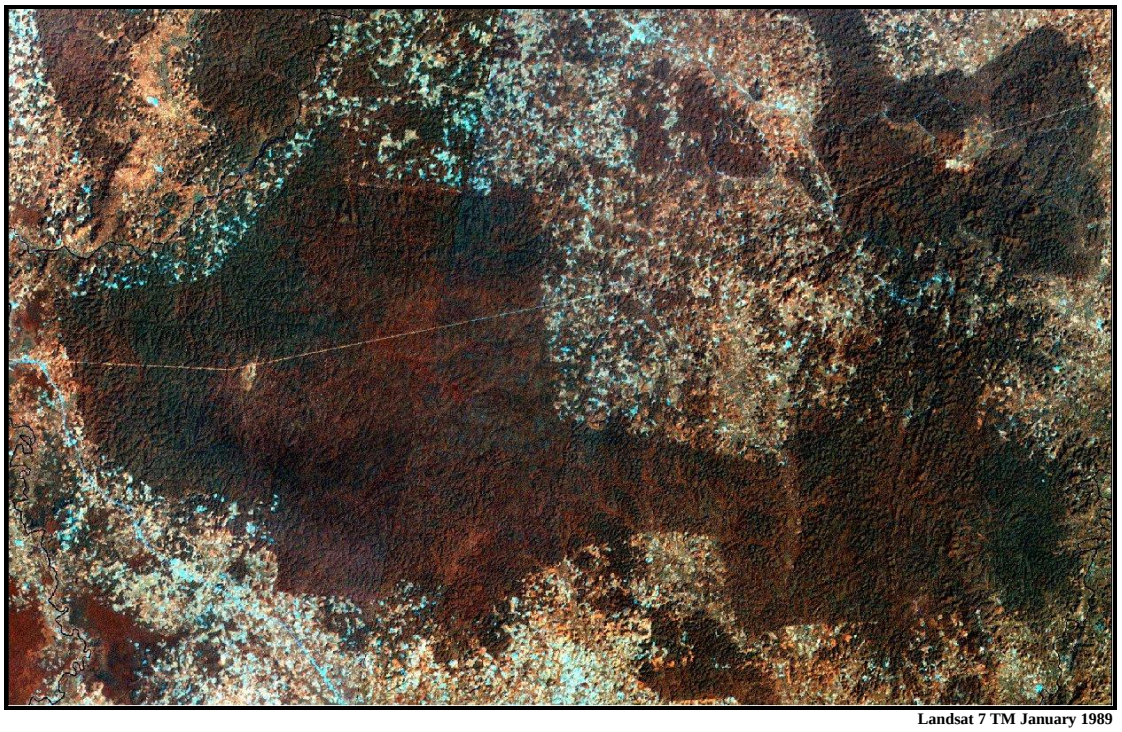
PROTECTED AREAS DEVELOPMENT PROGRAMME,

Wildlife Division (Forestry Commission)

Ghana



Landsat 7 TM January 1989

Ankasa Conservation Area

Management Plan

March 2000

ULG NORTHUMBRIAN LTD

in association with

S.A. *Agrer* N.V

Preface

The Ankasa Conservation Area is an ancient rainforest and the most biodiverse in Ghana. It represents the only wet evergreen protected area in almost pristine state. As such its preservation is of paramount concern. Its importance for scientific study, environmental stability and educational and recreational purposes cannot be overstated. It is home to over 800 vascular plant species, forest elephants, leopard, bongo, chimpanzees and virtually all of the West African forest primates. It has an impressive avifauna, six hundred butterfly species and its network of streams is an important breeding ground for many of the fish species in the Eburneo-Ghanaian ichthyofauna region as well as being of immense importance for the biotic integrity of waters west and south of the Protected Area.

The need for a Management Plan was emphasised in 1991 but planning was only possible with the European Union funding made available in 1997. Minor preliminary surveys had indicated the importance of Ankasa but very little in depth study had been done and little was known of the Protected Areas in the context of the District and the relationship with the local populations. The following document is the result of four and a half years of intensive studies, consultations and infrastructural improvement.

The management of the Protected Area is the responsibility of the Wildlife Division of the Forestry Commission (until 1999 it was known as the Wildlife Department, a single, centralised government institution directly under the Ministry of Lands and Forestry, now Lands Forestry and Mines). Historically, since its creation in 1967, it has been severely under-resourced and unable to perform its mandate effectively. This has meant a serious reduction in management capability and the conservation of Ankasa has suffered as a result.

The major threat to the integrity of the Ankasa Protected Area comes from external pressures. Pressures that arise from the increasing human population, uncontrolled immigration and settlement, leading to a major change in land use with subsequent depletion and degradation of natural resources off-reserve. The off-reserve areas are governed by a plethora of national and local government institutions and traditional authorities. Arbitrated by, often, archaic legislation and conflicting, policies frequently developed in isolation of each other. The implementation of the laws and regulations are further constrained by a lack of both human and physical resources. The future integrity of Ankasa Protected Area relies on both developing a system through which these disparate players can interact and a programme of intervention involving resource input, training and education. This will enable and empower stakeholders to regulate their resource use efficiently. Therefore this management plan does not simply regard the Protected Area in isolation but rather takes a holistic approach and considers the Protected Area's position in the structure and economy of the District in which it constitutes a major asset.

The Forest and Wildlife Policy, 1994 enshrines the principle of conservation through sustainable development and clearly states the Government's intentions with regard to the wildlife resource and protected area management. The policy explicitly recognises the need to associate local communities with protected area management through the generation of benefits such as natural resource utilisation and employment. The policy also establishes the principle for the partial retention of locally raised revenue both for expenditure within protected areas and for disbursement to the local community.

However, wildlife conservation in Ghana has centred mainly on the conflicts of interest, which arise between local communities living around the protected areas and the State's attitude towards wildlife exploitation. In the past, the WD has pursued a traditionally preservationist attitude towards protected areas though it has rarely had the resources for appropriate enforcement. This approach has alienated local communities and has excluded opportunities for participatory rural development activities and the sustainable use of the reserves' resources. At the same time it has discouraged the involvement of private enterprise in the utilisation of the wildlife resource and protected areas and failed to recognise the importance of wildlife within the managed economy. As a result reserves have all too often been subject to unsustainable exploitation of their natural resources. This situation is not unique to Ghana, being apparent in many developed and developing countries.

The role of the WD has been, to a large extent, that of managing the protected areas system of Ghana. There has been little recognition of the role of wildlife off-reserve. But, off-reserve wildlife forms a major part of the rural economy. Recent surveys both nationally and locally have shown that the multi-million dollar bushmeat trade in Ghana is supplied mainly from the off-reserve areas. The protected areas are probably insignificant in their contribution to the national trade in bushmeat. Many of the species key to the trade benefit from the secondary forest and farming practices that occur off-reserve. Yet it is these areas, predominantly Stool lands, where the regulation of hunting and resource use is least controlled. Current attempts to encourage "community conservation" are often no more than attempts to place all the responsibility for wildlife on the farmer without delegating any of the authority to him. As such he is unable to manage the wildlife and simply exploits the resource. The economic considerations are virtually ignored by policy makers and as a result wildlife contributes little to the national and local formal economy. Wildlife issues are thus trivialised and all too often overlooked.

There is a cost involved in managing wildlife, whether it is a direct cost on-reserve or an opportunity cost to the farmers off-reserve. Any benefits from managing the wildlife should therefore go to the institution or person who bears the cost most heavily. Thus, the Wildlife Division that bears the cost on-reserve and the individual farmer off-reserve should receive any benefits that accrue from their separate areas.

This Management Plan recognises that *authority* and *responsibility* must be linked for successful wildlife management. This must be reflected on-reserve as well as off-reserve. Therefore the following objectives must be achieved:

1. The management and authority for Ankasa Protected Area should lie firmly with the Wildlife Division.
2. The authority for wildlife should be conditionally devolved to the *de facto* managers of wildlife off-reserve, i.e. the communities of farmers.

This Plan presents a mechanism that will allow the Wildlife Division to gradually devolve authority to manage wildlife off-reserve to the communities. It is strongly believed that this process of developing Community Resource Management Areas coupled with the recommended infrastructural and institutional strengthening on-reserve will be the best hope of ensuring the future integrity of the Ankasa rainforest and, indeed, the conservation of the Protected Areas System of Ghana.

Signature of Minister MLFM/
Chief Executive Forestry Commission/
Executive Director of Wildlife Division
(delete as appropriate)

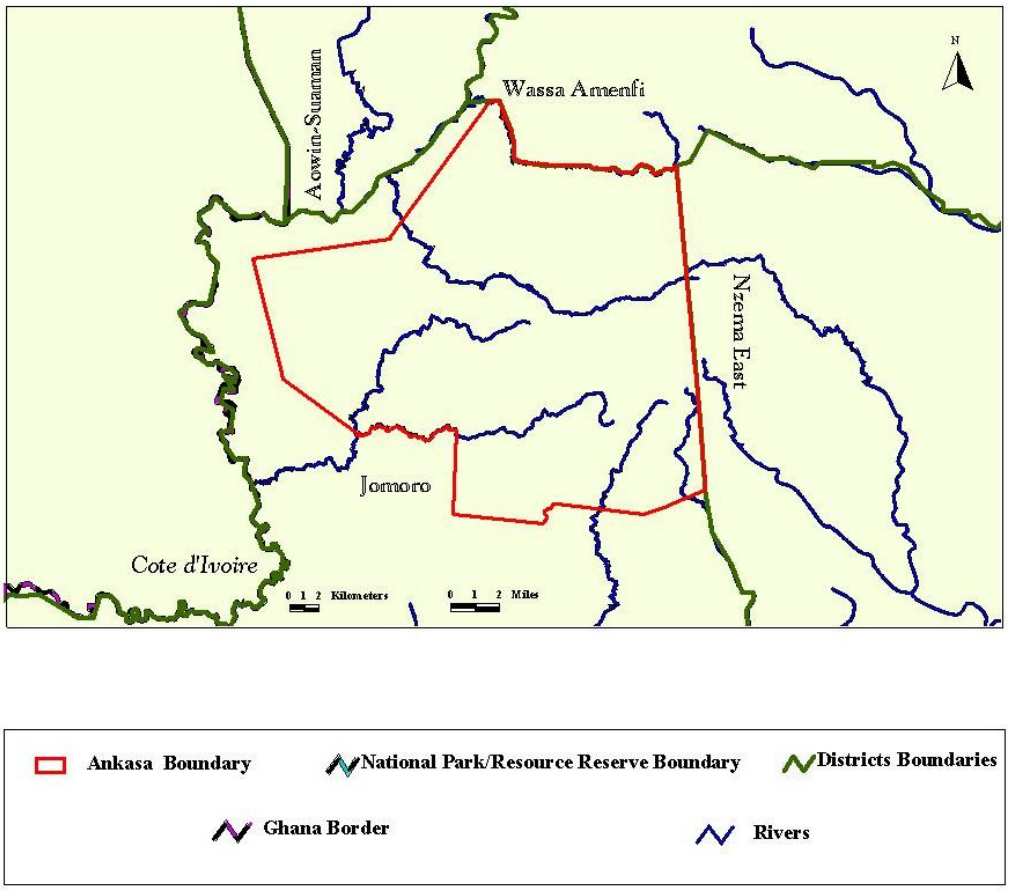
Figure 1: Geo political map of Africa, highlighting Ghana and the location of Ankasa Conservation Area

