailed cat, which is why it is given its Kannada name, which means 'flying cat'. Being strictly nocturnal it is unlikely to be seen, except by chance.

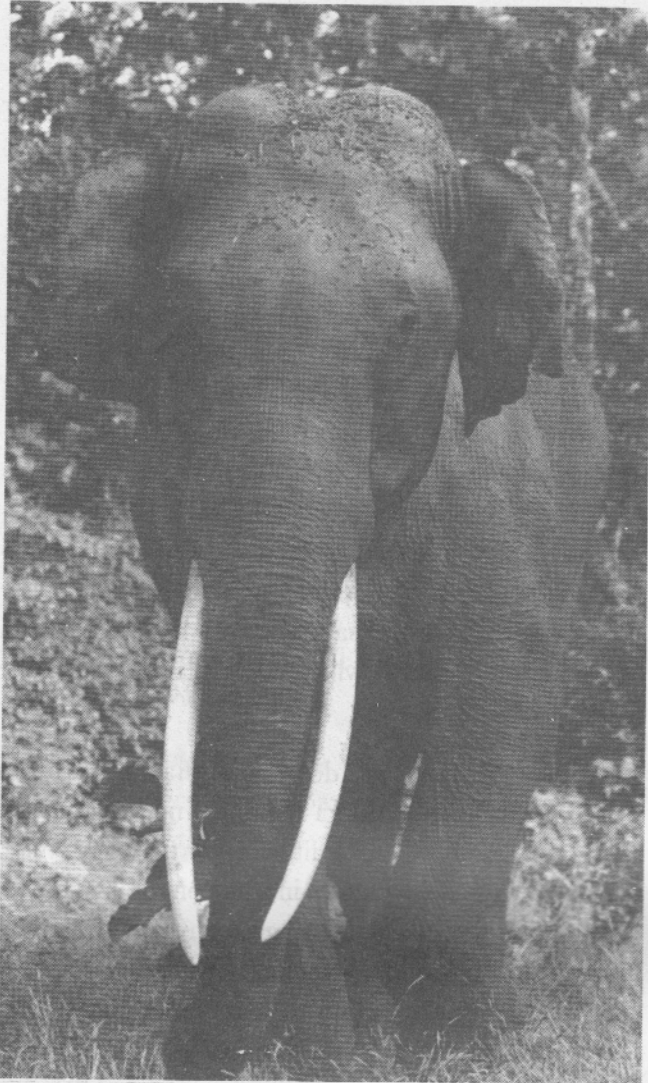
The porcupine (*Hystrix indica*, 'mulluhandi') is also nocturnal. It is not uncommon, as its dropped quills on the forest floor show, but it is seldom out before it is dark and hence, rarely seen. In spite of its armour of miniature lances which can be quite dangerous to them, all predators (the tiger, the leopard, and

even dhole) are inordinately fond of the flesh of the plump porcupine, and hunt it when they can. The tiger and the leopard, being themselves nocturnal, do come across this spiky rodent, and kill it if they can. The quills of porcupines in the faeces of all three predators named show that this does happen. However, the porcupine, which charges in reverse gear, can and does at times inflict grievous injuries on its killers, extracting post-mortem revenge. Porcupines do not shoot quills at their enemies, as they are popularly supposed to do.

The blacknaped hare (*Lepus nigricollis*, 'mola') is another creature that does not come out of cover till it is dark, but is common all around the tourist complex and may be seen early in the morning or at dusk. There are no rabbits in India, but only the much larger hare. Hares undoubtedly figure in the diet of all predators, but they are not easily caught, being capable of surprising jumps and a fine turn of speed.

Elephants ('aane') are perhaps the main mammalian feature of Bandipura, and almost throughout the year they can be seen here, in small or large herds, the lone bulls by themselves. Bandipura offers exceptional scope for observing, intimately, elephants of all ages and size. Some tuskers of quite exceptional size come in occasionally (although most bulls with notably large tusks have fallen prey to ivory poachers), but *makhnas* (tuskless males) are uncommon. Calves of all ages, from newborn infants to half-grown calves, can be seen with the herds. Pages could be written about these great beasts and their ways, but instead a request and a warning is addressed to the reader.

Elephants may be encountered in the course of van rides both on the road and close by it, and also at tanks and pools close to which the roads run. There is no need to get closer than about 100 metres (the usual 'panic-distance' of the beast) to get a clear view of them – elephants, after all, are the largest land animals. Visitors are requested not to press for a closer view. The practice prevalent of successive van-loads of visitors going to the same tank or road to view the same herd, naturally excites the animals, and may provoke aggression in them. Cows with calves and lone bulls are prone



Elephant (*Elephas maximus*)

to turn aggressive in such circumstances, out of apprehensiveness, and there is nothing gained by provoking such conduct needlessly when, with a little consideration for the animals, it can be avoided.

Gaur (wrongly called the Indian bison, 'kaati') were among the most familiar and impressive animals of the area. The relatively open forests and flatter terrain, and the rich pastures of herbs and short shrubs, and ample water resources, drew them to Bandipura soon after the rains from the surrounding Wynaad forests. At this time, the tall grass and shrubs choke up those forests, and hordes of bloodsucking flies and other ectoparasites in them harass the herbivores, and the gaur trek to the more open forests of the northern parts of the Mudumalai forests, and come into Bandipura. During

summer too, they were to be seen in numbers here, though the great composite herds were typical to September-October. All that was changed by an epidemic outbreak of rinderpest in 1968, which killed hundreds of gaur. However, they have now reestablished in Bandipura, and are easily seen.

Gaur are the largest and perhaps the most peaceful of the world's wild oxen. The adult bulls, jet black or a very dark brown, stand over 6-feet high to the top of the great dorsal ridge, and are massive but still neat-footed and active; the cows are somewhat shorter and brown, and the calves a light, golden brown or fawn; even in calves, the whitish 'stockings' are clear. Few sights that the forests of India have to offer are more evocative and deeply satisfying than a herd of gaur placidly grazing in an open forest.

The only antelope of the Tiger Reserve is the unique Indian chowsingha or fourhorned antelope (*Tetracerus quadricornis*, 'bettaadu', 'poki'), the buck of which is the only wild animal on earth with four horns, having a pair of knob-horns in front of the normal spike horns; the doe is without horns. Highly interesting though it is, it is nowhere found in numbers, being solitary or seen in a pair.

