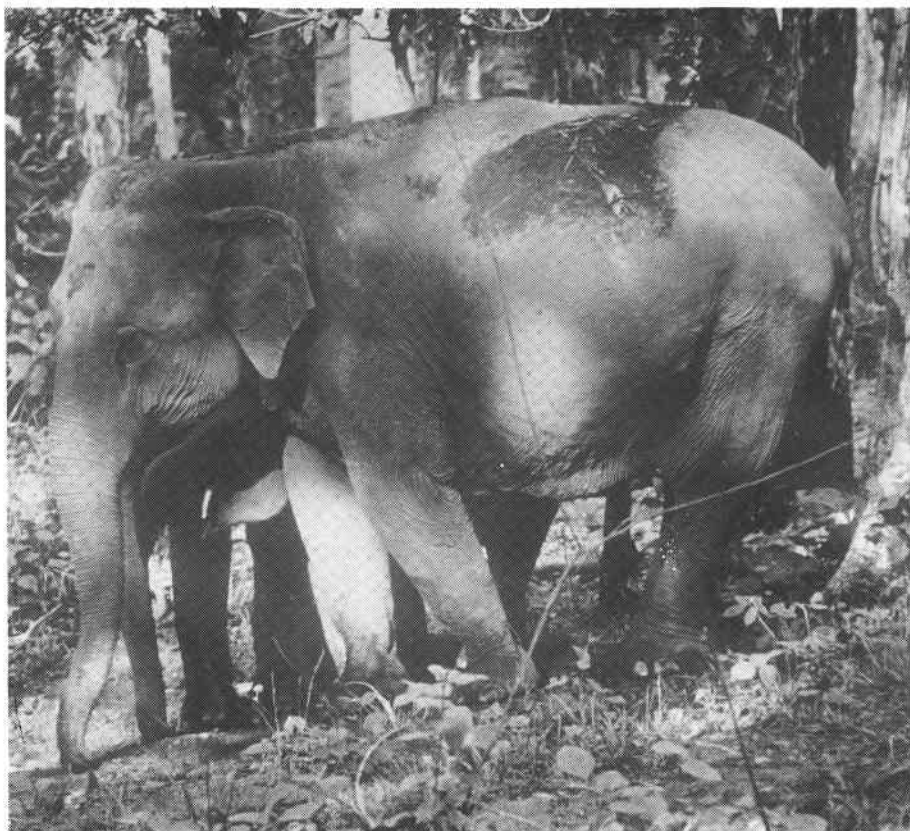


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1. To highlight the plight of the Asian Elephant.
2. To promote the conservation of the Asian Elephant, and
3. To provide a forum for communication amongst the members of the Asian Elephant Specialist Group.

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AN ACTION PLAN FOR THE CONSERVATION AND MANAGEMENT OF ELEPHANT (*Elephas maximus*) IN SRI LANKA

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INTRODUCTION

The Asian elephant (*Elephas maximus*) is the largest terrestrial megaherbivore in Asia. It occurs in 13 countries from the Indian subcontinent in the west to Indo-China in the east including islands such as Borneo, Sumatra and Sri Lanka. In Sri Lanka, the elephant is so much a part of the island's history, religion, myth, culture and even politics that it would be difficult to imagine Sri Lanka without its elephants. Its aesthetic value arouses public emotions and attracts strong support for its conservation. Furthermore, as a super keystone species in the ecosystem, the elephant plays a very important ecological role by creating and maintaining biological diversity across a vast area.

Unfortunately, the elephant in Sri Lanka has declined by almost 85% since the turn of the 19th century (McKay, 1973). Today, between 2,500 and 3,250 elephants are estimated to occur in the wild. While the human population has increased from 2.5 million at the turn of the century to 17 million at present, the forest cover during the time has declined from 70% to less than 24% (Geiser & Sommer, 1982; Erdelen, 1988). If the present trends in deforestation and human population growth continue unchecked, then the elephant in Sri Lanka, like the Blue whale and the Black rhino will be on the fast track to extinction. Already, the elephant in Sri Lanka finds itself with its back against the wall as a result of continuous contraction of its habitat and escalating land-use conflicts with man. The species has already been extirpated from some parts of its former range in Sri Lanka and the remaining isolated and fragmented populations remain extremely vulnerable to further poaching and habitat encroachment and degradation.

