

Vultures in Asia

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ABSTRACT

Of the 15 Old World vultures eight species occur in Asia. The more common among them are the White-rumped and Egyptian Vultures, as well as the Long-billed Griffon. The less common are the Eurasian or Fulvous Griffon and the Red-headed Vulture. The uncommon and rarer ones include the Himalayan Griffon, the Cinereous and the Bearded Vultures. Human population explosion, diminishing food supply, roost and nest sites, and irresponsible hunting and trapping are the main causes of their population decline. Banning the killing and capturing of these birds by law, setting up vulture feeding stations, and providing artificial perches, roost and nest sites, will go a long way in conserving these vultures.

INTRODUCTION

Of the world total of 22 species of vultures eight Old World vultures occur in Asia. They are the Red-headed, Cinereous, White-rumped, Egyptian and Bearded Vultures and the Long-billed, Eurasian and Himalayan Griffons. This paper discusses their distribution and status, analyses the major causes of their population declines, and suggests some methods to conserve them.

DESCRIPTION, DISTRIBUTION AND HABITS

Red-headed or King or Pondicherry Vulture *Sarcogyps calvus*

This is a huge black vulture (wing span c.2m, wt. 3.7-5.4 kg), unmistakable because of its deep scarlet or yellowish-red naked head, neck with fleshy wattles, and legs, white patches at the base of neck and on upper thighs and a thin whitish band along underside of the outstretched wings, seen in flight (Ali & Ripley 1983; Brown & Amadon 1968).

A resident vulture of Asia, it occurs in Pakistan, India, Bangladesh, Nepal, Myanmar (Burma), Thailand, Laos, South Vietnam and Malaysia, up to c. 2500m in the Himalayas. It is absent from Sri Lanka. It is rare and nowhere numerically abundant (Ali & Ripley 1983), and considered a near-threatened species (Collar, Crosby & Stattersfield 1994). In SE Asia it is found in clearings in forested areas, but in S. Asia it is usually seen in deciduous and semi-desert biotopes near habitations. Robson (1997) reported recent sightings by villagers of these birds in Cambodia.

Surveys show that the population of this bird has declined in Gujarat, Rajasthan and Uttar Pradesh states of the Indian union where it used to be fairly common (Samant, Prakash & Naoroji 1995). But Keoladeo National Park in Rajasthan and Corbett National Park and Agra in Uttar Pradesh have

favourable habitats and reasonable populations of these vultures (Prakash 1989; Satheesan 1989a; Samant *et al.* 1995). They are uncommon in S and NE India. Saikia & Bhattacharjee (1990b) mentioned that this bird had become very rare in Assam in the last ten years especially in Kachamari of Sibsagar district in the Brahmaputra valley, even though two nests of this bird were located in the interior of Hahkati Reserve forest near Sawkhwaghata in Assam. Unlike what the name suggests these birds shy away from competition at carcasses, preferring to feed alone away from the crowd of other vultures.

It nests on trees and rarely on bushes. Davidson (1874) found a nest of this vulture on a low prickly bush three feet above the ground in Gotekindee, Sattara district, Maharashtra. O'Brien (1921) sighted their nests on thorny trees and once in a large clump of cactus. It was thought to nest on inaccessible sites by Murray (Vertebrate Zoology of Sind), but Barnes could not find any nest in Sind (Oliver 1915). Oliver sighted their nests on Babul (*Acacia* Sp.)- live and dead trees- in Murid Rais forest, Hyderabad Division, in Pakistan.

Cinereous or Eurasian Black Vulture *Aegypius monachus*

This is a huge uniformly black or dark brown vulture (wing span 2.5 – 2.7m, wt. 7-12.5kg). A naked leaden pink neck surrounded by a distinct blackish (not white) ruff, broader head (partially naked), black fur-like feathers and down on crown, occiput, lores and cheek, absence of fleshy wattles on sides of neck, and a wedge-shaped tail help distinguish it from other vultures (Ali & Ripley 1983; Brown & Amadon 1968).