The deer family is well represented here, with the sambar, the chital, the barking deer or muntjac. The sambar ('kadave') too were affected by the 1968 epidemic, but to a relatively lesser extent than the gaur, and may be seen fairly commonly, especially at and around the tanks and pools. They usually come out to the water's edge at Tavarekatte towards sunset, and may be found at midday in other tanks and pools: they enter the water freely and feed on water-plants.

Chital ('jinke', 'saaraga') are found all over India (except in a few areas, as in parts of Kerala and Assam) and are among the commonest wild animals of the country. Some very fine stags and large herds of chital can be seen in the course of drives long the roads, but to get a true idea of their numbers and beauty, one should go to see them on elephant back, when usually a very close approach can be made without alarming them, if it is made gradually and at a tangent; intimate observations



Spotted deer (*Axis axis*)

of the behaviour of these highly gregarious deer can be made then. At nightfall the deer come right into the tourist complex in hundreds, and stay there till day-break, so that even if visitors do not go seeking the deer, they come in to see the men under cover of darkness!

It is well known that stags in velvet are not in breeding condition, and chital in every stage of velvet and in hard horn, as well as stags with polled heads looking like big, heavy hinds immediately after shedding their antlers, can be seen throughout the year, as also very young fawns and older fawns, establishing the fact that there is no defined breeding season in this deer. A herd is a loose association in chital and has no fixed composition.

The barking deer or muntjac (*Muntiacus muntjak*, 'kaadu kuri') is a small, solitary, reddish brown deer of many aliases, altogether peculiar in its anatomy and habits. The horns in the male are unlike the ant-

lers of other deer, being short, inwardly-hooked prongs set on short, hair-covered pedicels, and there is a ridge running down from the top of the head on either side of the face, which is why it is sometimes called the "rib-faced deer". It has an incredibly long tongue, which it wraps at times around a twig overhead to strip the leaves off it, and the male has well-developed tushes. Being small and lurking in cover, it is not often seen, and is merely glimpsed when seen as it bolts, jumping over obstacles in a mad rush, with the inside of the raised tail flashing white. But it is quite vocal, and has a surprisingly loud voice for such a small animal, and its alarm call, freely sounded when the presence of a predator is sensed or suspected, is one of the well-known warnings of the forests, an abrupt, long-drawn, loud, hoarse call, somewhat like the bark of a very large dog with a very bad sore-throat — which is why it is also called the barking deer!

The tiny mouse deer or Indian chevrotain (*Tragulus meminna*, 'kooora handi') is not a true deer. Without antlers and only a little bigger than a big hare, with a pretty harness pattern in white on its olive-brown coat, it is essentially a skulking creature of the forest, feeding on fruits and vegetation. It lurks in cover by day, and is silent, so that it is seldom seen, but its get-away through the litter on the ground is surprisingly loud — a flurry and crackle and swish of dry leaves and debris and something streaking away on the ground, and the mouse deer is gone before it can be viewed!

Pigs are common, but they too do not usually come out of cover during the day, and unlike most animals do not stop to watch when people come upon them suddenly. They do not grow as big here, or in such large sounders, as they do in some other forests in Karnataka. Infant pigs are spotted and streaked with pale cream on their flanks, unlike the adults.

Bird Life

With habitats ranging from dry scrub to moist deciduous forests, Bandipura boasts of a staggering variety of bird life. While ground birds like quails, partridges and stone curlews occur in the open scrub forests towards the east, typical woodland species dominate the

interior of the sanctuary. The Park also hosts some species such as the Malabar trogon, Malabar grey hornbill and whitebellied minivet, which are exclusively found in the Western Ghats and nowhere else. With the arrival of the first showers, the forest pulsates with the activity of breeding birds: flycatchers burst into long trilling songs; sunbirds and flowerpeckers hurry about carrying spider silk to line their nests; mynas and parakeets squabble noisily for access to hole nesting sites; drongos fiercely defend the vicinity of their nests from raptorial birds; piedcrested cuckoos closely monitor whiteheaded babblers, whose nests they will soon parasitise... Following the breeding, there is a comparative lull in bird activity through the summer and monsoon. With close of the monsoons in end-September, migrant birds such as wagtails, warblers, and flycatchers begin to arrive in Bandipura, adding colour and gaiety to the forest.

We present in Appendix 1 a detailed listing of over 230 bird species recorded in Bandipura, together with the habitat where they occur, and their status within the Park.

Reptiles and invertebrates

Pond terrapins are common at all the pools, and may be seen sunning themselves on the bank or on a log in the water. The least little movement or sound, and they disappear as if by magic, right into the water.

The python (*Python molurus*, 'hebbavu'), as may be expected in a forest where there are so many tanks and pools, is found here, as also the other snakes usually favouring such terrain, such as rat snakes, cobras, vipers, water-snakes and tree-snakes.

The marsh crocodile (*Crocodylus palustris*, 'mosale') is found in the backwaters of the Kabini Reservoir. The common Indian monitor (*Varanus bengalensis*, 'uda') is the largest of the lizard tribe here, and there are other lizards, such as garden lizards (*Calotes* sp., 'othiketha') and skinks (*Mabuya* spp., 'haavurani'). But the most noteworthy among them is the fascinating flying-lizard, *Draco dussumieri* ('haruva-godda'), occasionally seen and much oftener missed in the tree for-

ests, a small lizard a little larger than the familiar gecko on the wall and much thinner, with its skin mottled in browns and greys so concealingly that it is almost impossible to make it out when it is resting on a tree and keeping still – so perfectly does the colour of its skin blend with the bark. It repeatedly flashes its yellowish throat (gular) pouch, which is often the only giveaway to its presence on a bark. It has a fold of membrane on either side, attached to its free ribs, and can expand these membranes into a most efficient parachute, on which it goes sailing from tree to tree. It lives mainly on ants.

As in other deciduous forests in this region, the arachnids are well represented with scorpions, harvestmen, and a variety of spiders, including a large spider whose webs span across forest paths. The insect life, especially soon after the rains, is bewilderingly rich. The campus is overrun with beetles of many kinds and a horde of other insects, and the termites swarm in millions, issuing like a thin drift of white cloud from the ground. Their mounds, the 'ant-hills', are quite common in the area and may stand taller than a man. Bandipura after the rains is an entomologist's paradise, and snakes, lizards, birds and even some beasts feed on this sudden plenty.





Project Tiger is Twenty-five

Project Tiger was conceived in the early 1970s, out of concern for the tiger's dwindling wilderness habitat in India. Realising the importance of protecting the tiger—the apex predator in all ecosystems where it is present—a special Task Force of the Indian Board for Wildlife formulated Project Tiger. It took final shape in 1973, with the establishment of nine Tiger Reserves in its first year. The main objective of Project Tiger was:

“To ensure maintenance of a viable population of tiger in India, and to preserve, for all time, areas of biological importance as a national heritage for the benefit, education and enjoyment of the people.”