Without timely action, backed by strong political will and local understanding and financial support, the elephant population is at risk of becoming locally extinct in a number of areas in Sri Lanka. It is with this sense of urgency that the Department of Wildlife Conservation (DWLC) requested the preparation of an Action Plan for the Conservation and Management of the elephant in Sri Lanka. The Action Plan is designed to help the DWLC to adopt strategies that would ensure the long-term survival of the elephant in the wild in Sri Lanka. The success of any Action Plan will however depend on how well it is implemented subsequently. Such implementation will require high levels of cooperation

and collaboration between the Department of Wildlife Conservation, other Government Departments and Non-Government Organizations both within Sri Lanka and abroad.

The Action Plan has three main sections. In the Introduction (Section I), the status of the elephant in Sri Lanka is assessed, together with reasons for its decline. The Conservation Strategy (Section 2) establishes the basic principles and priorities required to achieve the objective, i.e. to ensure the long-term survival of the elephant, in its natural habitat in Sri Lanka. The strategy notes that it would be impossible to conserve large numbers of elephant in Sri Lanka as long as the human population continues to grow and deforestation continues indiscriminately. Implicit in this observation is the knowledge that it may not be possible to preserve elephants in all habitats where they presently occur. The Action Plan (Section 3) itself outlines the specific actions needed to ensure some measure of success in the conservation and management of elephant in Sri Lanka.

Taxonomy of the Elephant in Sri Lanka

The Sri Lankan elephant (*Elephas maximus maximus*) is the nominate subspecies. It has been shown to be genetically distinct from the subspecies found in the Indian mainland (Shotake *et al.*, 1986). Ellerman & Morrison-Scott (1951) list two subspecies of *Elephas maximus* from Sri Lanka, equating *E. m. maximus* L. with *E. m. vilaliya* Deraniyagala (sensu Deraniyagala) and accepting *E. m. ceylanicus* Blainville as the elephant inhabiting most of the island (McKay, 1973). According to McKay (1973) however, *E. m. vilaliya* represents no more than a few extremely large individuals in a highly variable population and he considers it to be synonymous with *E. m. maximus*.

Status of the Elephant in Sri Lanka

The elephant is a protected species in Sri Lanka and has enjoyed some degree of protection since the 12th century A.D (Wikramasinghe, 1928). It is listed in Appendix 1 by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This measure bans trade in a species threatened with extinction. The elephant, was given full legal protection in Sri Lanka as early as 1937. However, legislation alone could not prevent the decline in its number and range across the island as a result of sport hunting (in the past), poaching and human encroachment on its habitat. While the African elephant's misfortune is its tusks, the elephant in Sri Lanka is being threatened more by habitat loss and fragmentation as a result of escalating human population than by poaching for ivory, given that more than 85% of the bulls have no tusks (Deraniyagala, 1955). Poaching is therefore not the terminal threat to the elephant in Sri Lanka.

Number of Elephants in Sri Lanka

During the period of British Colonial rule, the number of elephants in the wild in Sri Lanka declined from about 10,000 to 2,000 animals (Schultz, 1984). It was squeezed out of the hill country and became associated with the low country dry zones. One problem

for conservationists is that figures on the number and distribution of elephants are difficult to collect. The animals do not oblige demographers by staying in one place, or even in one province. They cannot always be counted in the dense and tangled vegetation that they inhabit. So estimates of elephant numbers in the past have been largely guesses though based on experience. Today, much of the elephant censuses are being based on counting heaps of dung. Mr A. B. Fernando, an experienced (now retired) Wildlife official, puts the total number of elephants in the wild in Sri Lanka as anything between 2,800 and 3,250 (Santiapillai & Jackson, 1990). A more recent survey of the elephants carried out by the Department of Wildlife Conservation in Sri Lanka in June 1993 estimates a minimum of about 2,000 animals in the five regions surveyed in the island excluding the northern, north western and north eastern regions (Hendavitharana *et al.*, 1994). Norris (1959) posed three questions before he attempted to survey the elephant situation at that time. They were:-

- (1) How much land is available for them?
- (2) How much country do they need, remembering their seasonal movements?
- (3) How many elephants do we want to keep?