Foreword

This document provides the first substantive Plan of Management for the Ankasa Conservation Area. It is primarily concerned with the proclaimed reserves, namely the Nini Suhien National Park and the Ankasa Resource Reserve (Figure 2). These two Reserves are the only wildlife-protected areas in the wet evergreen high forest zone of Ghana. The two contiguous areas have the highest biodiversity rating of any area in Ghana, yet until the onset of the Protected Areas Development Programme in 1997 were virtually neglected in terms of infrastructure, staffing and logistical support. Very few studies of the resources of the reserves had been made and little was known of the situation in the off-reserve areas.

The Protected Areas Development Programme, Western Region, Ghana (PADP) is a European Union funded Programme of the now Wildlife Division, initially planned in 1991. The original document was reviewed and updated as part of the Protected Areas System Planning Process in 1993. The financing Agreement was signed in 1995 and the Programme finally commenced in 1997. Its main aim was to develop resource reserve management plans that will enhance biological diversity conservation in two nationally and internationally important representative protected areas. The Nini-Suhien National Park and Ankasa Resource Reserve and Bia National Park (also an UNESCO Biosphere Reserve) and Resource Reserve are all located in the high-forest zone of the Western Region. Biologically, these conservation areas are two of the most important high forest areas remaining in Ghana. These plans, of which this document is the first, will significantly, contribute to the sustainable development of Ghana's natural resources and the conservation of biodiversity for the benefit of future generations.

Figure 2: The Ankasa Conservation Area



The Programme has two components:

a) A management and development study of the Ankasa and Bia conservation areas which will identify wildlife conservation requirements, management priorities and establish a functional link between resource conservation and development interventions for local communities.

b) Initial implementation of the management plans which will involve some infrastructural development in the reserves and initiation of support for local communities and the mobilisation of those communities in natural resource management.

The 36-month program started on March 25 1997. The WD is implementing the project in both areas, under a contractual arrangement with ULG Consultants Ltd (now ULG Northumbrian Ltd) in association with S.A. *Agrer* N.V. The allocated Budget is €4,600,000. An eighteen month extension to the Programme was granted in March 2000 following a favourable evaluation of the progress achieved and in order to bridge the gap between Phase I and Phase II currently under consideration. It is intended that the full implementation of the management plans would be funded in Phase II of the PADP.

This plan is the work of a large number of people, as acknowledged in the Planning Team list. The comprehensive and consistent support of Mr Nick Ankudey, Executive Director of the Wildlife Division, Officers of the Ministry of Finance, the back-up team at ULG Northumbrian Ltd and the Desk officers at the EC Delegation has been greatly appreciated. I give them my thanks. My thanks too, to the field-staff of both *Bia* and *Ankasa* who have been patient and co-operative during the formulation of the plan and to Raleigh International who, through six expeditions, have helped realise much of the infrastructural improvement in both areas. Last but not least I thank the Traditional Council of Western Nzema, for their unstinting support, advice and assistance through what has proved to be a long and complicated planning process.

Paul Symonds
Team Leader
PADP
Takoradi

Plate 1: The Forest looking up

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No. 1, 3-9, 11&12 by Kip Warr, ULG Northumbrian Ltd.
No. 2 by Fred Acquaye, PADP
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Management Plan edited by
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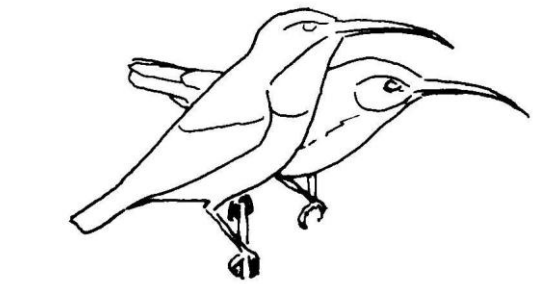

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List of Acronyms

AWO	Assistant Wildlife Officer
CA	Conservation Area
CEC	CREMA Executive Committee
CLO	Community Liaison Officer
CREMA	Community Resource Management Area
CWO	Community Wildlife Officer
CWO	Chief Wildlife Officer, now Executive Director of the Wildlife Division (Forestry Commission)
DA	District Assembly
DCE	District Chief Executive
DfID	Department for International Development
EDF	Environmental Development Fund
EC	Delegation of the Commission of the European Union
EU	European Union
FC	Forestry Commission
FSD (FD)	Forest Services Division (FC), was Forestry Department
FPID (FPIB)	Forest Products Inspection Division (FC), was Forest Products Inspection Bureau
FPSP	Forestry Permanent Sample Plots
FR	Forest Reserve
GoG	Government of Ghana
GTB	Ghana Tourism Board
GWD	Game and Wildlife Department, then Ghana Wildlife Department, then Wildlife Department, now Wildlife Division of the Forestry Commission
GSBA	Globally Significant Biodiversity Area
IUCN	International Union for the Conservation of Nature and Natural Resources
JICA	Japanese International Co-operation Agency
MLF	Ministry of Lands and Forests, now MLF&M - Ministry of Lands, Forests and Mines
MoFA	Ministry of Food and Agriculture
MoT	Ministry of Tourism
NAO	National Authorising Officer for EDF Projects, Ministry of Finance
NCRC	Nature Conservation Research Centre
NGO	Non-governmental organisation
NP	National Park
NRMP	Natural Resources Management Project
PA	Protected Area
PADP	Protected Areas Development Programme
PAMAB	Protected Area Management Advisory Board
PAMIS	Protected Area Management Information System
PAMWCP	Protected Areas Management and Wildlife Conservation Project
PWO	Principal Wildlife Officer
PWPO	Principal Wildlife Protection Officer
RMC	Resource Management Committee
RR	Resource Reserve
SNV	Netherlands development organisation
SWO	Senior Wildlife Officer
SWPO	Senior Wildlife Protection Officer
TEDD (TEDB)	Timber Export Development Division (FC), was Timber Export Development Board
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USAID	United States Agency for International Development
WD	Wildlife Division (FC), was Wildlife Department
WMIS	Wildlife Management Information System
WO	Wildlife Officer

EXECUTIVE SUMMARY

This Plan aims to develop the Wildlife Division's capacity to manage the Protected Areas of Ankasa Resource reserve and Nini Suhien National Park, enhancing the conservation of its natural resources, the advance of scientific knowledge and the improvement of visitor experience. At the same time it aims at increasing revenues and ensuring that the integrity of Ankasa is maintained within the District context. However, the major threat to these reserves, besides the management shortfall, has been identified as coming from the human population and current land-use practices surrounding the Protected Areas. Therefore a program to stabilise the land-use and provide appropriate legislation for community management of wildlife in the off-reserve areas has been developed and must proceed in parallel with the on-reserve implementation. The design of this program is in its infancy and is being introduced only in a small pilot area. This Plan proposes the process to establish the links, responsibility and authority necessary to create a participatory wildlife management system that will enable appropriate biodiversity conservation on-reserve and a concurrent, regulated and sustainable wildlife utilisation system off-reserve.

The plan follows the IUCN Management Plan format of the Protected Areas System in Ghana. There are six sections to the plan itself, eight Appendices and a series of twenty five studies conducted during the formation of the plan attached as Annexes. The latter are to be found on the CD Rom inside the back cover of this Plan.

SECTION ONE presents the general information and policies affecting wildlife in Ghana. It gives details of the existing Ghanaian Protected Areas System and the importance of Ankasa Conservation Area within it. It further describes all the recent Institutional and legislative developments that have had significant impact on the management perspective of the Reserves. The Management Planning process is discussed in detail outlining the studies undertaken. The Section ends with a policy proposal for the two reserves. "In recognition of the biological importance of Ankasa Resource Reserve and Nini Suhien National Park, the limited size of the Protected Area and the parlous status of the natural resources remaining off-reserve, the Government of Ghana should take immediate steps to re-designate the entire Protected Area as the Ankasa National Park comprising all of the currently gazetted area of both reserves

SECTION TWO is divided into three parts. A physical description of the Protected Areas, including its history of establishment and early management, its physical features and its unique biodiversity comprises the first part followed by a detailed description of the off reserve area in order to place the reserve in its proper district context. The plethora of administrative structures and institutions, both government and traditional, are discussed in relation to their individual influence on the Conservation Area's management and continued existence. The third part looks comprehensively at the population dynamics and land use within the Conservation Area.