The then Prime Minister of India, Mrs. Indira Gandhi, a strong supporter of the Project, and of conservation in general, observed, “The tiger cannot be preserved in isolation. It is at the apex of a large and complex biotope. Its habitat, threatened by human intrusion, commercial forestry and cattle grazing, must first be made inviolate.”

It is believed that fewer than 2000 tigers remained in India in 1972. Earlier, indiscriminate hunting of both tigers and their prey, and the conversion of forests to cropland, especially in the post-Independence period

were important factors driving the decline of this magnificent predator. Twenty-five years of Project Tiger have seen the establishment of 25 Tiger Reserves, and an encouraging increase in tiger numbers.

Most tiger reserves established in 1973-74 were not completely free of human habitation. This was an important consideration in the management of these reserves. Gave rise to the concept of a division of the reserve into a totally inviolate ‘core’ area, and a ‘buffer’ area in which conservation-compatible land-use was to be permitted. Management plans were prepared, based on the following principles:

- Elimination of all forms of human exploitation and disturbance from the core, and restriction of such activities in the buffer.
- Limitation of habitat management to repairing damage done by man, and aiming to restore the ecosystem as close to its natural functioning as possible.
- Research pertaining to wildlife and their habitat, and carefully monitoring changes in flora and fauna.

In many areas, viable alternatives were offered

to villagers who were to be relocated. Livestock grazing and forestry operations were stopped in core areas. Poaching was also curbed to a great extent. As a result, there were more inviolate areas, and the reserves could enlarge their core and buffer areas.

Fire protection and habitat improvement efforts resulted in rapid rejuvenation of habitat conditions in the reserves. Greater availability of water and food allowed the growth of herbivore populations. Subsequently, tigers and other predators also prospered, and their populations in the reserves increased.



In 1961, Jim Corbett estimated that only 2000 tigers existed in India

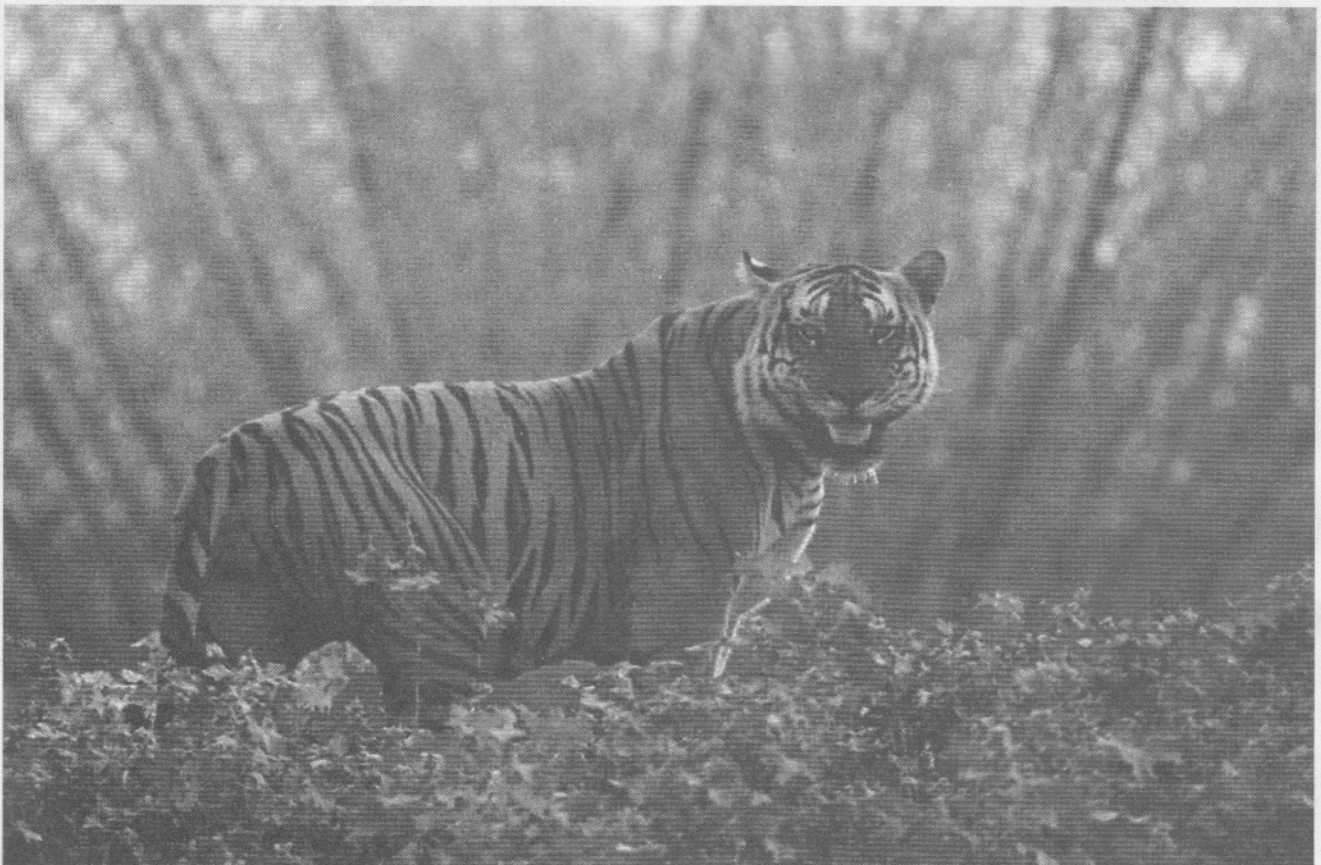
In 1966, Dillon Ripley predicted that the tiger would become extinct in this country, in the wild state, in less than 50 years - Dillon Ripley, 1966

Tiger! Tiger!

In the land where the tiger roams, he is not a mere animal, but a symbol of the fearful, the powerful, the majestic, the magical and the unknown. The concomitant values of power and fear led to the tiger being worshipped. Added to these was the belief in the tiger as an agent of fertility.

Undoubtedly, the magico-religious association with the tiger protected it from becoming a prime trophy in royal hunts, at least in the earlier periods of Indian history. Actually, it was only during the last two hundred years that big game hunting and shikar took on menacing proportions.