The first sighting of the bird in Rajputana (now Rajasthan state) in India was made in 1899 by Newnham. The bird was sighted in different localities in Gujarat state, such as Mitli in Kaira district, Ahmedabad and Kutch. The bird was described earlier by Butler in 1870, Newnham (1900), Acharya (1950) and Aldrich (1952). Acharya (1950) mentioned that it has round nostrils, an extremely wide gape and only twelve rectrices for the tail. Hughes (1917) wrote that the legs and feet of these birds were creamy white in colour. Mitli in Gujarat, 65 km south of Ahmedabad, was the southernmost record for the bird (Ali 1960).

It is a resident bird breeding in the high mountains of northern India, semi-desert Baluchistan to Gilgit in Assam, including the Himalayan dry temperate zone between c.1800 and 3600m altitudes and often straggling along the Himalayas to Bhutan and east in Tibet (Baker 1910). This bird was recorded from Tibet by other ornithologists (Koelz 1940; Ali 1946; Ludlow 1950; Vaurie 1972). Baker (1910) sighted a bird in Calcutta Slaughter House which was captured later and its specimen is in the Calcutta museum collections. It breeds in the Barall range of North Cachar hills in Assam (Choudhury 1986, 1997). It was first recorded by Baker in 1888-89 in the Cachar hills on a nest from where he had taken an egg for examination. It was also recorded in November 1981 in Baligaon in the flood plains of Brahmaputra River, Darrang District, Assam. The bird fell down from a tree and was collected and moved to Assam State Zoo at Guwahati (Choudhury 1986). A pair of these birds was seen in Dimagiri in Bhutan in November 1885 (Baker 1910). It is a rare sparse winter visitor to India recorded south to c 21°N (Ali & Ripley 1983). Straggler birds were collected further south, from Karimnagar (18° 30' N, 79° 10' E) in Andhra Pradesh in 1986 (Choudhury 1987) and Pathanamthitta (9° 03' - 9° 30' N, 76° 15' - 77° 38' E) in Kerala in 1989 (Sreekumar 1991). In 1990 a Cinereous Vulture was recorded near Nalapattu Bird Sanctuary, Nellore District in Andhra Pradesh (Perennou & Shantaram 1990). An injured Cinereous Vulture was caught in Harpalwadi Village in Satara District of Maharashtra State in December 1992 and later moved to the Katraj Snake Park in Pune in Maharashtra in January 1993 (The Indian Express, 4 January 1993; Satheesan 1993). All straggler birds caught were immature, totally exhausted and some also injured (Satheesan 1993). Vagrant birds were collected in Thailand in December 1996 and January 1997 by the Bird Conservation Society of Thailand (Robson 1997).

Marshal (1911) had sighted nests of this bird on juniper trees c 12 m high (2500-2600 m a.s.l.) in May near Quetta (Pakistan). Eggs were white in colour with rusty-red markings all over, thicker at the large end. These markings were very lightly laid on, and could easily be rubbed off with a wet finger.

Asian White-rumped or White-backed Vulture *Pseudogyps bengalensis*

This is a brownish black vulture smaller in size (wing span c. 2m) and lighter (4.5kg) than the true *Gyps* vultures (griffons). As its name indicates this vulture has a prominent white rump (lower back) noticeable when perched or from above in flying birds. Young birds are dark or light brown with the lower back plain light brown, resembling Long-billed and Eurasian (Fulvous) Griffons.

The White-rumped Vulture is the commonest and the most abundant species of the Indian peninsula, except Sri Lanka through Myanmar to Indo-China. It breeds in SE Iran, SE Afghanistan, E Pakistan, India, Nepal, Bangladesh and Myanmar. Formerly widely distributed in SE Asia, it is now almost extinct in most areas. It is recorded in small numbers from Laos (Robson 1997). It is a sedentary bird of open country and lowlands up to c. 3100m in the Himalayas.