The long-term survival of the elephant as a wild species in Sri Lanka will depend on how wisely we address these questions and arrive at the answers.

The key question is not just how many elephants Sri Lanka has at present, but how many elephants will Sri Lanka be able to support by the middle of the 21st century, when given the current rate of growth, its human population has doubled to 34 million, and the forest cover has declined to say, 14%? It must be clear to everyone concerned that unless we are prepared to combine good science with strong population control and political will, the future for *Elephas maximus* in Sri Lanka will be grim.

CONSERVATION STRATEGY

The conservation strategy aims to ensure the long-term survival of as many *viable populations of elephant* in Sri Lanka as possible in as wide a range of their habitat as is practical by preventing or controlling conflicts with man (Parker, 1981). The emphasis is therefore on accommodating elephants and human beings rather than simply protecting the elephants in their habitat. Man and elephant in Sri Lanka have to live together by mutual adjustment.

Rationale

Project Elephant therefore differs from its conservation philosophy from that of the Project Tiger of India, which was based on the broad principle of establishing "core and buffer" areas giving absolute protection to the former and exploitation of the latter. This principle will not work in the case of the elephant characterised by large home ranges.

Therefore the rationale of the Action Plan is that elephant reserves must ensure the long-term survival of some of the identified key populations by protecting their entire home ranges. The main problem of elephant conservation is one of preserving the geographical extent as well as the quality of wildlife habitat of these ranges (Lahiri-Choudhury, 1991). Unlike in Tiger reserve, this cannot be done for elephants in selected patches of forests of limited extent.

As Lahiri-Choudhury (1991) points out, if the conservation and management of the entire elephant ranges or their selected parts is to be the principle objective of elephant conservation, then the core-buffer concept will be virtually useless. Nevertheless, the principle of total protection will continue to apply to crucial habitat pockets, such as areas where elephants take shelter during the 'pinch' period; cover used as daytime refuge for nocturnal foraging, salt licks to which elephants return periodically, and corridors linking different parts of an elephant range.

The management plan for any elephant reserve therefore will have to take into account the range utilization strategy of the elephants, as these crucial habitat pockets may very well be located in scattered points in the range, and not concentrated in one or two compact pockets as in a tiger reserve (Lahiri-Choudhury, 1991). Moreover, unlike the core areas in a tiger reserve, the entire range of an elephant population cannot, under Sri Lankan conditions, be insulated from disturbance by man. As a result, the "philosophy" may have to be changed to an adjustment between the needs of wildlife and environment, and the needs of man, particularly of people in the fringe areas dependent on forest resources for their subsistence. These considerations therefore call for a carefully targeted approach to elephant conservation in Sri Lanka with clearly defined priorities for action.

Strategy

A six-pronged strategy is outlined here to ensure the long term survival of the elephant in Sri Lanka.

Mitigation of the human-elephant conflicts.

Such conflicts, if not resolved, would threaten the long-term survival of the elephant across much of the island. However to date, there has been very little reliable recent information on the nature and extent of such conflicts. An understanding of the problem invariably is the beginning of wisdom. Therefore, urgent action should be taken to assess the extent of the recent human-elephant conflicts across as large an area as possible in the island. Such an assessment would indicate if these conflicts are widespread or localised so that appropriate action could be taken.

Protection of some of the key wild elephant populations.

Urgent action should be given to the identification and protection of some of the high

priority populations that would collectively conserve the essence of the species and maintain its ecological role. Action to protect these populations should be viewed as an emergency measure while solutions are explored for the protection of other populations throughout the island.

Note: The network of protected areas alone cannot ensure the long-term survival of the elephants in Sri Lanka since many of them are not large enough to accommodate the entire annual home ranges of the elephant populations. It is therefore highly unlikely that all elephants can be saved under prevailing conditions. Even without poaching, numbers will inevitably shrink in the face of human population growth and attendant development needs.

Promotion of Scientific Research.

A sound scientific understanding of a natural resource is fundamental to well planned management of the resource (Sale, 1985). In Sri Lanka, the acceptance of the need for systematic research as a basis for improved management has been a very slow process. This reluctance to accept the importance of research stems partly from the fact that many studies on wildlife, especially those conducted by Universities appear to management authorities to be of largely academic in content with no obvious relevance to management issues. Furthermore, management authorities are not always consulted about research priorities and most often have little to say in the type or design of research projects carried out under their jurisdiction (Sale, 1985). Research must be undertaken to provide the basis for both field actions and political initiatives. Research must determine the population trends of elephants in selected areas to allow assessment of conservation initiatives.