The indiscriminate cutting down of forests has acted as an ecological trap, accelerating the extinction of the beast whose natural habitat is fast disappearing. The magic and potency have gone out of the tiger skin, for it now hangs on drawing room walls, covers the floors of hallways, or even graces the shoulders of a fashion model, a vacuous trophy of distorted values.



K.M.B.Prasad

The tiger once lived in an area covering a large part of Asia—from Turkey to Russian Manchuria. It probably migrated from Siberia to Java and entered India from Burma. The Bengal tiger, *Panthera tigris tigris*, found almost throughout the Indian subcontinent at the beginning of this century, is now found in isolated forest pockets in India, Nepal, Bhutan, Bangladesh and western Burma. It became extinct in Pakistan in 1886, when the last animal was shot there. The other four subspecies exist and are named after their ranges; they are the Siberian (*P.t. altaica*), Manchurian (*P.t. amoyensis*), Sumatran (*P.t. sumatrae*) and Indo-Chinese (*P.t. corbetti*) tigers. Three other subspecies—the Caspian (*P.t. virgata*), Javan (*P. t. sondaicus*) and Balinese (*P. t. balica*)—have gone extinct. The Siberian tiger is the largest among the subspecies, measuring sometimes upto 4 metres in length, with a massive body and thick fur. As one moves down to increasingly warmer climates, the tiger becomes smaller in size, darker and shorter haired.

The tiger has a wide geographical distribution with climates and habitats ranging from extreme cold and temperate forests, to sweltering heat, thick forests

and heavy undergrowth. All major forest types of India—thorn, dry and moist deciduous, semi-evergreen and evergreen—are home to the tiger. It is found in the swamps of the Sundarbans in West Bengal and Bangladesh, where it swims from island to island. It is equally at home among the tall grasses of Assam. In the Western Ghats, the tiger is found up to 2500m, while in the Himalaya they rarely ascend to areas above 1200m (tracks have, however, been recorded in the snow at 3050m).

Except for the plains of Gujarat, Punjab and Kashmir, the tiger is found in forests all over India, though its range has, over the times, shrunk because of destruction of its habitat by human pressure on land.

An adult Indian tiger measures between 2.6 m and 3.2 m in length inclusive of a metre-long tail, and stands 1 m at the shoulder, while a tigress measures between 2.1 m and 2.7 m in length. An average male weighs around 180 kg

The danger to the tiger's survival as a species in the wild came, in no small measure, from trade in its skin and bones. The tiger's skin, because of its exquisite colour and stripes, has been an object of temptation for a long time. It has always remained a valuable item in the shop that caters to the morbid human inclination to be clothed in what nature clothes a wild animal in. Bones are used in Chinese medicine.

The tiger stands no chance against fast motorised vehicles, modern rifles, and spotlights which are extensively used in tiger hunts. The poachers, with their primitive tools ran a higher risk, but with easy availability of lethal insecticides, their bag bulged with tiger skins that bore no holes, no bullet marks. The hunters and the poachers made no distinction between sexes, or as to the age of the animals, and the slaughter was total.

The steady decline in tiger population in India has been the cause of concern with some individuals since the second half of the last century. But, effective measures resulting in protection for this great cat are more recent. The export of tiger skins was effectively banned in 1968, while a total ban on tiger killing was imposed in 1970. The launch of Project Tiger in 1973 opened a chapter in the positive measures for the protection of the tiger. The Bandipur Tiger Reserve in Karnataka is justifiably proud that their implementation of Project Tiger is acclaimed as one of the best in the country.

and a female around 140 kg, although there are old records of tigers weighing as much as 340 kg. In spite of its heavy build, the tiger is endowed with astonishing suppleness of movement. It takes to water readily and swims with ease. Though not given to climbing, it will climb trees should the need arise.

The gorgeous orange-red to tawny yellow of the tiger's sleek coat is broken with a series of transverse black stripes of varying length and width, the undersides being white. The stripe pattern varies considerably among tigers. The tiger's colour and the stripe patterns afford a beautiful and effective camouflage in the forests. Its body is adapted for stalking and ambushing its prey rather than running it down.

Today many zoos in India and abroad boast of white tigers. All these white captive tigers have a common ancestor by the name of Mohan, who was captured as a cub in 1951 when his mother was killed in the forest of Bagri in Rewa, Madhya Pradesh. Although there have been records of white tigers in the wild which were albinos, Mohan and his lineage were not true albinos. In fact, these white tigers are recessive mutants. Apart from the colour and, in many cases, larger size, the white tigers are no different from the normal tigers in their habits.

Tigers are usually solitary in habit, except at the time of courtship and in case of a tigress with cubs. Tigers use large areas—called their home ranges—wherein they find prey, mates and security for cubs. When several males are found in a limited area, some are transients and others probably share the range after establishing a rank order. At other times more than one male may be found in the same place because they are following a female in oestrous (a period when the female is sexually receptive). A tigress may tolerate another tigress sharing her range. If a tiger dies, another may soon occupy its home range. There are some wanderers which seem to lack definite territory. Some of these may be young adults leaving their mother in search of their own territory, while some may simply be unable to find a place for themselves because of limited habitat. Thus land tenure patterns vary from exclusive

range, through sharing, to no definite range. Often the home ranges of a male and a female overlap, and sometimes such an overlap may harbour one male and more than one female. An individual tiger's home range has been variously estimated, from as large as 2400 km² to a mere 15 km². A number of factors such as the sex and age of the animal, its reproductive state, distribution and availability of prey, and the extent of human encroachment may influence home range size.

The tiger marks its presence by spraying urine containing certain odoriferous secretions on trees, clumps of grass, leaves, or rocks, to serve the dual purpose of marking its territory as well as warning intruders. A tigress in oestrous is easily identified by males, when they come across a scent mark left by her.

The tiger's food consists of a variety of animals. Depending on the availability of these animals in the forests where tigers occur, they hunt sambar, chital, wild pig, gaur, nilgai, wild buffalo, and on occasion, porcupines and peafowl. Domestic cattle and goats also fall prey to the tiger when its beat and the grazing ground overlap. Although the tiger sometimes does kill gaur and wild buffalo bulls, which weigh two to three times as much as the tiger, it prefers to attack the young of these two species.

As far as possible, the tiger attacks its prey from behind in order to avoid coming in contact with, and thereby in the scuffle, being injured by the horns of the animal. Also the split second in which the prey will see the tiger if the latter attacks from in front would be enough for most fleet-footed animals to turn and take flight. After killing an animal by the typical neck bite, the tiger drags it to a place where it can eat it without being disturbed. When the kill is too heavy for it to move, it will eat it on the spot.