These birds generally feed on large mammal carcasses. It was also found to be feeding on a dead Bandicoot Rat (*Bandicoota indica*) and a domestic cat on two separate occasions in 1980 in Agra (Satheesan 1989b). They feed in daylight hours, retreating to the roosts before sundown. But this species was also seen feeding at night by Smith (1915), Morris (1935) and Lewis (1940). McCann (1940) noted that the primitive slaughterhouse which existed (not present now) at Bandra in Bombay attracted large numbers of these birds which in roosting on Brab (Palmyra) Palms *Borassus flabellifer* killed the plants with their acrid excreta leaving the bare "poles" standing. When the crown of one palm disappeared there was no place to perch and hence the vultures moved to the next palm, thus destroying several palms in each locality.

Large numbers of nests were observed in Keoladeo National Park in Rajasthan (Prakash 1989) and in Agra, Uttar Pradesh (Satheesan 1995). It nests on trees, and rarely on buildings in the absence of suitable trees, especially in deserts and semi-desert areas (Satheesan 1995).

Indian Long-billed Griffon *Gyps indicus*

Larger (wing span 2-2.5m) and heavier (wt. c. 5 kg) than the Asian White-rumped Vulture, the Indian Long-billed Griffon is recognised by its bright isabelline (yellowish-grey) plumage without a pure white back. It has yellowish eyes.

It is distributed in peninsular India through Myanmar to Indo-China except Sri Lanka. It breeds in SE Pakistan, India (not in extreme SW), Nepal and Bangladesh. It is also recorded in Laos (Robson 1997). Formerly it was widespread in SE Asia. A resident bird, it is usually seen in lowlands sometimes up to an altitude of 1500m. Two subspecies are recognised: *indicus*, occurring in Pakistan and India south of the Gangetic plain, and *tenuirostris* occurring in India north of and including the Gangetic plain east to Assam, Nepal, Bangladesh, Myanmar and SE Asia. *G.i. tenuirostris* has a longer, more slender and darker (black) bill than *G.i. indicus* (bill is yellowish grey in adult birds). The latter is a cliff-nester and seen in more numbers in hilly terrain and cliffs and in drier open country. The former nests on trees.

The nests of the tree-nesting subspecies were located in 1989 in Lower Assam area in the Kamarup district (Saikia & Bhattacharjee 1990a). Their nests were also sighted in Jaldapara Wildlife Sanctuary, West Bengal (25° 58' - 26° 52' N, 89° 08' - 89° 55' E) as well as Corbett National Park in Uttar Pradesh (29° 31' - 29° 35' N, 79° 46' - 79° 50' E). Long-billed Griffons were recorded in the south of the Indian subcontinent near Bangalore (12° N) in Karnataka and Mudumalai Wildlife Sanctuary (11° 32' - 11° 43' N, 76° 22' - 76° 45' E) in Tamil Nadu (Samant *et al.* 1995).

In earlier work on vultures several Long-billed Griffons were wrongly identified as Eurasian Griffons (Ali & Abdulali 1945). Nests of Long-billed Griffons were recorded near Chakia in Benares District, Uttar Pradesh by Gill (1921) and near Ambala in Haryana by Jones (1916). These griffons are more aggressive at carcasses than are White-rumped Vultures.

Eurasian or Fulvous or Indian Griffon *Gyps fulvus*

Larger (wing span 2.5+ m) and heavier (wt. c 7-8.2 kg) than the White-rumped Vulture and Long-billed Griffons, the Eurasian Griffon has a fulvous or bright cinnamon body without a white back, neck white in colour and fully covered with down. Immature Long-billed can be distinguished from Fulvous Griffon by the absence of a complete covering of white down (leaving black feathers

in the mid ventral line) for the neck, and the presence of a less clearly defined pale back (paler than adjacent areas), as well as a smaller wing span (Grubb 1974).