SECTION THREE examines the specific management factors that must be considered by the Plan and states the Management Objectives for *Ankasa*. Thus, it first discusses the unique biological significance of Ankasa itself then the significance of the contiguous off-reserve areas as both a threat to the Protected Areas and as a resource rich management area in need of rationalised legislation and institutional structures to enable effective management by its inhabitants. The significance of Tourism to the long term viability of the area and as a major revenue generator is emphasised. It recognises the difficulty of the under resourced Wildlife Division to regulate Wildlife utilisation in the country and that any management plan to ensure the long-term conservation of *Ankasa* must incorporate a system of off-reserve land use stabilisation and natural resource management. The linked concepts of *Authority* and *responsibility* are discussed in detail as they pertain to the management of Wildlife on and off reserve. While it is evident that the Wildlife Division cannot realistically take *responsibility* for the off-reserve areas it remains the highest *authority* for wildlife in Ghana and it is therefore beholden upon the Wildlife Division to demonstrate and permit mechanisms that will allow the delegation of authority to communities to manage wildlife in their areas on its behalf and to retain revenue from such management. Section Three also deals with the important philosophy of off-reserve development. Contrary to the established thinking on Integrated Conservation and Development Programmes emphasising the role of income generating micro

projects within communities neighbouring Protected Areas to provide an alternative to wildlife poaching, this plan proposes that the only developments that the Wildlife Division should be involved in off-reserve is the development of community-based wildlife management systems and programmes encouraging the re-establishment of economic forest products. It maintains that the need for a programme of micro-enterprises has never been fully established as a pre-requisite for the conservation of wildlife. It is in effect a pre-conceived need of the local communities and rural development policy and within such a programme there is a very real danger that the resulting development could be detrimental to Ankasa, drawing in more people to the area to take advantage of the development gains to be had there. The Wildlife Division should instead concentrate on the one thing that it has the authority for outside the Protected Areas, namely the wildlife and by giving the wildlife a focused value the people who live in the area will manage it in a manner that is compatible with the interests of *Ankasa*. The Management aims for *Ankasa* are therefore stated as:

> Whilst ensuring the protection of *Ankasa* in perpetuity, the objectives for management must be consistent with the national and international importance of its natural heritage and its significance to the local population. The management objectives of *Ankasa* can be grouped into three broad categories, with a fourth directly concerned with the off-reserve area:
>
> - Natural Heritage: the preservation of the natural value of *Ankasa*;
> - Interpretation: provision of an educational and interpretative programme;
> - Tourism: provision of appropriate recreational opportunities and access to *Ankasa*, providing that these do not conflict with, or take priority over the preceding categories;
> - Off-reserve: to promote community-based wildlife management systems.

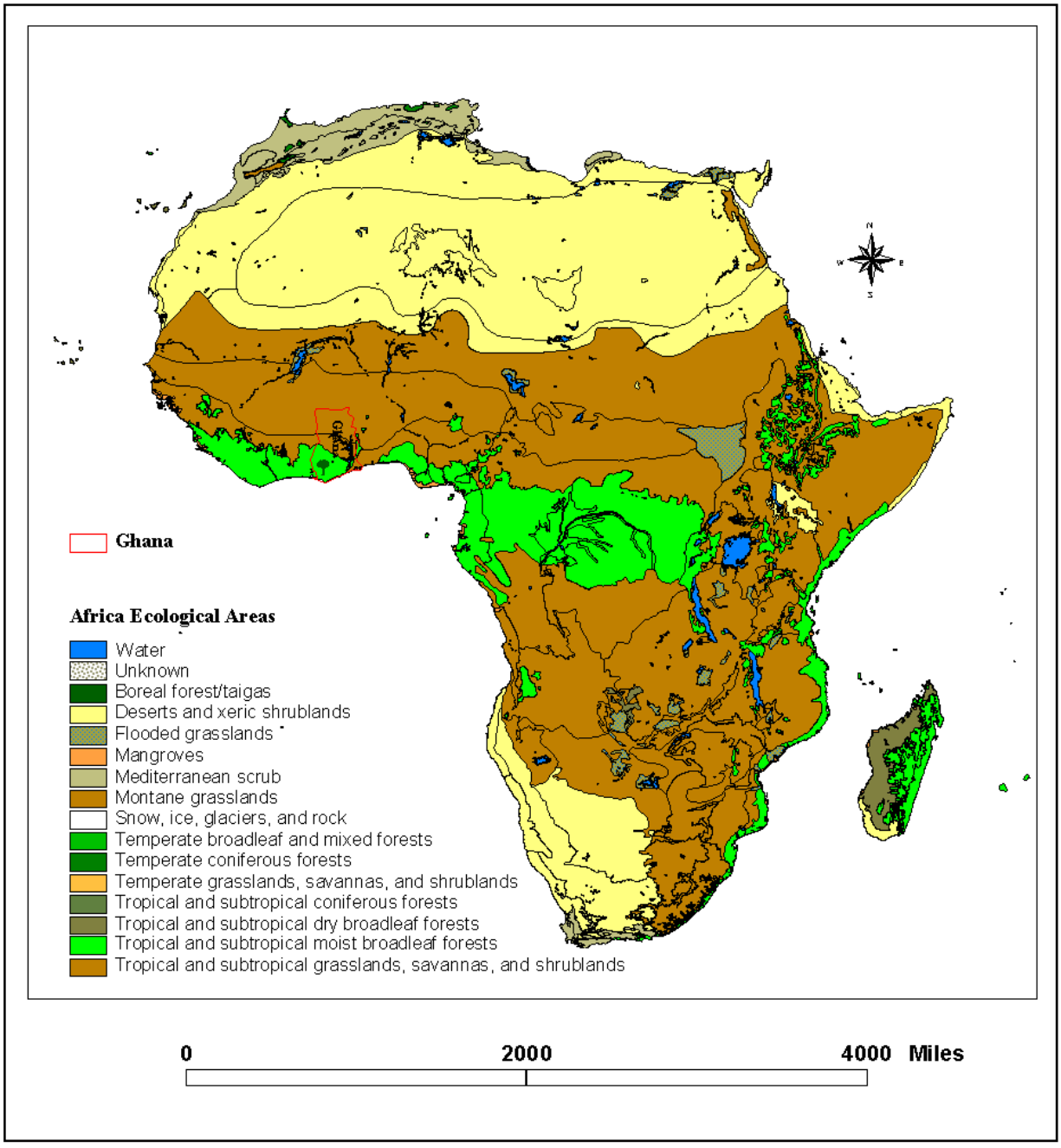
SECTION FOUR is divided into eight chapters and constitutes the major part of the action plan itself. The first chapter deals with the Planning and procedure of the Plan itself – the means of revision, feedback and evaluation. The major impact on *Ankasa* is human interaction both legal and illegal. *Ankasa* does not lend itself to a simple zoning plan. However, there will be specific small areas that need different levels of management input. These areas need to be determined and their management prescriptions described as an important prerequisite for the future development and conservation of *Ankasa*. This is therefore covered in the second chapter (4.2) and is followed by three chapters dealing with the Administration, Law Enforcement and Infrastructure (4.3 to 4.5). Additional planning and management activities within Ankasa are covered in chapters on Research and Monitoring, and Tourism, Interpretation and Education (4.6 to 4.7). The very important issue of off-reserve liaison and District integration is dealt with in the last chapter (4.8).

SECTION FIVE: The output of each management prescription is considered a milestone in the development of *Ankasa*. All of these milestones are summarised in Section 5 where they are assigned a priority status. This will aid the managers to assign scarce resources in the most efficient manner and aid in the production of the Annual Work Plan.

SECTION SIX: The design and procedures for Annual Work Plans and Cost estimates, based on these prioritised outputs are introduced in Section 6. Each Annual Work plan will, as it is developed, also assist in updating information on the current status of each management area of responsibility.

It should be noted that the names of various government institutions have changed over time, some more than once. The Wildlife Division (Forestry Commission) was first created in the Sixties as the Game and Wildlife Department (GWD). It then became referred to as the Ghana Wildlife Department (GWD), then in 1994 as the Wildlife Department (WD). In 1999, it was renamed the Wildlife Division (WD). In this text, the latter term has been used for all current and future references; the earlier nomenclature has been used in reference to records and reports of the time. A similar practice has been followed for the names of other Departments and Divisions.

Figure 3: Ankasa Conservation Area in an African Ecological Zone context



SECTION I GENERAL INFORMATION AND POLICIES AFFECTING WILDLIFE

1.1 Protected Areas System in Ghana

In May 1992 the Wildlife Department with assistance from IUCN, the World Conservation Union, conducted an "Appraisal of the Protected Areas System of Ghana" (IUCN, 1994). It stated the main objective of the Wildlife Department over the next decade to be:

> "*to provide Ghana with a well protected, professionally managed network of representative national parks as defined by international standards in regard to conservation of ecological integrity, environmental education of the population and compatible recreational uses. To promote, within the Game and Wildlife Department, the development of a corresponding national park philosophy.*
>
> - *To strengthen protection in all protected areas and develop those with potential for visitation as an integrated contribution to the tourism development efforts of Ghana*
> - *To ensure that national park management and protection play a dynamic role in the socio-economic development of the regions in which they are located*
> - *To ensure that the management of national parks and other areas contributes to the public awareness and education concerning the national and global environmental issues*
> - *to promote staff excellence and professionalism and enhance the image and credibility of the Game and Wildlife department as a modern national park agency."*

Creation of protected areas including National Parks and Resource Reserves and changes to existing ones require ministerial and parliamentary approval. Boundaries are then published in the official Government Gazette.