The tiger is mainly—though not exclusively—a nocturnal hunter. Its method of killing its prey is neat and efficient, and it never kills when not hungry. The tiger is an infinitely more scrupulous hunter than man who kills for reasons not sufficient for taking a life.

Although it is difficult to estimate how much a

tiger can eat in one sitting, it possibly ranges between 20 and 40 kilograms. The tiger often conceals the remains by scattering litter over it. Sometimes, the tiger just sits nearby or dozes off, while guarding the kill. It is in its absence that jackals, hyenas, vultures and other birds would eat the kill. A large animal can last a tiger three to five days. An average tiger needs about 5 to 7 kilogram of meat per day, which works out to about 1800 to 2500 kg per year. Thus, a tiger would need a living weight of prey between 2700 and 3600 kg annually. These estimates of average needs can help in determining the right balance of the number of tigers and prey animals in a given area.

Being a loner, the tiger would eat its kill all by itself. However, during courtship, the pair would share an animal that either has killed. A tigress with cubs will also share an animal which she has killed herself or with the assistance of her grown-up cubs. Almost always, the cubs have priority over their mother, and among the cubs, the stronger and more aggressive will be first to start eating and at the best portion of the kill.

Although the tiger reigns supreme in its jungle, occasionally a determined pack of wild dogs may drive a tiger away from its kill, but usually at a very heavy loss of its members. However, generally speaking, a tiger finishes its meal undisturbed by other animals, except of course man. Many a tiger returning to its kill has been shot, or has died because the remains have been laced with poison by a poacher or an angry cattle grazer whose animal the tiger might have killed.

Tigers attain sexual maturity between the age of three and four, and are reproductively active till they die, their maximum life span being twenty years. After a gestation period of 95 to 105 days, the tigress finds a secluded spot, like a depression in a thicket or a cave, where intrusion from other animals is minimal, and gives birth to her cubs. Although a record litter of 7 cubs has been reported, on an average a tigress gives birth to 3 or 4 cubs. The cubs are born blind and are totally helpless, depending upon their mother for quite some time. After feeding exclusively on milk for a couple of weeks, the cubs get regurgitated meat from their

mother in addition to milk till they begin to be weaned by three months. They get their food in the place of their birth, and move about in a very restricted area. They are taken out by the mother and allowed to assist in hunting after they are about eight months old. Initially, they are very inefficient hunters, but with experience gained in hunts, in which the mother plays a major role, they become expert hunters by the age of about two years. A tigress supports her cubs for about two years.

Tigers are much maligned and overly feared because of some cases of man-eating. In some cases, the man who is killed by a tiger has met with that fate because he flouted one or more of the rules of the jungle, while in many other cases, man is the creator of the circumstances which might force tigers to man-eating: wholesale destruction of the tiger's habitat, decimation of its prey species, intrusion and encroachment on the tiger's preserve, and so on.

Jim Corbett, who made tigers and especially man-eaters famous by his classic 'Man-eaters of Kumaon', found in every case of a man-eating tiger that he killed, that the tiger was either suffering from some injuries due to gun-shots or porcupine quills, or was an old animal with broken, worn-out or otherwise ineffective canines. In some cases, habitual man-eating would be preceded by accidental man-killing when the tiger is deprived of its natural food because of injuries or shortage of prey animals. The expressions "as cruel as a tiger" and "as bloodthirsty as a tiger" are extremely unjustified.



Appendix 1

A Checklist of the birds of Bandipura National Park¹

SL. NO.	INDEX	COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS
PODICIPEDIDAE			Grebes		
1.	5	Little Grebe	<i>Podiceps ruficollis</i>	Pond	R
PHALACROCORACIDAE			Cormorants, Darter		
2.	26	Cormorant	<i>Phalacrocorax carbo</i>	Pond	Vg
3.	27	Indian Shag	<i>Phalacrocorax fuscicollis</i>	Pond	R
4.	28	Little Cormorant	<i>Phalacrocorax niger</i>	Pond	R
5.	29	Darter	<i>Anhinga rufa</i>	Pond	R
ARDEIDAE			Hérons, Egrets, Bitterns		
6.	37a	Purple Heron	<i>Ardea purpurea</i>	WL	Vg
7.	42	Pond Heron	<i>Ardeola grayii</i>	WL	R
8.	44	Cattle Egret	<i>Bubulcus ibis</i>	WL	LM
9.	46	Large Egret	<i>Ardea alba</i>	WL	LM
10.	49	Little Egret	<i>Egretta garzetta</i>	WL	LM
11.	58	Black Bittern	<i>Ixobrychus flavicollis</i>	WL	Vg
CICONIIDAE			Storks		
12.	60	Painted Stork	<i>Mytheria leucocephala</i>	V, WL	Vg
13.	62	Whitenecked Stork	<i>Ciconia episcopus</i>	WL	LM
THRESKIORNITHIDAE			Ibises		
14.	70	Black Ibis	<i>Pseudibis papillosa</i>	V, WL	Vg
ANATIDAE			Ducks, Geese		
15.	82	Barheaded Goose	<i>Anser indicus</i>	Pond	WV
16.	88	Lesser Whistling Teal	<i>Dendrocygna javanica</i>	WL/Pond	R
17.	93	Pintail	<i>Anas acuta</i>	Pond	WV
18.	97	Spotbilled Duck	<i>Anas poecilorhyncha</i>	Pond	R
19.	109	White-Eyed Pochard	<i>Aythya nyroca</i>	Pond	WV
20.	114	Cotton Teal	<i>Nettapus coromandelianus</i>	Pond	LM
ACCIPITRIDAE			Hawks, Vultures		
21.	124	Blackwinged Kite	<i>Elanus caeruleus</i>	GL, SJ, DD	R
22.	130	Honey Buzzard	<i>Pernis ptilorhynchus</i>	DD, MD	R
23.	133	Pariah Kite	<i>Milvus migrans govinda</i>	SJ, DD	R
24.	135	Brahminy Kite	<i>Haliastur indus</i>	SJ, DD	R
25.	138	Shikra	<i>Accipiter badius</i>	SJ, DD	R
26.	148	Sparrow-Hawk	<i>Accipiter nisus nisosimilis</i>	SJ, DD	WV

¹ This list was compiled over a two-year period we spent in Bandipur on the trail of wild dogs. It mainly includes species found in the tourism zone of the park, where we spent most of our time. This list is by no means comprehensive or final. We believe that many species likely to be found in the moister northwestern parts of the park—particularly the mixed deciduous forests adjacent to the backwaters of Kabini Reservoir—do not figure in our lists. —Krupakar-Senani

