13. PROBLEMS OF WILDLIFE CONSERVATION

13.1. INTRODUCTION :

Macaca mulatta is the most important and widely used non-human primate in biomedical research throughout the world (Southwick , 1977). Although it is credited to enjoy a wide-range of distribution and abundance in India, nevertheless massive developmental programmes combined with reckless deforestation activities to acquire more and more land for agriculture and residential purposes at the present juncture is pushing the already declining rhesus population to even more precarious condition. Effective conservation and management programmes need to be implemented immediately to protect this unique primate from further degradation and extinction.

Rhesus is the most common monkeys of India (Prater, 1965) and by dint of its small size (see section 5.3.2), clever appearance and semi-arboreal habit it has occupied a permanent place in the mind of villagers and the natures' lovers. Its tourist attraction potential is also high. Besides, it occupies an important trophic position in a major part of our forest ecosystem. It has been observed that its foraging habit of consuming apical portion of vegetation stimulates development of axillary buds and thereby enhances forest growth. As such conservation of this magnificent animal is important not only from aesthetic or economic point of view but also from the point of conservation of our ecosystems, essential for maintaining quality of our environment in general.

Conservation is not unproductive forms of land use; rather it has important economic, social and educational values, and need to be regarded as a type of natural resource management for proximate human benefit and to achieve highest sustainable quality of human life in the ultimate (McNeely,1975). I like to discuss here the nature of threats to be continued survival of rhesus in the wild, present management system and to suggest some measures in conformity with general objectives of conservation and land use.

13.2. THREATS TO SURVIVAL OF NON-HUMAN PRIMATES :

Primate population are declining throughout the world. In order to conserve primates it is essential that the scientific community stops indiscriminate use of primates in research works and the public in general discourages export of monkeys even as pets. Many primate species have already been severely damaged through direct and indirect human interference as also through natural causes. Table - 13.1 presents the threatened status of some of the primate species of India as recognised by I.U.C.N. Some of the important causes of decline of rhesus population as also primates in general are discussed below. Directly or indirectly human intervention is at the root of most of the causes.

13.2.1. Direct Human Interference :

13.2.1.1. Medical Research and Export :

In the recent past, a large number of rhesus monkeys were used as subjects in medical research. Medical research, however, included monkeys that were used towards development and testing of vaccines. It may be recalled that at the time when polio vacine was being developed a large umber of monkeys were used. The pet trade has also exerted a sizable pressure on monkey population over the year ; the requirement of the zoos is, however, comperatively modest. The number actually used in research, pet trade, etc. is misleading in the sense that it does not include the losses that occur during capture, holding and transport. The loss may be as high as 85% (Bourne, 1977). This loss has so great over the years in many areas.

Southwick and Siddiqi (1975) estimated export of Rhesus from India to be around : A million rhesus monkeys were trapped and removed from India in last several years. In the late 1950's 1,00,000 rhesus monkeys were exported a year ; by the mid 1960's this had dropped 50,000 per year and during the 1970's the number was reduced to between 30,000 and 40,000 a year. Now the number available has been drastically reduced by the restrictions in 1980, imposed by the Indian Government. It is apparent that unless there is a greater protection of rhesus monkey by local people, they will be eliminated from most of the agricultural areas of India within the next several decades. Rhesus monkeys are protected

by the Indian Government since 1980.

13.2.1.2. Other Exploitation :

Another significant loss of non-human primates in wild is due to their consumption as food. It has been estimated that in Peru, 7.5 million monkeys were consumed from 1964 to 1974, compared with 1.5 million killed or captured for export (Bourne, 1977). The monkeys and apes are also used as food by indigenous populations in many parts of the world particularly Africa. Increase in human population in these areas with their growing demands makes the future of primates of many areas uncertain, apart from their use in the Western World for medical research and for other purposes. Although this problem is almost nonexistent in India because rhesus monkey is protected by Hindu religion. But the cultural and social structure of India has changed. This attitude represents most basic threat to long period conservation and survival of the rhesus monkeys in India.

It is reported that terrestrial predators such as leopard, python have negligible effects in this species .

13.2.1.3. Hunting :

Although rhesus monkey is normally protected by the Indian Government Wildlife Preservation Act, 1972, but the changing attitude of Indian people are more damaging to rhesus monkeys (Southwick and Siddiqi, 1961). Besides, it is not regarded as the sacred by the Hindus in the sense in which the hanuman langur (*Presbytis entellus*) is. Nonetheless, it is still tolerated in most areas. Reports of mass killing of rhesus monkeys are, however, available, but these are mostly due to instantaneous reactions of the farmers whose crop fields or orchards have been damaged by rhesus troops. Some non-human primates, such as lion-tailed monkeys (*Macaca silenus*) and Nilgiri langur (*Presbytis johnii*) are hunted for food by several ethnic groups of south India (Green and Minkowski, 1974 ; Hutton, 1949). However, killing of rhesus for food has neither been recorded or reported in the

North Bengal region. But such possibility can not be ruled out under extreme circumstances. The flesh of monkey has been a normal part of the diet of forest dwelling hunting communities in Africa.