In Asia the Eurasian Griffon breeds north to at least Pamir in Afghanistan, Pakistan, Kashmir, NW India, Nepal and West China. According to Brown & Amadon (1968) it breeds in China east to Nan Chan but this is not supported by Cheng (1989). It occurs in Tajikistan, Kyrgyzstan and SE Kazakhstan in the former USSR (Alstrom 1997). According to Ali & Abdulali (1945) a Eurasian Griffon shot in Kurla, Bombay (19° N) in February 1893 (now a specimen in the collections of the Bombay Natural History Society) is the southernmost record for the species. Thakker (1988) narrated how two naturalists saved a Fulvous Griffon from being stoned and harassed by residents near Ranip, Ahmedabad in November 1987. It used to feed on 750-1000g of meat daily in captivity. Discovering the cost incurred, the rescuers stopped feeding the bird and it flew away, not to return to the same place. In winter it occurs widely in Pakistan and N India south to c. 20° N, and further sometimes to Bangalore at 13° N (Satheesan 1990) and east to Assam and Nepal. It breeds in mountainous areas up to 3000m. In winter it comes down to the plains.

Two subspecies are recognised: *fulvus* - the Eurasian Griffon - breeds west of Afghanistan whereas *fulvescens*, the Fulvous or Indian Griffon, breeds in Afghanistan and eastwards in S Asia. It is a cliff-nester.

These griffons inhabit bare mountains, open savannah and semidesert country. In winter outside the breeding season they are sighted in large numbers in tropical forest and in semi-arid and arid zones except coastal and island zones in India. At carcasses seen on the Indian plains White-rumped Vultures outnumber the Long-billed and the Fulvous Griffons (the least in numbers) but the Fulvous is the most aggressive among them and it easily succeeds in competition for food and roosting sites on trees.

Himalayan Griffon *Gyps himalayensis*

Large (2.5 - 3.1m or more) and heavier (wt. c. 8-12 kg), the Himalayan Griffon is distinguished from the Eurasian Griffon by its much paler body, less reddish in colour, stouter more robust bill, and the greenish grey to white legs and feet. It is purely a mountain bird and a resident at high altitudes, usually 600-4000m, occasionally up to 6100m, although immature birds winter in the plains of N India and Nepal. It breeds in C Asia north to Altaj, and in Afghanistan, N Pakistan, the Himalayas, S Tibet and C China (Koelz 1940; Ali 1946; Ludlow 1950; Vaurie 1972). It was sighted in winter at the Keoladeo National Park in the plains of Bharatpur, Rajasthan (about 27° 10' N- 77° 32' E) (Satheesan 1989b). Large numbers were sighted in the Great Himalayan National Park, Kullu District of Himachal Pradesh (77° 15'-77° 50 N, 31° 35'-32° 00' N), at elevations of 1500-6140 m. This bird was widely distributed throughout the wild uplands of Kashmir mainly above the tree line - seen in Jhelum valley over open spaces and in Baramulla. It was common in Wular Lake area in winter, afforested hillsides, valleys in Lidar about Pahlgam and in much open wooded country such as Sind (Bates & Lowther 1991). It also occurs in Tajikistan, Kyrgyzstan and SE Kazakhstan in the former USSR (Alstrom 1997). It flies in the company of Eurasian Griffons and Bearded Vultures. This bird is more common in the Western Himalayas, uncommon in the Trans-Himalayas, and rare in the Central and Eastern Himalayas.

It lays a single egg, coloured pale creamy to reddish buff, between December and February or March and the young birds leave the nest by late May or early June. In Kashmir they are reportedly breeding around 3000 m.

Egyptian or Scavenger Vulture *Neophron percnopterus*

This can be separated from other vultures by its smaller size (wing span c 1.5 - 1.6 m; wt 1.5 - 2 kg), creamy white body colour with black quill feathers, red eyes, bare skin of face yellow to orange, yellow feet and bill, wedge-shaped tail as well as eagle-like flight. Of the two subspecies recognized, *percnopterus*, the Egyptian Vulture, is larger and heavier than *ginginianus*, the Indian Scavenger Vulture, and has a dark brown bill (not yellow as in the Indian subspecies), and stronger feet and claws (Ali & Ripley 1983). The powerful bill opens up turtle carapaces. Scavenger Vultures