27.	157	Whiteeyed Buzzard-Eagle	<i>Butastur teesa</i>	DD	Vg
28.	161	Crested Hawk-Eagle	<i>Spizaetus cirrhatus cirrhatus</i>	DD, MD	R
29.	163	Bonelli's Eagle	<i>Hieraetus fasciatus</i>	DD	R
30.	168	Tawny Eagle	<i>Aquila rapax vindhiana</i>	DD	R
31.	172	Black Eagle	<i>Ictinaetus malayensis</i>	SJ, DD, MD	LM
32.	175	Greyheaded Fishing Eagle	<i>Ichthyophaga ichthyaetus</i>	DD	R
33.	178	King Vulture	<i>Sarcogyps calvus</i>	SJ, DD	R
34.	182	Indian Longbilled Vulture	<i>Gyps indicus</i>	DD	R
35.	185	Indian Whitebacked Vulture	<i>Gyps bengalensis</i>	SJ, DD	R
36.	187	Scavenger Vulture	<i>Neophron percnopterus</i>	SJ, DD	Vg
37.	190	Pale Harrier	<i>Circus macrourus</i>	SJ, DD	WV
38.	193	Marsh Harrier	<i>Circus aeruginosus</i>	DD, WL	WV
39.	195	Shorttoed Eagle	<i>Circaetus gallicus</i>	SJ, SF	R
40.	197	Crested Serpent Eagle	<i>Spilornis cheela</i>	DD, MD	R
41.	203	Osprey	<i>Pandion haliaetus</i>		WV
FALCONIDAE			Falcons		
42.	215	Oriental Hobby	<i>Falco severus</i>	?	Vg
43.	224	Kestrel	<i>Falco tinnunculus</i>	GL, DD	WV/N
PHASIANIDAE			Partridges, fowls		
44.	246	Grey Partridge	<i>Francolinus pondicerianus</i>	SJ, DD	R
45.	255	Jungle Bush Quail	<i>Perdica asiatica</i>	SJ, DD	R
46.	262	Painted Bush Quail	<i>Peridula erythrorhyncha</i>	DD, GL	R
47.	275	Red Spurfowl	<i>Galloperdix spadicea</i>	SJ, DD	R
48.	301	Grey Junglefowl	<i>Gallus sonneratii</i>	SJ, DD, MD	R
49.	311	Common Peafowl	<i>Pavo cristatus</i>	SJ, DD, MD	R
TURNICIDAE			Bustard-quails		
50.	314	Yellowlegged Button Quail	<i>Turnix tanki</i>	SJ, DD	R
51.	318	Common Bustard-Quail	<i>Turnix suscitator</i>	SJ, DD	R
RALLIDAE			Coots, Rails		
52.	344	Whitebreasted Waterhen	<i>Amauormis phoenicurus</i>	WL, Pond	R
53.	350	Coot	<i>Fulica atra</i>	Pond	LM
CHARADRIIDAE			Lapwings, Sandpipers		
54.	366	Redwattled Lapwing	<i>Vanellus indicus</i>	SJ, DD	R
55.	370	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	SJ, DD	R
56.	397	Green Sandpiper	<i>Tringa ochropus</i>	Pond	WV
57.	401	Common Sandpiper	<i>Tringa hypoleucos</i>	Pond	WV
58.	406/9	Snipe	<i>Gallinago sp.</i>	Pond	WV
BURHINIDAE			Plovers		
59.	436	Stone Curlew	<i>Burhinus oedicephalus</i>	SJ, DD	R
LARIDAE			Gulls, Terns		
60.	463	River Tern	<i>Sterna aurantia</i>	WL/ Pond	
COLUMBIDAE			Pigeons, Doves		
61.	504	Yellowlegged Green Pigeon	<i>Treron phoenicoptera</i>	SJ, DD, MD	R

62.	517	Blue Rock Pigeon	<i>Columba livia</i>	DD	R
63.	521	Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>	DD	Vg
64.	534	Indian Ring Dove	<i>Streptopelia decaocto</i>	SJ, DD	R
65.	535	Red Turtle Dove	<i>Streptopelia tranquebarica</i>	SJ, DD	Vg
66.	537	Spotted Dove	<i>Streptopelia chinensis</i>	SJ, DD	R
67.	541	Little Brown Dove	<i>Streptopelia senegalensis</i>	DD	R
68.	542	Emerald Dove	<i>Chalcophaps indica</i>	DD	Vg

PSITTACIDAE

69.	550	Roseringed Parakeet	<i>Psittacula krameri</i>	SJ, DD, MD	R
70.	558	Blossomheaded Parakeet	<i>Psittacula cyanocephala</i>	DD, MD	LM
71.	564	Bluwinged Parakeet	<i>Psittacula columboides</i>	DD, MD	Vg
72.	566	Indian Lorikeet	<i>Loriculus vernalis</i>	SJ, DD	LM

CUCULIDAE

73.	571	Pied Crested Cuckoo	<i>Clamator jacobinus</i>	SJ, DD, MD	R
74.	573	Common Hawk-Cuckoo	<i>Cuculus varius</i>	DD, MD	R
75.	576	Indian Cuckoo	<i>Cuculus micropterus</i>	DD, MD	LM
76.	582	Indian Banded Bay Cuckoo	<i>Cacomantis sonneratii</i>	SJ, DD, MD	LM
77.	584	Indian Plaintive Cuckoo	<i>Cacomantis passerinus</i>	SJ	LM
78.	588	Drongo-Cuckoo	<i>Surniculus lugubris</i>	DD	Vg
79.	590	Koel	<i>Eudynamys scolopacea</i>	SJ	R
80.	595	Small Greenbilled Malkoha	<i>Rhopodytes viridirostris</i>	DD	R
81.	598	Sirkeer Cuckoo	<i>Taccocua leschenaultii</i>	SJ	R
82.	602	Crow-Pheasant	<i>Centropus sinensis</i>	SJ, DD	R

STRIGIDAE

83.	606	Barn Owl	<i>Tyto alba</i>	V	R
84.	623	Collared Scops Owl	<i>Otus bakkamoena</i>	DD	R
85.	627	Great Horned Owl	<i>Bubo bubo</i>	DD, V	R
86.	628	Forest Eagle-Owl	<i>Bubo nipalensis</i>	MD	R
87.	631	Brown Fish Owl	<i>Bubo zeylonensis</i>	DD, MD	R
88.	636	Jungle Owlet	<i>Glaucidium radiatum</i>	DD, MD	R
89.	644	Brown Hawk-Owl	<i>Ninox scutulata</i>	DD, MD	R
90.	652	Spotted Owlet	<i>Athene brama</i>	V, DD	R