Political Actions.

Coordinated and directed political actions and interventions must be mobilized and targeted towards individuals, political bodies, government agencies and non-government organizations who hold responsibility for, or can influence effective action toward conserving the elephant in Sri Lanka.

Conservation Education and Awareness.

Popular support for elephant conservation must be built by communicating to the more affluent public the problems confronting elephants, their importance as a super keystone species in the forest ecosystem, and the role they play in Sri Lankan culture, religion and economy.

Coordination.

Provisions must be made for the adequate coordination and administration of these various activities, and for the development of further initiatives as they are required.

ELEPHANT ACTION PLAN

The immediate goal of the Elephant Action Plan is to seek some accommodation between man and elephant by mitigating the human-elephant conflicts. The long-term goal is to ensure the survival of the elephant in the wild in a number of self-perpetuating viable populations across a diversity of habitats in as large an area as is feasible.

- The Action Plan is divided into six components, each of which deals with a separate aspect of the proposed strategy.
- The rationale behind each of the six components is briefly discussed.
- The proposed activities within each sub-component are listed.
- Within each activity, a range of project concepts will be developed at workshops for inclusion in the Action Plan. These workshops will be convened by the Department of Wildlife Conservation and will include wildlife officials, scientists, officials from other Government Departments, representatives of credible non-government organizations and other concerned individuals.

FIELD ACTIONS

Field actions, as described in the African Elephant Action Plan (AECCG, 1989) are designed ultimately to provide protection to key elephant populations in Sri Lanka. These may be viewed as a series of interventions beginning with emergency actions to reduce elephant-human conflicts and moving on to the projects designed to enhance the conservation of the elephant populations in the long-term. These projects include strengthening wildlife conservation programmes and integrating economic development with elephant conservation (AECCG, 1989). To the extent practicable, field action projects should be initiated on a regional basis to take advantage of the existing institutions, projects and networks within the regions.

Mitigation of human-elephant conflicts

With the increase in the human population growth and the decline in the forest cover in Sri Lanka, conflicts between man and elephant for the resources of the land have increased significantly over the recent years. Crop depredation by elephants has become a way of life. Farmers who bear the brunt of elephant depredations have in extreme circumstances, even resorted to killing elephants. Elephants have also attacked and killed people. Although more people are killed on the roads and by snake bites, people killed by elephants provide much adverse publicity for elephant conservation. The human-elephant conflicts in Sri Lanka have so far not been mitigated satisfactorily. The reasons for this are many, but are mainly that the field forces are under-equipped, under-funded, under-paid, and under-staffed to resolve the conflicts. In some areas, especially in the Mahaweli Development Area (Fig 1) human-elephant conflicts have become so grave that urgent action is needed to reduce the current level of conflicts.