A major change in conservation attitudes was adopted in the form of the Forest and Wildlife Policy of 1994[1]. The aim of this policy was the "Conservation and sustainable development of the nation's forest and wildlife resources for maintenance of environmental quality and perpetual flow of optimum benefits to all segments of society." In support of this, the Department of Game and Wildlife (now the Wildlife Division of the Forestry Commission) adopted the following definitions of a National Park and Resource Reserve, based on decisions of the General Assembly of the International Union for the Conservation of Nature and Natural Resources (IUCN), New Delhi 1961 and further refined by IUCN in 1978:

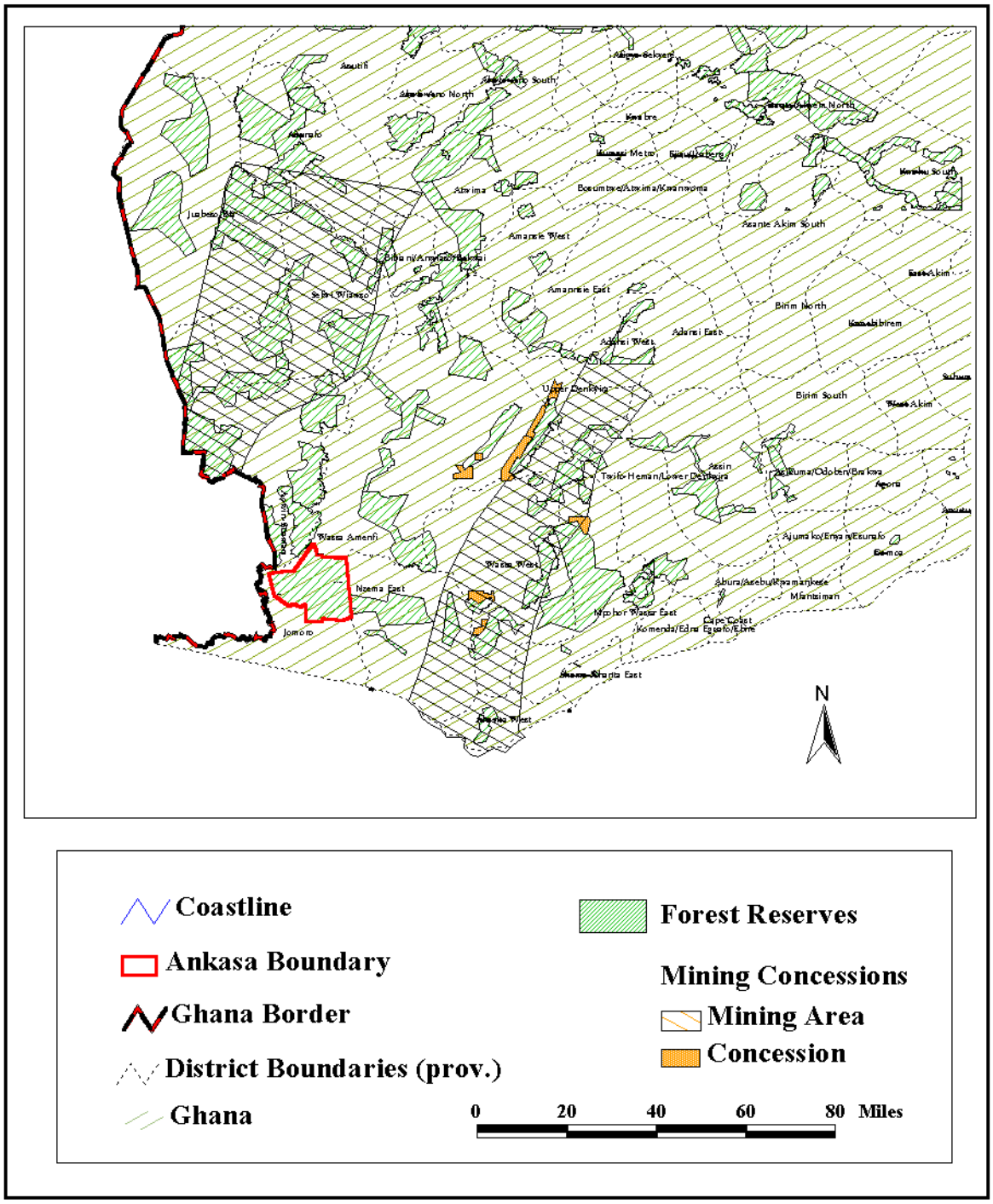
- A National Park
  - generally a large and relatively undisturbed area of outstanding natural value containing representative samples of major natural regions, features or scenery and containing one or several entire ecosystems and not materially altered by man (or reflecting longstanding cultural land management practices). The areas should be accessible to the public, have high recreational, educational, inspirational and cultural potential of clear benefit to the local people, the region and the nation.
  - The highest competent authority i.e. GWD will administer and manage these areas so as to prevent or eliminate exploitation or intensive occupation in order that they might be maintained in perpetuity in a natural or near natural state.
- A Resource Reserve
  - Areas of variable size in which habitats are managed to guarantee conditions essential to the well being of selected species for the sustained production of wildlife products (meat, timber, pasture, fruits, honey and other Non Timber Forest Products (NTFPs) for cultural practices, tourism and trophy hunting. The conservation priorities will involve the manipulative management of species and their habitats to ensure the protection and propagation of the target species, including introduced indigenous and exotic species. Management will be conducted in such a way as to

[1] Forest and Wildlife Policy 1994

preserve the areas' natural aspect as far as possible. Other forms of land use compatible with these goals will be allowed.

– These areas may be managed by a central authority, or through agreement, by other levels of government, special trusts or local community institutions as appropriate under the overall supervision of GWD.

Figure 4: Protected Areas in Western Ghana



The Wildlife Division is currently responsible for 15 terrestrial areas comprising 6 National Parks, 6 Resource Reserves, 2 Wildlife Sanctuaries and 1 Strict Nature Reserve (Table 1). The Protected Areas cover 1,267,600 ha or 5.2% of Ghana's total land area. In addition, there are five RAMSAR sites covering a total wetland area of 1,725,000 ha. A sixteenth Protected Area, Kyabobo Range National Park, has been described but not yet gazetted

Table 1: The Wildlife Protected Areas of Ghana

Protected Area	*Size Km²*	*Vegetation Type*	*Management Plan*
Nini-Suhien NP Ankasa RR	509	Wet Evergreen Forest	2000
Kakum NP/Assin Attandaso RR	346	Moist Evergreen Forest	1996
Bia NP & RR	306	Transition Moist Evergreen/Semi Deciduous Forest	1982/2001
Owabi WS	13	Forest	1993
Mole NP	4,840	Savannah	1994
Digya NP	3,478	Savannah	1995
Bui	1,820	Savannah	None
Gbele RR	565	Savannah	None
Kogyae SNR	385	Savannah	1994
Kalakpa RR	320	Savannah	1994
Bomforbiri WS	53	Savannah	1994
Shai Hills RR	48	Savannah	1992
Kyabobo RangeNP	336	Montaine Savannah	None

RAMSAR Sites	**Area Km²**			**Vegetation Type**	**Management Plan**
	Mang't Area	**Lagoon Area**	**Core Zone**		
Anlo-Keta	1,200	300	25	Coastal Wetland	1999
Songor	330	115	5	Coastal Wetland	1999
Densu Delta	70	20	3.5	Coastal Wetland	1999
Muni	90	3	1.5	Coastal Wetland	1999
Sakumo	35	3	1	Coastal Wetland	1999

1.1.1 Recent Institutional and Legislative Developments

In the seven years between the inception of the need for a management plan for Ankasa and the implementation of the process many changes in the political and institutional structure occurred. These had to be incorporated into the Plan. Much of the original thinking and recommendations were overtaken by events and policy development. The planning process has necessarily been an adaptive task and even now the final form is yet to be determined. The following are the major factors that have had bearing on the successful implementation of the Plan:

i. Local Government Act 1992 – LI 462

Under this Act responsibility for wildlife in the off-reserve areas is decentralised to the District Assemblies. The Wildlife Department though maintaining authority and responsibility for the gazetted Protected Areas effectively ceases to exist per se within the District Assembly structure. The DA should form an environmental sub-committee with representation from the Wildlife Department. This committee should set the licensing and regulatory conditions for wildlife management within the District. Though the Act was passed in 1992, to a great extent implementation has been minimal. Devolution of authority and responsibility for wildlife has been the subject of much discussion and has not yet been resolved. The technical resources of the DAs are severely restricted. The uncertainty of this situation has great implications for the effectiveness of any plan of wildlife management in the off-reserve areas.

ii. Unit Committees and Area Committees

In 1998 the local government of the Districts was reformed with the establishment of Area and Unit Committees. Each District was sub-divided into "Areas" and each Area was sub-divided into "Units". The committees' main objective was to enhance local government development initiatives and be truly representative of the ethnic makeup of the District concerned. The boundaries of these committees have been established, though maps are not easily available. They are based on the enumeration areas of the 1984 census and do not necessarily comply with traditional boundaries. The registered voters within each Committee

area elect the Committee members. In the Ankasa Conservation Area the lists had not been updated and many recent immigrants were ineligible to vote. The Jomoro and Nzema East District Assemblies estimated the vote[2] to be less than 40% of the electorate. The effectiveness of these committees is yet to be determined. The members are not paid and the Committees lack resources. It appears that some of the committees are very active while many more are less so. This recent development has strong implications for wildlife management development in the off-reserve areas. Thus, the current plan must be seen as dynamic rather than fixed and remain flexible to incorporate developments in this area.

iii. Wildlife Development Plan 1998-2003

"When the new Forest and Wildlife Policy was adopted in 1994 there was a need to articulate a clear plan of action to guide its implementation. This need was partially addressed by the preparation of the Forestry Development Master Plan 1996-2020, as a framework document to guide sector institutions in the preparation of their own work plans. The Wildlife Development Plan builds on the sector Master Plan by describing the strategies to be pursued and specific actions to be undertaken in the wildlife sub-sector over the next six years."[3]

The plan was developed by the WD under the umbrella of the Protected Areas Management and Wildlife Conservation Project (PAMWCP) starting in 1996. The plan identifies 11 priority issues for effective wildlife management in Ghana and proposes a comprehensive plan of action for the sub-sector. This development was occurring at the same time as the preparation of the Ankasa Management Plan and many of the issues raised have been tested and refined during this period. The final draft of the Plan has been adopted as one element of the recently established Natural Resources Management Programme.

iv. Natural Resources Management Programme

Launched in June 1999, the NRMP is an umbrella programme of the Ministry of Lands and Forestry that encompasses a wide range of activities throughout the natural resources sector, supported by a number of different donors. Its purpose is to provide the resources, the drive and the focus to implement the Forestry Development Master Plan (1996 – 2020) over the first ten years. Its major goal is "to protect, rehabilitate and sustainably manage national land, forest and wildlife resources through collaborative management and to sustainably increase the income of rural communities who own these resources."[4] The Protected Areas Development Programme was incorporated into the NRMP in 1998. Thus, all proposals and recommended activities within the Management Plan for the Ankasa Conservation Area have been influenced by the objectives of the NRMP.

v. The Forestry Commission

Formed in 1993[5] under the Constitution of Ghana the Forestry Commission was initially responsible for advising the Ministry of Lands and Forestry on policy. Representatives from the Commission formed part of the Programme Advisory Committee for the PADP and were influential in the planning process. In March 1999 the Forestry Commission Bill was passed to "re-enact the original Act and bring under the ambit of the Commission state bodies and agencies that have implementing forest and wildlife related functions". The Forestry Department, the Wildlife Department, the Timber Export Development Board and the Forest Products Inspection Bureau were all revoked as government civil service departments and reconstituted as Divisions under the Forestry Commission. This has major implications for staffing structures and conditions, responsibilities and revenue generation. The structure of all Divisions and of the Forestry Commission itself is currently under a detailed review. Guidelines are yet to be distributed and the final decisions on the format of the Wildlife Division and all its sub-sectors are yet to be determined. This has major implications for the current Plan, hence the recommendation for its detailed review within three years.