are known to follow, kill and feed on turtles moving from one pond to another when ponds dry up in summer in Rajasthan (Auffenberg 1981; Breedon & Breedon 1982). Active predation by this vulture on a Checkered Keelback water snake *Natrix piscator* while negotiating a road, was recorded in Keoladeo National Park, Bharatpur (Prakash & Nanjappa 1988). Scavenger Vultures feeding on carcasses of their own species and those of White-backed Vultures were observed on a few occasions between 1980 and 1981 in Agra (Satheesan 1989c). The numbers of Scavenger Vultures were more in the afternoon and those of White-backed Vultures more in the morning hours at the primitive slaughterhouse in Agra. The White-back Vulture feeds on large chunks of meat whereas the Scavenger Vulture feeds more on tidbits, dried blood and larvae of insects at the slaughterhouse. Thus the food and feeding behaviour of the Scavenger Vulture place it in a different ecological niche and it avoids competition with the more common and abundant White-backed Vulture (Satheesan 1989c). This is a resident bird found from c. 3000m in the Himalayas south to Kanyakumari (not in Sri Lanka), east to Bihar and western parts of West Bengal, but not seen in Bangladesh and Assam. It is found in plains and desert around habitations in drier areas and avoids wetter areas.

The Egyptian Vulture nests on the ledges of rocks, old buildings, tombs and rarely on trees. Paynter (1924) found a nest of the Egyptian Vulture on the ground near Lahore in Pakistan. Biddulph (1937) sighted a nest of this bird on a termite mound only 1.5 m high on the water-spread of an irrigation tank in Tanjore in Tamil Nadu state. Sheromoney (1977) confirmed that the Scavenger Vultures which famously used to go to the Thirukalukundram Hill Temple to feed on the rice pudding offered by the temple priest as a religious ceremony every day around noon, still make visits to the temple. They breed around the hill. In Tamil literature this place is referred to as *Kalukundram* meaning "Vulture Hill", and dates from the seventh or eighth century A.D.

Bearded Vulture *Gypaetus barbatus*

This is a large vulture (wing span 2.5 – 3m, wt. 4.5 – 6 kg), more related to the Egyptian Vulture than other Old World vultures. The characteristic "beard" projecting downwards on each side of the beak, an upright posture, extremely long wings, long diamond-shaped pointed tail, reddish buff underside, short feathered tarsi, long blunt claws, black grey colour on wings, dirty white crown ringed with black, and a black circle around the eyes, are all pointers to the identification of this bird (Ali & Ripley 1983; Brown & Amadon 1968).

It is a resident and purely mountain species in India even though in other countries it is known to descend to the plains and steppes to forage and associate with human habitations. It is restricted to the Himalayas in Pakistan, Kashmir, and east of Nepal, Bhutan, Assam and Arunachal Pradesh, soaring to over 7000m (Ali & Ripley 1983). It was also recorded from Tibet (Koelz 1940; Ali 1946; Ludlow 1950; Vaurie 1972). It is common in the Western Himalayas, uncommon in Trans-Himalayas, and rare in the Eastern Himalayas. Whistler (1912) mentioned that this bird was abundant in the neighbourhood of Kalabagh on the river Indus in Pakistan. It was common in Mussoorie in Uttar Pradesh, India (Fleming 1956). The Bearded Vulture is a vagrant in winter in the Bhabar tract (Shivalik in the lower Himalayan foothills and the Terai) where the Corbett National Park (29° 31' - 29° 35' N, 70° 41' E) is also situated in Uttar Pradesh, but relatively common to the snowline and more so in the high altitude areas (Samant *et al.* 1995).

The Bearded Vulture does not fight with other vultures for the tidbits of a carcass. Instead, it will wait till all the vultures have left and remains there until the carcass is cleaned. This bird does not swoop down on its food (carcass) like a kite but alights nearby and feeds slowly. It will not attack a live animal. It does not carry off lambs and human babies and the name of this bird as "Lammergeier" is a misnomer. Donald (1908) pointed out that this bird rarely uses the claws as a means of offence or defence and much prefers biting. Osborn (1908) stated that one should not conclude that this bird can hurl animals such as Chamois, Ibex and Ghoral over the tremendous precipices of the Himalayas just because Jerdon had found the shoulder blade of a Ghoral and hoof of an Ibex in the stomach of a dead Bearded Vulture.