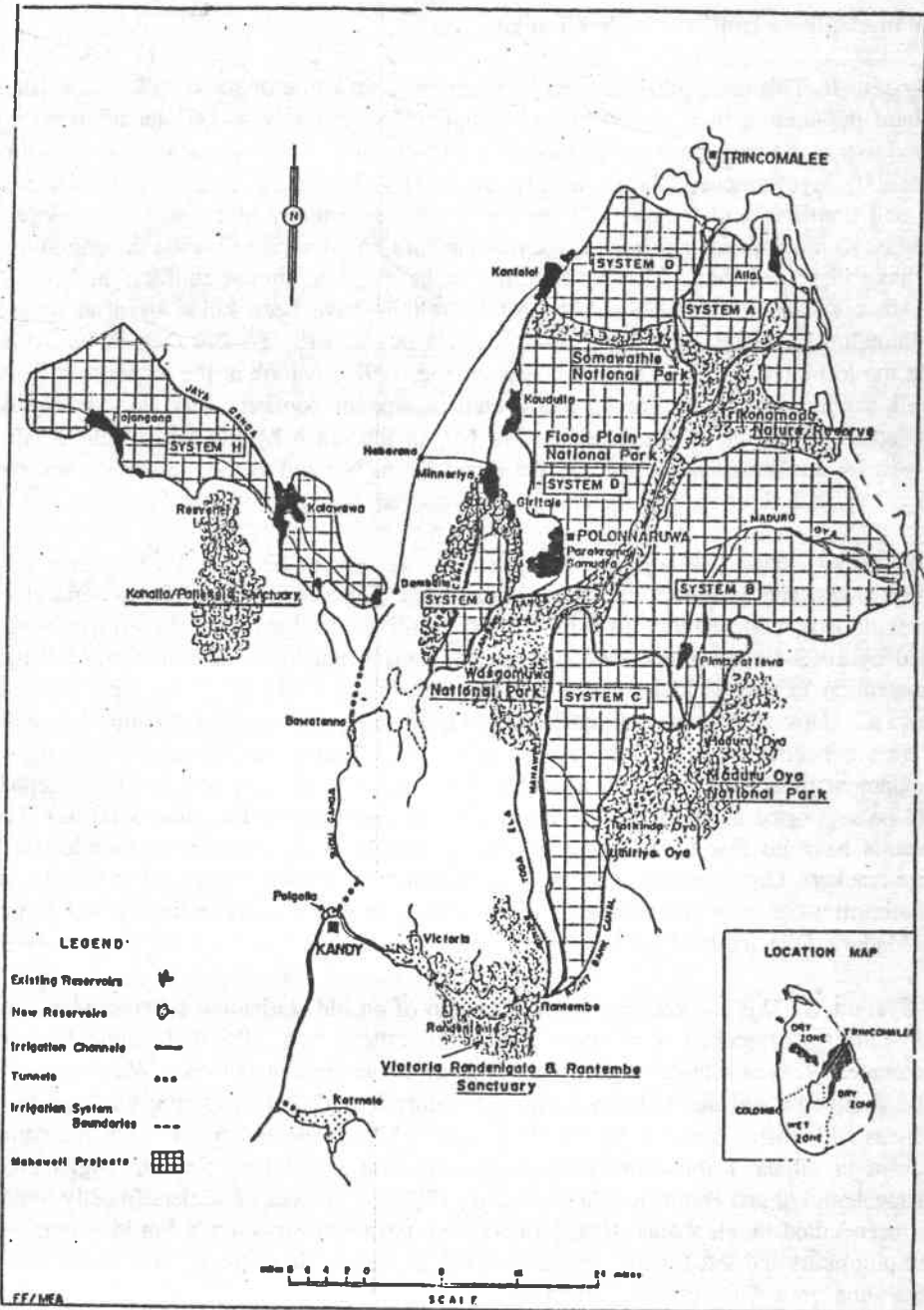


Fig. 1. Map of Mahaweli Development Area and associated Reserves.

Human-elephant conflicts in Sri Lanka

(i) **System B.** This once prime elephant habitat, was the home of some 25% of the island's elephant population, then estimated to be about 2,750 animals. 44,063 ha of forest were cleared to provide irrigation facilities to about 34,548 families who were targeted for ultimate settlement (Jayewardene, 1989). Already, some 11,417 families have been settled in this area and conflicts with elephants have increased substantially since then. The elephants have lost so much of their former range that they are now forced to invade the communities that have displaced them. This is the crux of the elephant-human conflicts in Sri Lanka (de Alwis & Santiapillai, 1993). At least 12 settlers have been killed by a small group of marauding elephants that broke away from a larger herd of more than 30 individuals along the left bank of the System B (Jayewardene, 1992). A look at the location of System B will explain why there are so many human-elephant conflicts (Fig. 1). System B is bounded to the south by the Maduru Oya NP, to the north by the Somawathiya NP, to the west by the Wasgomuwa NP and the Flood Plains NP and to the east by the uncleared area of System B extending as far as the proposed Nelugala Jungle Corridor.