CAPRIMULGIDAE

91.	671	Indian Jungle Nightjar	<i>Caprimulgus indicus</i>	SJ, DD	R
92.	675	Longtailed Nightjar	<i>Caprimulgus macrurus</i>	DD, MD	R
93.	680	Common Indian Nightjar	<i>Caprimulgus asiaticus</i>	SJ, DD	R
94.	682	Franklin's Nightjar	<i>Caprimulgus affinis</i>	Sj, DD	R

APODIDAE

95.	691	Large Brownthroated Spinetail Swift	<i>Chaetura gigantea</i>	DD	Vg
96.	703	House Swift	<i>Apus affinis</i>	SJ, DD	LM
97.	707	Palm Swift	<i>Cypsiurus parvus</i>	DD	Vg
98.	709	Crested Tree Swift	<i>Hemiprocne longipennis</i>	DD	R

TROGONIDAE

99.	712	Malabar Trogon	<i>Harpactes fasciatus</i>	MD	R?
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ALCEDINIDAE			Kingfishers	
100.	719	Pied Kingfisher	<i>Ceryle rudis</i>	SJ, DD
101.	724	Small Blue Kingfisher	<i>Alcedo atthis</i>	SJ, DD
102.	730	Storkbilled Kingfisher	<i>Pelargopsis capensis</i>	MD
103.	736	Whitebreasted Kingfisher	<i>Halcyon smyrnensis</i>	SJ, DD
MEROPIIDAE			Bee-eaters	
104.	744	Chestnutheaded Bee-Eater	<i>Merops leschenaulti</i>	MD
105.	748	Bluetailed Bee-Eater	<i>Merops philippinus</i>	SJ
106.	750	Small Green Bee-Eater	<i>Merops orientalis</i>	SJ, DD
107.	753	Bluebearded Bee-Eater	<i>Nyctyornis athertoni</i>	DD
CORACIIDAE			Rollers	
108.	755	Indian Roller	<i>Coracias benghalensis</i>	SJ, DD
UPUPIDAE			Hoopoe	
109.	763	Hoopoe	<i>Upupa epops</i>	SJ, DD, MD
BUCEROTIDAE			Hornbills	
110.	767	Common Grey Hornbill	<i>Tockus birostris</i>	DD
111.	768	Malabar Grey Hornbill	<i>Tockus griseus</i>	MD
CAPITONIDAE			Barbets	
112.	782	Large Green Barbet	<i>Megalaima zeylanica</i>	DD, MD
113.	785	Small Green Barbet	<i>Megalaima viridis</i>	SJ, DD, MD
114.	792	Crimsonbreasted Barbet	<i>Megalaima haemacephala</i>	SJ, DD, MD
PICIDAE			Woodpeckers	
115.	804	Rufous Woodpecker	<i>Micropternus brachyurus</i>	DD, MD
116.	808	Little Scalybellied Green Woodpecker	<i>Picus myrmecophoneus</i>	SJ, DD, MD
117.	816	Small Yellownaped Woodpecker	<i>Picus chlorolophus</i>	
118.	819	Lesser Goldenbacked Woodpecker	<i>chorigaster</i>	DD
119.	825	Indian Goldenbacked Threetoed Woodpecker	<i>Dinopium benghalense</i>	SJ, DD, MD
120.	830	Indian Great Black Woodpecker	<i>Dinopium javanense</i>	DD, MD
121.	847	Yellowfronted Pied Woodpecker	<i>Dryocopus javensis</i>	MD
122.	852	Pygmy Woodpecker	<i>Picooides mahrattensis</i>	SJ, DD, MD
123.	858	Blackbacked Woodpecker	<i>Picooides nanus</i>	SF, DD
124.	861	Larger Goldenbacked Woodpecker	<i>Chrysocolaptes festivus</i>	SJ, DD
			<i>Chrysocolaptes lucidus</i>	DD, MD
PITTIDAE			Pittas	
125.	867	Indian Pitta	<i>Pitta brachyura</i>	SJ, DD, MD
ALAUDIDAE			Larks	
126.	872	Singing Bush Lark	<i>Mirafra javanica</i>	GL, SJ
127.	877	Redwinged Bush Lark	<i>Mirafra erythroptera</i>	SJ, DD
128.	878	Ashycrowned Finchlark	<i>Eremopterix grisea</i>	SJ
129.	883	Rufous Tailed Finchlark	<i>Ammomanes phoenicurus</i>	V, SJ
130.	901	Malabar Crested Lark	<i>Galerida malabarica</i>	V, SJ