The Bearded Vulture picks up bones and tortoises and drops them from a height on the rocks to break them and feed on their contents (Osborn 1908; Donald 1921). Ali (1960) points out that the

bird drops bones from a height of 50-70 m. This process is repeated if necessary until the bone splinters whereupon the bird lands to pick up and swallow the pieces (Fleming 1956). Donald (1908) had observed a vulture dropping a bone fifty times and still the bone was not broken when he left the locality.

This bird breeds between November and March. Lowther (1946) mentioned that Jones had recorded it flying in Rawalpindi (in Pakistan) over the railway station to at least 7,400 m, at which height also it was observed soaring by one of the Mount Everest expeditions. It breeds between 364 m at Campbellpur district, where Jones found a nest, and 4,300 m.. Jones found a nest of this bird with eggs in Simla at a height of 770 m. The nest was made in a recess or a small cave of a sheer cliff. One to three eggs are laid but only one chick is generally reared from a nest. Each pair of birds can have two or three nest sites (Lowther 1946).

PRESENT STATUS

The White-rumped and Egyptian or Scavenger Vultures, as well as the Long-billed Griffon are more common and abundant than others. A decade ago the populations of these vultures had risen to such an extent in some areas as to become an aviation hazard. In order to prevent bird strikes, persecution of these birds, removal of carcass dumps, and modernization of primitive slaughterhouses, were taken up in different cities and towns. As a result the vulture populations started to decline in urban areas. In Asia Eurasian Griffons and Red-headed Vultures are less common compared to the earlier-mentioned species. The Himalayan Griffon, the Cinereous and Bearded Vultures are uncommon and rare because they do not benefit much from human activities and exploit the animal waste at carcass dumps, widely available in the Asian plains, like the other vultures. However, denudation of the mountains is forcing them to forage at lower altitudes.

CAUSES OF POPULATION DECLINE

- (1) Unchecked human population explosion and resultant unplanned urbanisation coupled with inefficient animal garbage disposal formerly produced a regular and super-abundant artificial food supply (carcasses) for vultures (Grubb *et al.* 1990). When man's short-sighted activities "boomeranged" in the form of bird strikes to aircraft (15 military aircraft and some human lives have been lost in India due to vulture strikes, from 1980 to 1994) (Satheesan 1994) authorities started withdrawing the food supply to vultures by modernization. Then the vultures started moving out of urban areas to natural forests and countrysides and so declined in numbers.
- (2) Irresponsible shooting and killing was done in some areas, because they are a threat to aircraft safety, and belief that they probably kill cattle and sheep also reduced their populations.
- (3) Felling of trees usually used by vultures for roosting and nesting and destruction of other suitable roost and nest sites due to human population pressure, also caused reduction in their populations. In Agra several of the roost and nest trees of vultures were cut to construct residential buildings and shopping complexes since 1981.
- (4) Vultures were utilized by man widely in olden days (even now in some villages and towns in Asia) to pick mammal carcasses clean so that the people can use the animal hides and skeletons in industry. Rotting carcasses at regular dumps and primitive slaughterhouses or bone mills are no more a sight in many cities in Asia due to the recent wave of modernization. Hence all the large populations of vultures have disappeared from several Indian cities such as New Delhi, Bombay, Bangalore and Madras.
- (5) Handsome species of vultures such as Cinereous and Red-headed Vultures make attractive exhibits in zoos. Roberts (1991) pointed out that the constant demand from animal exporters in Pakistan may have been instrumental in the decline of the Cinereous Vulture.
- (6) Disappearance of natural habitats, especially on mountains and cliffs, may account for the decline of mountain-dwelling vulture species. Natural habitats of these vultures are destroyed