13.2.2. Indirect Human Interference :

13.2.2.1. Deforestation and Range Reduction :

According to Lovejoy (1976), two thirds of south-east Asian rainforests have been eliminated and in Amazon, only 17% of the area is now forested.

The greatest threat to natural habitat is the rapidly expanding human population which requires more and more land for agriculture, human habitation and other necessities. For example, human population in India has expanded from 330 million in 1950 to 840 million in 1990. Most of the human population is concentrated in the agriculturally suitable wet zone which comprises major portion of forests. Thus rhesus population face most trapping and harassment as agricultural pests, in areas which have been deforested and brought under cultivation and intensified land use only recently. In other words rhesus are considered alliens in their own area by human beings.

13.2.2.2. Poisoning :

Close to the present study site there are a number of agricultural lands and tea-gardens. The tea planters indiscriminately use various types of insecticides and fungicides to control insects and fungi borne diseases. Most of these poisonous chemicals are drained into small streams, pools and ponds adjacent to the tea-gardens by rain water. Rhesus monkey occasionally visit the tea-gardens and cultivated land for food and drink and are thereby exposed to poisons which make them ill, sometimes kill them. Although no death of large mammal from such poisoned water was seen during the study period, all the fishes of several streams died due to poisoning 2 to 3 times every year at Baikunthapur Forest

Division. Poisoning by insecticides is therefore a serious problem and should be handled accordingly, particularly in forests bordered by tea gardens. The effects of such poisons on rhesus has never been actually studied. It may be assumed that such poisons may have lethal effects on infants and the fertility and fecundity of the adults. Actually all animals of the division are exposed to the above danger.

13.2.3. Natural Calamities :

Natural calamities are also known to cause death and damage of primate populations.

13.2.3.1. Diseases :

Direct association between man and rhesus is very important. Some unconscious activities of man can influence survival of rhesus monkeys. In the recent past deforestation and establishment of agriculture in the newly acquired area and extension of human habitation close to the forest has brought wild animals including rhesus into close contact with human beings. As a result they not only became more dependent on man for food but also are exposed to many human diseases. Despite the fact that are remarkable for their hardiness and ability to survive in wide varieties of habitats, they are susceptible to many human diseases, such as tuberculosis, pneumonia, amoebic dysentry etc. Thus their survival apart from other factors also depends upon man's ability to control his own population and his tendency to damage and destroy natural environments.

13.2.3.2. Flood and Erosion :

As a result of deforestation in the forests of Northeastern India and Nepal (Laurie, 1978) frequency of flood and extent of erosion is increasing every year. Flood and inundation of natural habitat compel rhesus populations to limit themselves to even smaller patches of area within their range. The river system inside and outside the division frequently change

courses and thereby destroy extensive areas suitable for rhesus and other animals. As already stated the river Tista, Chel, Ghish, Neora and Korotowa along with their branches and tributaries make a complicated network of waterbodies in and around the division.

13.3. MANAGEMENT OF WILDLIFE

Conservation and management strategies for rhesus have to be considered in relation to its habitat and that of other species. Before one can decide how best to manage a park one must decide what the purpose of the park is supposed to be, and how will reconcile its existence with the encroaching pressure on the environments (Myers, 1972). Although rhesus is not a threatened species at present, yet it presents a declining trend primarily because of extensive destruction of forest habitat and rapid extension of agricultural areas. Rhesus macaques heavily rely on trees for food and cover and plays and important role in forest maintenance. This forest area still contains enough fruiting trees as to support the monkey. So, conservation of the rhesus monkey requires conservation of its natural habitats.

Management may involve either active manipulation of the flora and fauna or protection from external influences. As most biotic communities are in a constant state of change due to process of ecological succession, it is often necessary to manipulate the habitat to maintain or attain a desired stage of succession (Chakroborty, 1991)

Several human activities influence wildlife and forest eco-system in this area (Nandi, 1991). A few activities threatening rhesus and its habitats with potential solutions in this area are enumerated below.

13.3.1. Felling :

The Tista River valley is also an area rich in important fruiting trees such as *Shorea robusta. Dalbergia sissoo, Dillenia indica and Syzygium* sp. and etc. The major

consequence of clearing operations is overall reduction of habitat with the resultant diminished carrying capacity of the forests. Felling trees even on a limited scale can produce considerable damaging effects on Wildlife. Clearing operations often change vegetation pattern of the ecosystem due to damage to non-target under story layer. Deforestation of an area can force the animals to shift their range to the remaining part of the habitat. Thus pressure is created on the adjacent habitats.

The urgent steps must be taken to protect crucial rhesus habitat by stopping of clear felling, illegal felling and fodder collection. Habitat improvement programmes need to be installed through plantation of suitable species in the open areas. The construction of the Tista Barrage Project has destroyed large number of important trees in both Apalchand and Baikunthapur portion of this forest division.

13.3.2. Extension of Forest Areas :

Agricultural lands adjoining the forests comprise an important part of the total habitat. Their use as well as the leased lands should be actively regulated to prevent deforestation. The State Government may purchase these lands as part of a protective buffer surrounding the forests. Lands outside reserve forests may be utilised to grow tree, perennial fodder and fibre crops. Financial incentives may be provided in areas where there is a large scope for forestation and to persue conservation programme. Felling of natural forest must be phased out and stopped within specified time frame.