[2] Mr Joseph Kobbinah, DCE Nzema East (pers. Com. 1999)
[3] Wildlife Development Plan 1998-2003 (Final Draft) Vols. 1-11 WD publication 1998
[4] Implementation Manual for NRMP Phase One (1999 – 2001) Ministry of Lands and Forestry, Ghana 1999
[5] Forestry Commission Act 453, 1993 and Forestry Commission Bill, 1999

1.2 The Management Plan

In light of all the above, the preparation of the Management Plan has been complex, having to constantly change with each new development in order that it be appropriate and viable within the desired national objectives and structures. That being said, the fundamental purpose of a management plan and the process to determine it has not changed.

1.2.1 Concept of a management plan.

The purpose of a management plan is to provide the management basis and strategy for co-ordinating the protection and acceptable uses of an area and to identify preferred courses of action.

A management plan enables management to proceed in an orderly way over a specified period of time by:

- Indicating sound resource management programmes
  - Helping to reconcile competing interests of conservation and use;
  - Identifying priorities for the allocation of available resources;
- Indicating how the Protected Areas can be considered in the broader regional context
  - Facilitating public understanding of and involvement in, the planning process;
  - Identifying how the Areas may provide benefits to the local people.
- Providing a basis for future plans.

This management plan is therefore based on two primary strategies:

- To manage and protect resources;
- To provide appropriate benefit and enjoyment.

Based on these two strategies, programmes of actions and support are defined, including specific area management, tourism, education, monitoring, research and enforcement activities. The Plan will have a fixed term of five years. It should be noted that various parts of the plan have already been implemented since 1998. A full review is therefore scheduled for the end of 2003.

1.2.2 The Planning Process.

Conservation in Ghana is governed by the enabling legislation in the form of the Wild Animals Preservation Act of 1961 which regulates the use and exploitation of wild animals in Ghana including the Government's right to establish protected areas. Detailed management organisation is provided for in both the Wildlife Reserves Regulations: 1971, L.I. 710[6], and the Wildlife Conservation Regulations: 1971, L.I. 685[7]. Apart from the provision within the Regulations for management plans to be produced for each Protected Area there are no statutory requirements stipulated. The current Wildlife Legislation is presently under review. As it now exists, the policy and aims of most recent initiatives are not supported. Community collaboration and participation in wildlife management, devolution of authority for wildlife licensing and off- reserve wildlife utilisation are not described nor provided for in the legal text. A draft of a revised legislation was prepared in 1991 but even this has been overtaken by more recent developments. This management plan has been advanced on the basis of the current Wildlife Policy and assumes that the relevant legislation will follow. Support for this process has been built into the implementation of the plan and is an integral part of its success.

The preparation of this Management Plan began with the start of the European Union funded "Protected Areas Development Programme in Southwest Ghana" (PADP) in April 1997 following a series of proposals[8] for such planning commencing with the proclamation of the Protected Area in 1976. A full consultative Inception Workshop was held in Elubo, Western Region Ghana in July 1997.

[6] Wildlife Reserves Regulations: 1971, L.I. 710, amended 1974, L.I. 881; 1975, L.I. 1022; 1976, L.I. 1085; 1977, L.I. 1105; 1983 L.I. 1283 and 1991, L.I. 1525

[7] Wildlife Conservation Regulations: 1971, L.I. 685; amended 1983, L.I. 1284; 1988, L.I. 1357 and 1989, L.I. 1452.

[8] Dr C. Martin: "Report on a Survey of the Ankasa River Forest Reserve" , June, 1976 *DGW Accra, Unpublished*
J.S Gartlan: The Forests and Primates of Ghana: Prospects for Protection and Proposals for Assistance, *Laboratory Primate Newsletter* 21 (1982):1-14
J.Bishop and S.Cobb, "Protected Area Development in South-west Ghana, Final Report" (EDG, Oxford 1992. Unpublished

Representatives from the stools having traditional ownership of the area, the District Assemblies of Jomoro and Nzema East, the Police, Chop Bar Association, herbalists, hunters, the Wildlife Department, Forestry Department and Agricultural Department were in attendance. Other interested parties (academics, tour operators etc.) were also invited. Public perception of the reserves was sought including both benefits and problems. Outstanding issues of compensation for the original acquisition of the wildlife reserves were raised and the resettlement of the residential village of Nkwanta was discussed. The factors raised were taken into account in the development of the Plan.

A study of the severely limited available literature revealed scant knowledge of the protected areas. Much of the information was dated and based on short, general surveys rather than detailed studies. Much of what was supplied in the project documents was anecdotal or conjecture. The Planning Team devised a series of studies that were to be undertaken in the following months. These comprised three levels of input:

Table 2: Planning Studies: 1997 - 2001

Planning Studies: 1997 - 2001		
Baseline	**Level 2**	**Level 3**
On-Reserve:	***On-Reserve:***	
Ornithological Perspectives 1997	Infrastructure 1998/2000	
Fish 1998	Environmental Education 1999/2001	
Small Mammal 1998		***General:***
Botanical 1998		Credit and Micro-finance 1999
Butterflies 2001		CREMA Development 1999/2001
Off-Reserve:	***Off-Reserve:***	Integrated Land Use and Wildlife Management 2001
Inception Workshop 1997	Agriculture/Animal Husbandry 1998	Tourism 1999
Demographic/Onchocerciasis 1997/98	Bushmeat Utilisation 1998	Tourism Concession Plan 2001
Socio-Anthropological 1998	Conservation Education 1998/2000	Visitor Interpretation 2001
	Health Needs Assessment 1998	WD Staffing Review 2001
	Non Timber Forest Products 1999/2000	
	Socio Economic 1999	

Note: These studies form Annexes to this Management Plan

The planning process was both interactive and iterative. Progress reports were produced each quarter. Proposed initiatives were discussed by a Programme Advisory Committee consisting of the relevant authorities and solutions sought for identified problems. The Wildlife Management Committee (under the NRMP) replaced this Committee in 1999. This allowed certain sections of the plan to proceed immediately to implementation while more difficult issues were further researched. This also allowed for changes to be incorporated as necessary to comply with the developing national strategy as described above.

The first draft of the Plan was presented in March 2000. Implementation will be carried out with the EU finance available under an Extension to the original PADP Phase I contract and a subsequent Phase II.

Towards the end of the life of this Plan, planning procedures will be set in train for the preparation of the next Plan. These procedures are outlined in Section 4.1. Provided that the structures recommended in this Plan are in effect then the Executive Director of the Wildlife Division of the Forestry Commission may establish, in consultation with interested parties, appropriate local consultative networks to allow input into the planning process. It is anticipated a planning team, including representatives of the Traditional Authority and the District Assemblies, the Planning Office of the Wildlife Division and the Wildlife Warden of Ankasa, will be established to continue the planning process from the beginning to the finalisation of the Plan. If the proposed Protected Area Management Advisory Board (PAMAB) is functioning the planning team will operate in co-operation with the Board.

1.3 Nini-Suhien National Park and Ankasa Resource Reserve Policy

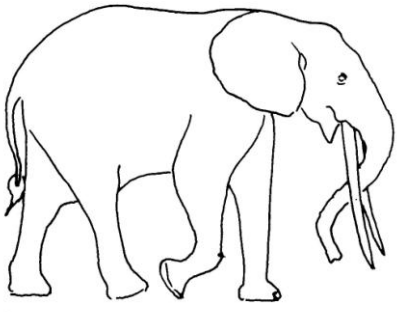
Though the reason for the Protected Area is clearly defined, its size, shape and location were more by default than design. It is fortunate that the scarcity of large commercial species of timber and the rugged and inaccessible terrain has allowed Ankasa to survive almost intact to this point. Every scientific study has shown that the Protected Area has the highest biodiversity rating in Ghana and as such is deserving of a specific policy statement to ensure its future integrity.

It is suggested that this policy statement should read:

In recognition of the biological importance of Ankasa Resource Reserve and Nini Suhien National Park, the limited size of the Protected Area and the parlous status of the natural resources remaining off-reserve, the Government of Ghana should take immediate steps to re-designate the entire Protected Area as the Ankasa National Park comprising all of the currently gazetted area of both reserves. (Until such time as the Protected Area is re-gazetted as a National Park, for management purposes the two reserves will be treated as one entity and referred to in this text collectively as *Ankasa*).