due to developmental and commercial activities, local community pressure and management problems. Developmental projects and activities destructive to vulture habitats include construction of roads, railway lines, cable car lanes, power stations, aerodromes (air strips and helipads) and military establishments (firing ranges and bombdoms). The commercial activities harmful to these birds and their habitats include mining, stone-quarrying, tourism, timber-felling and extraction, illegal hunting and wildlife trade. Local community pressures from grazing, fuel wood extraction, collection of non-wood forest products, fishing and poaching also disturb these birds. Management problems include pollution, fires (natural or started by settlers to clear forests), promotion of monoculture, activities of trekkers, mountaineers and tourists, local conflicts, terrorist/bandit infestation, conversion of hill slopes into agricultural fields (as in contour farming), building of roads in an environmentally destructive manner, and pollution of water bodies and soil by insecticides and herbicides, as well as dumping of coal tar (used for metalling of roads) in rivers. Above all the Himalayas is a highly seismic zone. Much of the area is unstable and frequent earth tremors occurring there cause the progressively degrading hill-sides to slide down, destroying vegetation and habitat of wild animals and birds.

- (7) Accidental or purposeful poisoning can be another reason for the extinction of vultures from certain areas of their abundance. Kannan (1993) mentioned that between 1960 and 1980 chemically contaminated carcasses laid out to kill cattle-marauding leopards venturing out of the adjoining forests have finished off every vulture in and around Anaimalai Hills according to the villagers residing around the Indira Gandhi Wildlife Sanctuary in Tamil Nadu. This used to be the case 20 to 30 years ago with villagers residing near forests with lions (Gir Forest, Gujarat), tigers and leopards (several forested areas) where several vultures were killed feeding on the poisoned carcasses laid out to kill the carnivores.
- (8) Until 1980 certain tribal people in Andhra Pradesh state were known to eat eggs, chicks and adults of vultures. The 'Banda' community (locally called Bandollu) residing in Guntur and Prakasam, coastal districts of Andhra Pradesh, used to catch vultures with special nets. Since 1980 vultures stopped breeding and are rarely seen in these areas (Rao 1992). In 1983 villagers of Sasan Gir in Gujarat, Bapne near Bombay, and Viswaneedam near Bangalore, mentioned that certain tribal people caught vultures using nooses and even bare hands, in order to eat them on festive days (Satheesan 1989d).

WHY AND HOW TO CONSERVE VULTURES ?

Vultures are a boon to mankind because they keep our environment clean. Vultures are nature's incinerators and they prevent the outbreak and spread of epidemics by consuming diseased carcasses. We should allow vultures to live in their own right, but at the same time check their population explosion, which may pose a serious threat to aviation safety, by denying their food in areas where airfields and airports occur (Satheesan 1996). In order to conserve vultures the following measures will be necessary.

- (1) Capturing and killing of vultures should be strictly banned by law.
- (2) Identifying and protecting the remaining natural habitats of these birds from use for agriculture, industry, mining, hydroelectric projects and construction of buildings, roads and airports should be given top priority.
- (3) Setting up vulture "restaurants" or feeding stations will definitely put an end to the drastic decline of the endangered species.
- (4) Providing artificial perching, roosting and nesting sites in natural or natural-looking sites (away from aerodromes and utility structures to avoid conflicts with man and collisions with aircraft and installations carrying power) will go a long way to conserving vultures.
- (5) Protect all species of vultures by including all of them in Schedule I of the Wildlife Protection Act, 1972.

- (6) of the Government of India. So far only the Bearded Vulture is included in Schedule 1 of the act.
- (7) Ban all pesticides (biocides) and hazardous chemicals used by agriculturalists, health departments and individuals through efficient legislations.
- (8) Promote organic farming and ban synthetic fertilizers.

The Buddhist Tibetans carry their corpses to high rocky areas, outside their villages, cut them into pieces and offer them to vultures (Stein 1972). The Zoroastrian community or the Parsees in India keep their corpses in "Towers of Silence" for vultures to feed on (in cities such as Bombay, Ahmedabad and Bangalore) as their last religious offering (Sathcesan 1989d). Everybody will agree that theirs (Tibetans and Parsees) is the noblest of thoughts and deeds, and it works for the conservation of vultures too.

Vultures are the most wonderful of nature's creations. They are the best friends of farmers and indispensable in keeping our planet healthy and clean.

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