(ii) **System C.** This lies adjacent to System B, wedged in between Wasgomuwa NP to the north-west and Maduru Oya NP to the southeast. Here 24,300 ha of forest were cleared to provide irrigation facilities to some 23,500 families, of which 14,700 families had been settled by 1989 (Jayewardene, 1989). A survey carried out by the Department of Wildlife Conservation in mid 1980 indicated that between 485 and 515 elephants were present in System C. (However, these estimates are outdated today, given the rapid development in the areas concerned. Furthermore, as Fernando (1994) points out, the areas referred to are development blocks and not forest blocks. Therefore it is unlikely that so many elephants could be supported in the 7 blocks whose total area amounts to less than 3500 ha). These elephants have no fear of man and do not respond to such measures as thunder flashes or fire crackers. One reason for the serious elephant-human conflicts in System C is because the authorities concerned decided to do away with the proposed corridor linking Wasgomuwa and Maduru Oya national parks (Jayewardene, 1992).

(iii) **System G.** This project area is an extension of an old settlement scheme where some 2,906 families of second generation of the old settlers were allocated jungle land after development (Jayewardene, 1989). This System is wedged in between Wasgomuwa NP to the south-east and the Minneriya-Giritale Nature Reserve to the south, west, north and north-east. Elephants come from the Wasgomuwa NP and have caused extensive damage to crops at Ihala Kaluwewa, Attanakadawela, Radavige Oya, Segala, Diggalapitiya, Kahatagahapitiya and Batuhena (Jayewardene, 1989). A number of settlers (mostly women) have been killed by elephants. Irrate farmers have poisoned (insecticide Furodan is put into small pumpkins and left for the elephants to eat) at least 3 elephants in 1993 in the Elahera / Bakamuna area (Jayewardene, 1994).

(iv) **System H.** This project area lies in between Wilpattu NP on the west and Minneriya-

Giritale NR to the east and was regularly attacked by elephants. The elephant problems still continue but are less than what they were before, with the establishment in 1988 of the Kahalla/Pallekelle Reserve comprising 21,690 ha (Jayewardene, 1992). There are about 40 elephants in the Resvehera Temple area, and another 50 animals inhabiting the Kahalla/Pallekelle Reserve and the animals are known to migrate periodically eastwards to the Galkiriyagama forests, destroying crops and dwellings of the people *en route*. A number of elephants have been killed. The forest cover in the reserve has declined by 50% and hence the need for elephants to move out. The three main areas in System H that suffer from elephant depredations are Bongama, Madatugama/Galkiriyagama and Andarawewa.

(v) **Handapanagala.** About 130 elephants regularly utilize the Handapanagala waterhole which has perennial supply of water, and the adjoining grazing areas. They are however attracted by the nearby Pelwatte Sugarcane Plantation situated between Kirindi Oya and Menik Ganga south of the Wellawaya-Buttala Highway. According to Fernando (1994), the large concentrations of elephants around the Handapanagala area are not all migrants from Ruhuna National Park and its periphery. Kirindi Oya basin was occupied by elephants prior to the establishment of the sugarcane plantation, some 10-12 years ago, and a large resident group of elephants occupied the forest around Handapanagala and its periphery. These elephants have regularly raided not only the sugarcane plantation but also the small holdings of the settlers in the area. Although the human casualties have been low, many elephants have been killed since the establishment of the Sugarcane Factory.

(vi) **Other conflict areas.** In addition to the areas mentioned above, the Department of Wildlife Conservation (DWLC) has identified other areas where elephant-human conflicts have become serious. These include areas such as Haldummulla, Uma Oya; the area between Lunugamvehera, Udawalawe and Bundala; Haltota-Haldummulla area north of Udawalawe National Park; Heen Ganga to Dumbara valley in the vicinity of Wasgomuwa National Park; Sigiriya-Habarana area, and Ritigala-Kalawewa area.

Objective: To undertake immediate action to assess the problems in these areas and recommend the most appropriate solutions in order to mitigate the human-elephant conflicts.

Activities:

Elephant Conservation & Management Unit (ECMU):

One ECMU should be established in the DWLC Head Office in Battaramulla, manned by a Scientific Officer and a secretary. In addition there should be three ECMUs in the conflict areas, such as Polonnaruwa, Anuradhapura and Kataragama. Each unit will comprise a Veterinary Officer, a Wildlife Officer (Ranger or Range Assistant) and it should be provided with a vehicle and a driver, and appropriate communication equipment. The team will seek assistance from Wildlife Officers whenever possible. The field units must work under the supervision of regional Assistant Directors. However, they can act independently given the nature of the situation in the field. The ECMU in the Head Office will be the