- The diversity and integrity of the biotic community within the eco-system will be conserved within its natural state and the scenic beauty and forests of *Ankasa* will be preserved as an important part of the National heritage of the Republic of Ghana.
- Scientific research and especially environmental monitoring programmes will be encouraged as a support for management activities so that *Ankasa* can be managed with minimal interference by man and other biotic and abiotic factors upon the natural processes. Manipulative management will be considered only when necessary to maintain a species or habitat as a viable entity.
- Conservation and development objectives within the *Ankasa* eco-system must and should be reconciled and integrated so that each can be promoted without detriment to the other. Tourism will be developed and maintained for the benefit and enjoyment of all visitors in a manner that will not conflict with other management objectives. Opportunities for education and interpretation will be provided in order to achieve an increased level of appreciation of the natural resources of the protected areas and of the entire eco-system.
- The management of *Ankasa* will be the responsibility of the Wildlife Division under the guidance of the Protected Areas Management Advisory Board. The Board will be bound by the aims and objectives of this policy.
- To reduce the pressure on natural resources within *Ankasa* the WD will promote and support responsible wildlife management in the off-reserve areas as a legal and competitive form of land use as a means to encouraging community and individual participation in the utilisation and conservation of the wildlife resource.

In upholding this policy the Wildlife Division will provide leadership and efficient services in conserving Ghana's wildlife resources for the benefit of present and future generations.



SECTION 2 THE ANKASA CONSERVATION AREA

The Protected Areas are proclaimed National land with distinct boundaries. They are managed under the single authority of the Wildlife Division supported by specific legislation. The off-reserve areas around *Ankasa* are under several layers of administration, tenure and management systems. There are a number of governmental institutions that have varying impact and authority on land use. This is a very complex situation that needs to be understood to place *Ankasa* in its regional context in order that threats to conservation and opportunities for wildlife management can be identified and solutions proposed.

The Wildlife Division is the National Authority for wildlife conservation, management and regulation of utilisation. It is not a rural development agency. It is not involved in community development *per se* but in incorporating wildlife into the development process. It cannot be expected to correct the entire social ills and shortcomings in the areas surrounding the Reserves. It should focus its effort on wildlife related issues. Management consideration should therefore be directed to those factors that the Division could directly influence through its expertise and resources.

The Wildlife Division's resources are limited. In the Western Region it operates only two widely spaced Protected Areas (*Ankasa* and *Bia*). These are located in only two of the ten Districts. It has no representation at the Regional or District level. Its initiatives must therefore, by default, be concentrated in these two locations where meaningful interaction is possible. For that reason, *Ankasa* and its immediate environs (up to 7kms from the Protected Area boundary) have been referred to in this text as the Conservation Area. It should be noted that this designation has no standing in law or administration. The term is one of convenience to describe an area where the Wildlife Division can and should have appropriate and effective wildlife management input and influence.

A comprehensive description of different aspects of the Protected Areas and the immediate environs that constitute the Conservation Area is given in the studies attached as Annexes to this Plan. For the sake of brevity, the intention here is to provide a brief introduction and general summary. From this, the rationale for the necessary policy for the management of the Ankasa Conservation Area can be perceived.

2.1 Description of the Protected Areas

2.1.1 Location:

The Ankasa Conservation Area lies in Southwest Ghana on the border with the Ivory Coast. The Protected Area covers 509 km^2 (Figure 2: Ankasa Conservation Area) and is composed of Nini-Suhien National Park, the adjoining Ankasa Resource Reserve and the communities lying between 5-7km from the reserve boundaries. It is situated south of the Nini and Tano Rivers and north of the Axim – Elubo Road.

The whole of *Ankasa* lies within the administrative jurisdiction of Jomoro District Assembly and traditionally under the Paramount Stool of Western Nzema at Beyin. The eastern boundary of *Ankasa* forms the administrative boundary of the Nzema East District Assembly and the traditional authority of the Paramount Stool of Eastern Nzema based at Atuabo. It is contiguous with the Draw River Forest Reserve that is wholly contained within Nzema East District. The Nini River forms the northern boundary of the National Park and this is also the administrative boundary of Wassa-Amenfi District and the Paramount Stool of Wassa based in Wassa-Akropong.

2.1.2 History of Protected Area Establishment:

The total area of the two reserves was gazetted in 1934 as the Ankasa River Forest Reserve. It was initially reserved "by reason of its importance in safeguarding the water supply and climatic conditions essential for the well-being of agricultural crops grown in the vicinity thereof in order that the forest may be protected from injurious destruction"[9]. Various litigation cases ensued over the boundaries especially of the 18 Admitted Farms. These disputes were settled in 1956. Logging concessions operated south of the Suhien River until the mid-1970s. Logging was never very intense due to the scarcity of commercial species and the difficult terrain. Access and certain rights to the resources of the reserve were guaranteed

[9] Description of Ankasa River Forest Reserve, Government Gazette 1934

under the law. Such access included the right with appropriate permit where required, to hunt and to have hunting camps; to cut canes and building materials; to gather medicinal plants, fruits and other wild foods; wash rivers for gold and cut trees for canoes.

i) Management under the Forestry Department:

Ankasa was initially managed as a protected timber producing area. Under FD administration, no substantive, clearly defined management objectives or guidelines beyond timber harvesting were developed for the reserve. From 1934 to 1976, light-intensity timber harvesting and later attempts at plantation forestry, largely confined to the southern half of the reserve, were of a sporadic nature, being subject to constantly changing market demands for a few timber species. As a result of its very rugged terrain and scarcity of large, primary commercial species, less harvesting of timber was done in the reserve than in richer less difficult neighbouring reserves further to the north. Protection duties in the reserve were, at best, minimal as national forestry practices of that period emphasised the timber resources only. With the reserve management office based in Tarkwa, more than 170km away, the few forest guards (less than ten) based in Mpataba and Compound were merely a token presence. Poaching was rampant. Farmers were expected to maintain the boundaries. Apparently, the official policy of "admitted farms" encouraged the expansion of Nkwanta village and associated farms.

ii) Conversion to a Wildlife Reserve:

Ankasa was designated a Wildlife Reserve in 1976 as the direct result of an unfortunate occurrence elsewhere. In 1976, the size of Bia National Park was much reduced in order to create two Game Production Reserves. This made it possible for the government of the time to then issue logging permits for the newly created areas, something not possible in a National Park. In compensation for this action an alternative Forestry Reserve was transferred to the Wildlife Department. The Ankasa River Forest Reserve was nominated, not least because of its difficult terrain and lack of a high density of commercial timber species. Dr. Claude Martin, then Warden of Bia NP conducted a survey in 1976 and recommended *Ankasa* as an area of high wildlife interest[10]. The area was re-designated in 1976 as a Wildlife Protected Area comprising the Ankasa Game Production Reserve, which covers 343 km^2 (67%) and the Nini-Suhien National Park, covering the remaining 166 km^2 (33%). It was gazetted and is protected under the Wildlife Reserves (Amendment) (Declaration of Reserves) Regulation, 1976 L.I. 1085 and subsequent amending legislation. The boundary descriptions are contained in Appendix A.

iii) Compensation to the Traditional Land owners:

At the time of conversion, the traditional rights of access were rescinded and compensation to the traditional landowners (the Stools) was assessed. Two thirds of the amount was paid. Unfortunately this was fraudulently intercepted and the whole matter is still unresolved. Effectively, the majority of claimants have never received any compensation[11].

iv) Compensation to Residents:

Under the Wildlife Act no one is permitted to reside within a Wildlife Protected Area. At the time of re-designation to a Wildlife Reserve only one village existed within the protected area. All other Admitted Farms had been abandoned and returned to forest. The Land Evaluation Board assessed the compensation due the 34 inhabitants of Nkwanta Village for their immovable property and crops. However, no compensation was paid. In 1983 the Acting Chief Game and Wildlife Officer gave permission to the Nkwanta residents to continue to farm their existing plots and harvest the permanent crops. Most of the residents relocated themselves along the new Axim- Elubo Road in 1989, but the Chief of Nkwanta maintained his residence and his right to farm in the reserve. This presented a constant problem to the Reserve management as farming and hunting continued. The situation was resolved in 1999 under the PADP. A resettlement fund was established through which every claimant received adequate funds to rebuild and replant off–reserve. In return, they all signed an agreement revoking their rights to access and property. In February 2000 the Government paid two thirds of the money still owed. The responsibility for the final compensation payment to these individuals lies with the government and is still pending.

[10] Report on a Survey of the Ankasa River Forest Reserve, Dr. C. Martin, 1976. DGW internal report - unpublished
[11] Appendix B: Compensation Status, 2000.

v) Early Wildlife Department Management:

Protection was extended to all biological resources following the change in management authority to the Game and Wildlife Department. Permanent camps were established for wildlife guards within the Resource Reserve and the management was headquartered at Mpataba (later transferred to Aiyinasi in 1994). However, no attendant management plans were developed for either reserve. Thus, there was little continuity in the management prescriptions of the 9 successive Senior Wildlife Officers over the 22 years up to 1998. In the absence of a consistent management plan different management approaches were practised, sometimes on an *ad hoc* basis and always under severe manpower, logistical and financial constraints. Compounding the administrative constraints was the fact that all provisions (funds, logistics and personnel) were for the Ankasa Resource Reserve, to the total neglect of the Nini-Suhien National Park. Thus, managers have had to spread already inadequate allocations to both reserves.

Under such conditions of chronic shortages of staff, logistics and funds for a disproportionately large area, the richest biodiversity area in Ghana was better known and utilised by organised poachers of its resources than by the Wildlife Department, with little prospects for improvement.

vi) Volta River Authority:

In 1983 the Volta River Authority (VRA) was given the right of way through the Reserve and National Park to construct the Abidjan – Prestea high-tension electricity power line. An 80-metre swathe was cut through the forest effectively dividing the protected area in two sections. This line is periodically re-cut under a separately supervised contract by the VRA. This arrangement is further dealt with in Section 4.2.

vii) Internal Roads:

In 1989 the new alignment of the Axim – Elubo Road was opened and the old national highway that passed 21kms through the reserve via Nkwanta was abandoned. In 1997, the new Elubo- Enchi road, being constructed by Eagle Star, cut the western most tip of the Reserve. Reparation for the damage done was assessed but no action has been taken (see Figure 5).