13.3.3. Enforcement of Anti-Hunting Laws :

Although *M. mulatta* is marginally protected by wildlife Act 1972, Government of India, enforcement of the Act is inadequate. In this forest area other wild animals are heavily poached primarily for meat. But rhesus monkeys are reportedly hunted and trapped mainly for trade. Laws prohibiting hunting, trapping, possession and sale of rhesus need to be strengthened both in the forests and in the agricultural areas.

13.3.4. Wildlife Guards :

Success of any kind of conservation will largely depend on a well-trained, efficient and adequately equipped staff to monitor poaching, illegal felling, collection of fodder, fire wood and other forest product. Besides, forest guards are essential in preventing grazing particularly in newly planted areas and forest fire. The monitoring force need to be equipped with visual aids, walkie-talkies, vehicles and fire arms.

13.3.5. Protection from Fires :

Universal practice of deliberately firing standing grasses to ensure fresh growth has resulted in an alarmingly high incidence of forest fires in India. Growth of timber plants and damaged natural forest is seriously disturbed by forest fires. It is particularly devastating for young trees. Extra precautions are necessary during firing season. Modern system of fire monitoring and organised fire fighting need to be established. The principal management task is to apply modern techniques to control fire quickly before much damage is done. At the same time, ecodevelopmental programmes so as to provide fodder and fuel to neighbouring villages during the summer months will help to reduce fire hazards by discouraging entry into forest areas.

13.4. SUGGESTIONS :

The following suggestions to tide over problems of wildlife management are made by the author.

(i) Illegal trapping should be strictly controlled in forest as well as agricultural areas so as to ensure survival of forest dwelling rhesus monkey. Southwick (1997) reported rhesus populations showed a serious shortage of juveniles. Juveniles were the primary victim of trapping for commercial export. The best way for both the protection of agricultural products and the monkey population is to trap limited number of monkey at planned

intervals.

(ii) Extensive land use in agricultural area as as well as in forest area should strictly be controlled to ensure protection of ideal rhesus habitat.

(iii) Establishment of new protected forest reserves so as to increase rhesus habitat by 20%.

(iv) Prevention of hunting with the provision of alternative sources of animal protein.

(v) The research programmes should be developed to elucidate the faunal-floral relationships within the forests.

(vi) Proper awareness campaigns and publicity regarding conservation of natural resource and human dependence on it must be made through Radio, Television, Newspaper, Meetings, Seminars, Group Discussions, Film Shows, Exhibition and Postering so as to ensure of the public. It may be mentioned here that recently (1999), Govt. of India is making "Environmental Education" as a compulsory course in all streams of education at the college and University level.

(vii) Organising " Resistance Groups " against Anti- Enforcement Acts involving Panchayats, Tea Garden Labour Unions and local organisations should be provided.

(viii) Enactment of Laws banning clear felling or natural forests. Forest based industries, may be permitted only after vigorous scrutiny by a Central Agency with special reference to the environmental consequences.

(ix) Construction of barrage and road within forest areas must be planned with utmost care with regard to geologic and ecologic consequences.

Table - 13.1 : Species of primates, their categories in the light of conservation in India (IUCN)

No.	Common Name	Scientific Name	Distribution	Conservation category.
1.	Slender loris	*Loris tardigradus* (Linnaeus, 1758)	Southern India	V
2.	Slow Loris	*Nycticebus coucang* (Boddaert, 1785)	Eastern India	V
3.	Lion-tailed Macaque	*Macaca silenus* (Linnaeus, 1758)	Peninsular India (Western Ghat, Principally Kerala)	E
4.	Pig-tailed Macaque	*Macaca nemestrina* (Linnaeus, 1766)	Assam	R
5.	Long-tailed Macaque	*Macaca fascicularis* (Raffles, 1821)	Nicobar Islands (Bay of Bengal)	V
6.	Stump-tailed Macaque	*Macaca arctoides* (I. Geoffroy, 1831)	Estern India (Assam)	V
7.	Nilgiri langur	*Presbytis johnii* (Fisher, 1829)	Southern India (Western Ghats South of Coorg ; the Nilgiri, Anaimalai, Brahm-giri and Palni Hills)	V

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Table 13.1 Contd.

No.	Common Name	Scientific Name	Distribution	Conservation category.
8.	Capped langur	*Presbytis pileatus* (Blyth, 1843)	North-eastern India	V
9.	Golden langur	*Presbytis geei* (Khajuria, 1955)	North western Assam and Shouth central Bhutan to the Sankesh River on the west.	V
10.	Phayre's langur	*Presbytis phayrei* (Blyth, 1847)	?	V
11.	Hoolock gibbon	*Hylobates hoolock* (Harlan, 1834)	Assam, Nagaland	V

* E = Endangered ; in danger of extinction,
V = Vulnerable ; decreasing population & likely to move into endangered category.
R = Rare ; with small populations at present not endangered or vulnerable but at risk.