131.	902	Sykes's Crested Lark	<i>Galerida deva</i>	SJ	LM?
HIRUNDINIDAE			Swallows		
132.	916	Swallow	<i>Hirundo rustica</i>	GL, SJ, DD	WV
133.	921	Wired-tailed Swallow	<i>Hirundo smithii</i>	GL, SJ, DD	R
134.	927	Red-rumped Swallow	<i>Hirundo daurica</i>	GL, SJ, DD	R
LANIIDAE			Shrikes		
135.	933	Grey Shrike	<i>Lanius excubitor</i>	SJ, DD	R
136.	940	Bay-backed Shrike	<i>Lanius vittatus</i>	SJ, DD	R
137.	946	Rufous-backed Shrike	<i>Lanius schach</i>	SJ	R
138.	949	Brown Shrike	<i>Lanius cristatus</i>	SJ, DD, MD	WV
ORIOOLIDAE			Orioles		
139.	953	Golden Oriole	<i>Oriolus oriolus</i>	SJ, DD, MD	WV
140.	959	Black-headed Oriole	<i>Oriolus xanthornus</i>	DD, MD	R
DICRURIDAE			Drongos		
141.	963	Black Drongo	<i>Dicrurus adsimilis</i>	SJ, DD	R
142.	967	White-bellied Drongo	<i>Dicrurus caeruleus</i>	SJ, DD, MD	R
143.	971	Bronzed Drongo	<i>Dicrurus aeneus</i>	DD, MD	R
144.	977	Greater Racket-tailed Drongo	<i>Dicrurus paradiseus</i>	DD, MD	R
ARTAMIDAE			Swallow-Shrikes		
145.	982	Ashy Swallow-Shrike	<i>Artamus fuscus</i>	SF, DD	R
STURNIDAE			Mynas		
146.	987	Grey-headed Myna	<i>Sturnus malabaricus</i>	SF, DD	R
147.	988	Grey-headed Myna (White-headed ssp)	<i>Sturnus malabaricus blythi</i>	SF, DD	R
148.	994	Brahminy Myna	<i>Sturnus pagodarum</i>	SJ, DD	R
149.	996	Rosy Pastor	<i>Sturnus roseus</i>	SJ	WV
150.	1006	Common Myna	<i>Acridotheres tristis</i>	SJ, DD	R
151.	1010	Jungle Myna	<i>Acridotheres fuscus</i>	SJ, DD	R
CORVIDAE			Crows, Treepies		
152.	1034	Indian Treepie	<i>Dendrocitta vagabunda</i>	SJ, DD, MD	R
153.	1049	House Crow	<i>Corvus splendens</i>	V, SJ, DD	R
154.	1057	Jungle Crow	<i>Corvus macrorhynchos</i>	V, SJ, DD, MD	R
CAMPEPHAGIDAE			Minivets, Cuckoo-Shrikes		
155.	1065	Pied Flycatcher-Shrike	<i>Hemipus picatus</i>	SF, DD, MD	R
156.	1068	Large Wood Shrike	<i>Tephrodornis virgatus</i>	MD	R
157.	1070	Common Wood Shrike	<i>Tephrodornis pondicerianus</i>	SJ, SF, DD	R
158.	1072	Large Cuckoo-Shrike	<i>Coracina novaehollandiae</i>	SJ, DD	LM
159.	1079	Black-headed Cuckoo-Shrike	<i>Coracina melanoptera</i>	SJ, DD	R
160.	1081	Scarlet Minivet	<i>Pericrocotus flammeus</i>	DD, MD	R
161.	1093	Small Minivet	<i>Pericrocotus cinnamomeus</i>	SJ, DD	R
162.	1096	White-bellied Minivet	<i>Pericrocotus erythropygius</i>	SJ, SF	R

IRENIDAE			loras, Leaf Birds		
163.	1100	Common lora	<i>Aegithina tiphia</i>	SJ, DD	R
164.	1104	Goldenfronted Chloropsis	<i>Chloropsis aurifrons</i>	DD, MD	R
165.	1107	Goldmantled Chloropsis	<i>Chloropsis cochinchinensis</i>	SF, DD, MD	R
PYCNONOTIDAE			Bulbuls		
166.	1120	Redwhiskered Bulbul	<i>Pycnonotus jocosus</i>	SJ, DD, MD	R
167.	1128	Redvented Bulbul	<i>Pycnonotus cafer</i>	SJ, DD	R
168.	1138	Whitebrowed Bulbul	<i>Pycnonotus luteolus</i>	SJ, SF	R
169.	1144	Yellowbrowed Bulbul	<i>Hypsipetes indicus</i>	MD	R
170.	1149	Black Bulbul	<i>Hypsipetes madagascariensis</i>	SF, DD	LM
MUSCICAPIDAE (Subfamily TIMALIINAE)			Babblers		
171.	1154	Spotted Babbler	<i>Pellorneum ruficeps</i>	SJ, DD, MD	R
172.	1174	Slatyheaded Scimitar Babbler	<i>Pomatorhinus horsfieldii schisticeps</i>	SJ, DD, MD	R
173.	1222	Rufousbellied Babbler	<i>Dumetia hyperythra</i>	SJ, DD	R
174.	1231	Yelloweyed Babbler	<i>Chrysomma sinense</i>	SJ, V	R
175.	1254	Common Babbler	<i>Turdoides caudatus</i>	SJ	R
176.	1258	Large Grey Babbler	<i>Turdoides malcolmi</i>	SJ	R
177.	1262	Jungle Babbler	<i>Turdoides striatus</i>	DD	R
178.	1267	Whiteheaded Babbler	<i>Turdoides affinis</i>	SJ, SF, DD	R
179.	1390	Quaker Babbler	<i>Alcippe poioicephala</i>	SJ, DD, MD	R
MUSCICAPIDAE (Subfamily MUSCICAPINAE)			Flycatchers		
180.	1407	Brown Flycatcher	<i>Muscicapa latirostris</i>	SJ, DD	SV/Br
181.	1411	Redbreasted Flycatcher	<i>Muscicapa parva</i>	SJ, DD	WV
182.	1442	Tickell's Blue Flycatcher	<i>Muscicapa tickelliae</i>	DD, MD	R
183.	1445	Verditer Flycatcher	<i>Muscicapa thalassina</i>	MD	WV
184.	1452	Whitebrowed Fantail Flycatcher	<i>Rhipidura aureola</i>	SJ, DD	R
185.	1458	Whitespotted Fantail Flycatcher	<i>Rhipidura albicollis albobularis</i>	SF, Groves, V	R
186.	1461	Paradise Flycatcher	<i>Terpsiphone paradisi</i>	SJ, DD, MD	WV
187.	1462	Ceylon Paradise Flycatcher	<i>Terpsiphone paradisi ceylonensis</i>	SJ, DD, MD	R
188.	1465	Blacknaped Flycatcher	<i>Hypothymis azurea</i>	SF, DD, MD	R
MUSCICAPIDAE (Subfamily SYLVIINAE)			Warblers		
189.	1503	Franklin's Wren-Warbler	<i>Prinia hodgsonii</i>	SJ, DD	R
190.	1511	Plain Wren-Warbler	<i>Prinia subflava</i>	SJ, DD	R
191.	1517	Ashy Wren-Warbler	<i>Prinia socialis</i>	SJ	R
192.	1521	Jungle Wren-Warbler	<i>Prinia sylvatica</i>	SJ, DD	R
193.	1538	Tailor Bird	<i>Orthotomus sutorius</i>	V, SJ, DD	R
194.	1549	Thickbilled Warbler	<i>Acrocephalus aedon</i>	GL, DD	WV
195.	1556	Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i>	DD	WV
196.	1562	Booted Warbler	<i>Hippolais caligata</i>	SJ	WV
197.	1565	Orphean Warbler	<i>Sylvia hortensis</i>	MD, DD	R?
198.	1567	Lesser Whitethroat	<i>Sylvia curruca blythi</i>	SJ	WV
199.	1574	Brown Leaf Warbler	<i>Phylloscopus collybita</i>	SJ	WV
200.	1579	Tickell's Leaf Warbler	<i>Phylloscopus affinis</i>	SJ	WV



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