2.1.3 PADP:

In 1990, due to increasing pressure from tenant farmers, off-reserve conversion of forest to agriculture and increasing illegal activity within the reserve, the Wildlife Department deemed that a comprehensive management plan for *Ankasa* was a priority. With funding from the European Community (EC) the Wildlife Department initiated a planning process, which culminated in the formation of the "Protected Areas Development Programme in Southwest Ghana" which commenced in 1997.

2.1.4 Physical Features

i) Climate:

The climate of the Conservation Area is characterised by a distinctive bi-modal rainfall pattern occurring from April to July and September to November. The average annual rainfall is 1,700 to 2,000mm. Mean monthly temperatures are typical of tropical lowland forest and range from 24^{o}C to 28^{o}C. Relative humidity is generally high throughout the year, being about 90% during the night falling to 75% in early afternoon.

ii) Topography:

Ankasa is characterised by rugged, deeply divided terrain in the north and west with flatter swampy ground associated with the Suhien watershed in the East. Its maximum elevation is 150m at Brasso Hill in the National Park, though most lies below 90m.

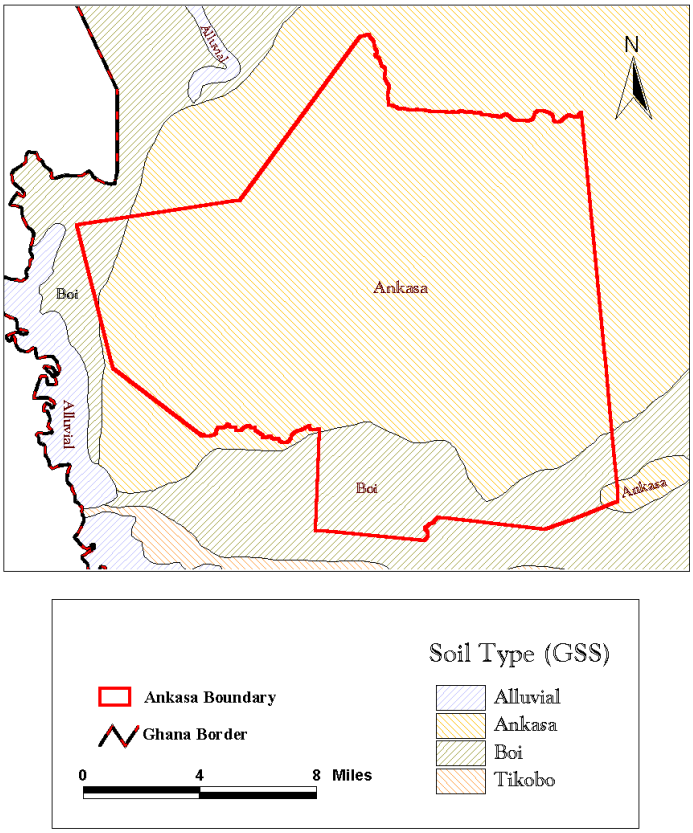
iii) Geology:

The underlying geology consists of three major geological formations. The northern section is based on granites intruded into the older Pre-Cambrian Lower Birrimian Series and is an area of rolling granite topography consisting of frequent, steep sided, small round hills rising 60 to 150m with little or no flat uplands and no broad valleys. The area is at the intermediate erosion stage of maximum slope and is well dissected by an extensive and regular dendritic drainage system. South of the granites is the Pre-Cambrian Lower Birrimian Series, sediment of clay, hardened and foliated by heat and pressure. The southern most areas are based on Late Tertiary sands that are relatively recent deposits.

iv) Soils:

In general the soils of the Conservation Area are classified as Forest Oxysols. They are deeply weathered, highly acidic (pH 3.5 to 4.0), infertile and prone to leaching and hardpan formation.[12] (Figure 5: Soil map of Ankasa). In December to February, the Harmattan, a dry southerly wind blowing off the Sahara, deposits large quantities of fine soil particles on the forest. This annual deposit of clay minerals is likely to play an important role in maintaining forest fertility.

Figure 5: Soil map of Ankasa



v) Mining and Mineralogy:

No mining or mineral extraction has occurred in *Ankasa*. However, the underlying geological formations are similar to the Prestea area where deep-shaft gold mining first started in Ghana. The Mineral Commission has twice given exploration permits to companies for the area. The first was for a deposit of limestone just south of the Reserve. The Traditional Authority refused to allow this development in order to preserve the land for agriculture and protect the environment. The second was for gold and included the area of *Ankasa*. Protests from the Traditional Authority and the WD resulted in the boundaries of the exploratory concession being re-drawn. It now covers two areas North and South West of the Reserves. Tri-Star Gold received this Reconnaissance Licence in 1996 for 12 months. This resulted in the farmers around Amokwasuazo clearing further pockets of forest to establish ownership in case compensation was forthcoming. Currently, this exploration is 95% outside the Conservation Area (See Figure 4).

vi) Hydrology:

Ankasa protects four important watersheds (see Figure 2). In the National Park and the western areas of the Resource Reserve all streams and rivers flow westwards into the Tano River. The major tributaries are the Nini River and its affluents in the north, and the Suhien River and its affluents, which forms the southern division between the National Park and the Resource Reserve. Four streams

[12] Ahn, P.M. (1961) Soils of the Lower Tano Basin, Southern Ghana. Ministry of Food and Agriculture Scientific Services Division Soil and Land-use Survey Branch

originating in the Western part of the National Park drain directly into the Tano between these two rivers. The northern section of the Resource reserve drains into the Suhien. The southern and western areas drain into two major tributaries of the Ankasa River and the Ankasa River itself, which forms a large part of the southern boundary of the reserve. The Ankasa River flows into the Tano south of the Conservation Area. Four small coastal drainages, the Mpataba, the Baseke, the Ayuvela and the Fia originate in the south-eastern part of the Conservation Area and flow into the southern swamps and coastal lagoons around Beyin. These drainages are not connected to the Tano. The eastern areas of Draw River Forest Reserve, contiguous with the Ankasa Resource Reserve, drains eastwards into the Draw and Ankobra Rivers.

These distinct and separate drainages play an important role in maintaining the major river fisheries. *Ankasa* provides sanctuary to fish breeding during the wet season. The Reserves also maintain the water flow throughout the year providing a water source for the people who live outside them. Due to recent land clearance for farming, many small streams originating outside the Reserves now dry up for various periods of the year. Pollution of the streams from farm pesticide residues and crop processing has severely depleted the aquatic fauna in the off-reserve areas.

2.1.5 Natural Features

Protected Area planning customarily identifies zones comprising distinctive landscape features and/or ecosystems. *Ankasa* is relatively uniform in its abiotic landscape features being a relatively undisturbed high forest climax community. The vegetation types present in *Ankasa* are related to topography. Characteristic fauna is found throughout the entire area.

i) Vegetation:

Ankasa is Ghana's most "special" forest with the highest Genetic Heat Index: Scientists would find more that is unfamiliar, in *Ankasa*, than any other forest in Ghana[13]. This is why it has been given the highest global conservation rating. *Ankasa* is 'crawling' with Black Star species – high conservation priority species endemic to a small part of the globe. The most recent survey has shown this to apply virtually everywhere in the Reserves. A number of species occur which have uncertain or no names, which have been awarded gold stars pending the confirmation of their taxonomic status. In the most recent study 50 km. of exploratory transacts were cut and over 800 species identified (see Map 2.W). One species of tree in particular (yet to be named) was discovered along the Ankasa River. This species seems to represent a new Genus for science. Botanists are of the firm opinion that more species are yet to be discovered.

Ankasa represents the supposed epicentre of one of several Pleistocene refugia around the Gulf of Guinea, ranking alongside forests of southwest Ivory Coast and Mount Cameroon. It is classified as lying within the wet evergreen zone. Relatively little is known of the vegetation of *Ankasa* compared to the rest of Ghana, largely because the Forestry Department deemed that the Ankasa Forest was of low timber importance and has not placed any Inventory Plots there. The most recent detailed studies[14] have shown the presence of approximately 800 vascular plant species. A detailed classification of the vegetation is available in Annex E. Vegetation can be broadly divided into seven types (Table 3):

Table 3: Summary of *Ankasa* vegetation categories[15]

Vegetation Type	Typical Species	Landscape
VEG1	*Diospyros sanza-minika*	Well drained hill tops and slopes
VEG2	Intermediate 1<->3	Non-swamp slopes and watercourses
VEG3	**Octoknema, Piptadeniastrum, Strombosia**	Milder slopes and flat land, especially around Nkwanta (transects 5 and 6)
VEG4 (1 sample)	*Eleaeis, Uapaca (Theobroma)*	Secondary forest, perhaps once farmed- with *Eleais* and Cocoa.
VEG5	**Protomegabaria (++)**	Riversides, often associated with steep banks
VEG6	Intermediate 3-7	Swampy land, less extreme than 6
VEG7	**Hallea, Anthostema**	Flat, swampy land, often with many shallow drainage lines, especially in mid-east

[13] Annex 1: Plants in Ankasa, Nini-Suhien, and Bia .Hawthorne and Abu Juam 1998
[14] Hall and Swaine, 1976, Hawthorne and Abu Juam *ibid*
[15] Hawthorne and Abu Juam *ibid*

This division is based on the landscape association with the main trend related to drainage. It should be noted that there is no consistent single continuum between the landscape classifications from hilltop to swamp. Various intermediate samples are common.

ii) Fauna:

The original faunal composition of *Ankasa*, prior to its gazettment, was undoubtedly very diverse and complex in nature and similar to other large protected areas in the wet evergreen rainforest of the Upper Guinea forest belt, e.g. *Taï* in Côte d'Ivoire. However, due to over three decades of excessive commercial and subsistence bushmeat hunting, populations of several larger mammal, particularly canopy dwelling primates, reptile and lately also bird species have been severely reduced in numbers. However, recent reliable observations give substantial indications that nearly all species believed to have been present in prehistoric times still exist.

Presently, only the avifauna is relatively well explored, whereas fish and small mammals recently have been covered by short-term PADP-surveys. Other faunal groups, being vital for a prospective wildlife based tourist industry in *Ankasa*, e.g. large mammals, reptiles and invertebrates, will be explored in the near future through the planned research and monitoring facility to be made available at Nkwanta.

a) Mammals – *Ankasa* still holds viable populations of large and charismatic mammals, such as the Forest Elephant *Loxodonta africana cyclotis*, Bongo *Tragelaphus euryceros*, Leopard *Panthera pardus* and Yellow-backed Duiker *Cephalophus sylvicultor*. Primates are represented by at least 9 species, including Western Chimpanzee *Pan troglodytes verus* and 3 rare or endangered subspecies endemic to Côte d'Ivoire and Ghana: Roloway Diana Monkey *Cercopithecus diana roloway*, Geoffroy's Pied Colobus *Colobus vellerosus* and White-naped Sooty Mangabey *Cercocebus atys lunulatus*. Presently, it is uncertain whether the highly endangered subspecies Miss Waldron's Red Colobus *Piliocolobus badius waldronae,* also endemic to Ghana/Eastern Côte d'Ivoire, is to be found in *Ankasa*. It should be noted that recently, this upper canopy colobine has been declared extinct in Ghana, and it is debatable whether it has ever been recorded in *Ankasa*[16]. Only one unconfirmed vocal record of this monkey has been published and that was 25 years ago[17].

Other very rare mammals of restricted range within Ghana include the Water Chevrotain *Hyemoschus aquaticus*, Giant Forest Hog *Hylochoerus meinertzhageni* and Giant Pangolin *Smutsia gigantea*. Recent studies of small mammals, i.e. rodents and bats (PADP, 1998), showed a relatively high diversity, particularly in the Resource Reserve and along forest edges. It is very likely that dozens of new species could be added to the *Ankasa* list of bats if canopy collection is applied. It must be emphasised that basic knowledge on mammal abundance and distribution in and around *Ankasa* is very scarce if not absent for many species, and this fact has certainly posed obvious constraints to their effective protection. It is believed that the development of the monitoring and research facility will help address this situation.

b) Birds – The bird fauna of *Ankasa* is fairly well known with an impressive list of nearly 200 species, the majority of these being truly forest dependant. The list contains several rare birds endemic to the Upper Guinea Forest, e.g. White-breasted Guinea Fowl *Agelastes meleagrides*, Yellow-throated Olive Greenbul *Criniger olivaceus* and Rufous-winged Illadopsis *Malacocincla rufescens*. It is very likely that two other endangered endemics occur in the reserve, namely Western Wattled Cuckoo-shrike *Campephaga lobata* and Rufous Fishing Owl *Scotopelia ussheri*. Other species of conservation importance are four species of large casqued hornbills *Ceratogymna spp*, which still occur in fairly large numbers. The Ankasa bird fauna certainly provides a basis for very attractive bird watching tourism.

c) Reptiles – Although very little information exists on reptiles, it is most likely that *Ankasa* still holds its pristine reptilian fauna. The extensive almost permanently waterlogged *raffia* swamps situated in the eastern and southern parts of the Resource Reserve serve as ideal habitats for all species of rainforest turtles and aquatic snakes, tortoises and lizards. The extensive network of smaller streams, together with the 3 main rivers of the reserve similarly supports a variety of reptiles including the Broad-fronted Crocodil**e** *Osteolaemis tetraspis*.

[16] Oates et al, 2000 *Extinction faces Ghana's Red Colobus Monkey and other locally endemic subspecies.* Journal of Conservation Biology, October 2000

[17] Martin, 1976 *op. cit*

d) Amphibians – Being the least known vertebrate group of *Ankasa*, the amphibian list may be vastly increased if experts are brought in or encouraged by the Wildlife Division. Particularly, tree frog diversity is believed to be great, due to the consistent high humidity in the upper closed canopy. It is not unrealistic that canopy collection from platforms or a walkway may produce some new species to science. The large swamps and complex waterway systems in *Ankasa* are an El Dorado for terrestrial and aquatic frogs and toads. Again new species may be discovered here.

e) Fish – The icthyofauna of the protected area holds many important endemics of the Eburneo-Ghanaian icthyofaunal region. Some of these are not found outside Ghana. Several species not previously recorded in Ghana are present. However, the drainages within the single forest block differ in species distribution and are therefore not homogeneous in biogeographical and ecological terms. Additionally, the forest waters are of paramount importance for the biotic integrity of waters west and south of the reserve as well as for the small-scale fishery in the Tano River. In the 1998 survey two species of fish new to science and still to be named were found in streams draining from the Protected Area.

f) Invertebrates – Little is known of the incredible diversity of invertebrates expected in such a forest as *Ankasa*. This is a task for future research. From studies in forests of equal age and structure, such research is bound to discover many species hitherto unknown to science. Very few butterfly inventories exist for any parts of West Africa. However, according to Larsen (1997) Ghana has a total butterfly fauna of almost 900 species. This constitutes 90% of all butterflies known from west of the Dahomey Gap, an important bio-geographical feature that separates the western most African rainforests from the main equatorial rainforests. The bulk of these 900 species are pure forest butterflies with a varying degree of tolerance of forest degradation. As such butterflies are often cited as an indicator of forest health and biodiversity. A detailed butterfly inventory of *Ankasa* (Larsen 2000 Annex Q) estimated it contains 600 species.

iii) Cultural and Archaeological Features:

There are no sites of cultural significance in *Ankasa*. One site of archaeological interest has been identified. The settlement of Nkwanta is sited on the crossing point of two major trading paths. It was first recorded in the literature in the 17th Century. The routes are from Beyin to Enchi and from Ivory Coast to Prestea. Interest has been shown by the University of Pisa in conjunction with the Archaeology Department, University of Ghana, Legon to excavate this site.

iv) Human residents:

Following the successful resettlement of Nkwanta village in September 1999 there are no residents within *Ankasa*.

2.2 Description of the off-reserve area

The major concern of conservationists and the Protected Area management over the last decade has been the rapid and apparently uncontrolled conversion to agriculture of forested land immediately surrounding the Reserves. The loss of habitat, the degradation of streams, soils and natural resources have rendered the reserves as an island of biodiversity concentration in a sea of mono-culture plantations and secondary growth. This in turn has led to increasing external pressures on the reserve resources, met by an under-resourced and often ineffective policing action by the *Ankasa* management. The future integrity of *Ankasa* depends, therefore, on the stabilisation of the off-reserve land use and a rationalisation of the disharmony that exists between the land users and the Protected Area authorities.

The off reserve areas around *Ankasa* are under several layers of administration, tenure and management systems. There are a number of governmental institutions that have varying impact and authority on land use. This is a very complex situation that needs to be understood to place *Ankasa* in its regional context in order that threats to conservation and opportunities for wildlife management can be identified and solutions proposed.

The situation off-reserve around *Ankasa* is typical of many rural areas in Ghana. The majority of the people are farmers, heavily dependent upon natural resources to meet their basic daily needs. Importantly,

bushmeat forms a large part of their animal protein intake. Communities have poor access to health, education and basic infrastructural needs such as roads, water and sanitation. There is poor access to markets for conventional crops. As a result the farmers suffer marketing problems. This combined with the perverse pricing of cocoa encourages the cultivation of this crop in unsuitable areas leading to the degradation of the environment

This section highlights the general cultural, socio-economic and development status for the communities within the vicinity of *Ankasa* and their significance for effective wildlife management. Detailed reports on each of these factors have been made in the last two years and are attached to this plan as Appendices. The term "Ankasa Conservation Area" has been used to delimit the extent of an area up to 7kms from the Protected Area boundaries and makes no distinction, except where stated, to District and traditional boundaries.

2.2.1 Political Administration

i) Regional Government:

The seat of Regional Government is based in Sekondi approximately 150 km from *Ankasa*. The Wildlife Division is not decentralised and the Wildlife Warden is answerable to Accra, 360kms to the East. Under the new Forestry Commission there are plans to establish a Wildlife Zonal Office in Sekondi/Takoradi that will cover Western and Central Regions.

ii) District Administration:

The District Assembly, headed by the District Chief Executive, is the local government authority. It is the highest decision making body in the district. The Assemblies are responsible for the implementation of government programmes and policies. They may pass and enforce by-laws including those related to conservation. Currently this authority extends to bushmeat trading licenses and permits to operate chop bars[18].

There are three District Assemblies that impact on *Ankasa* (see Figure 2):

- **Jomoro District Assembly –** (headquarters at Half Assini). Contains the entire area of *Ankasa*.
- **Nzema East District Assembly** - (headquarters at Axim). The Eastern boundary of *Ankasa* forms part of the western Boundary of this district.
- **Wassa-Amenfi District Assembly** - (headquarters at Asankragwa). The Northern boundary of *Ankasa* forms part of the Southern boundary of this district.

The administrative boundaries also represent the Traditional Authority boundaries. Therefore, there is no legal, cultural or administrative basis for the sharing of resources or benefits from *Ankasa* with the two neighbouring Districts.

Each District Assembly should have an Environmental Sub-Committee but in fact do not. The committee is being formed in Nzema East but is not functional in Jomoro.

Area Committees and Unit Committees were established in 1998 to provide communities with administrative representation with the intention of stimulating grassroots participation in the political process. The implementation of many of these committees has proven to be problematical.

2.2.2 District Infrastructure, Institutions and Services:

i) Roads:

The Conservation area is generally poorly served with roads (see Figure 6), with most communities and settlements not easily accessible. This has been a major constraint to the *Ankasa* management. Most of *Ankasa's* boundaries are inaccessible to motor traffic. This makes rapid response to illegal activities impossible and prevents adequate supervision and logistics to the patrol camps. For the local population, access to markets, schools and health services is also restricted and extension services limited.

[18] Local Government Act LI 462 1992 and Wildlife Conservation (Amendment) Regulations 1989 LI 1348 and LI 1452

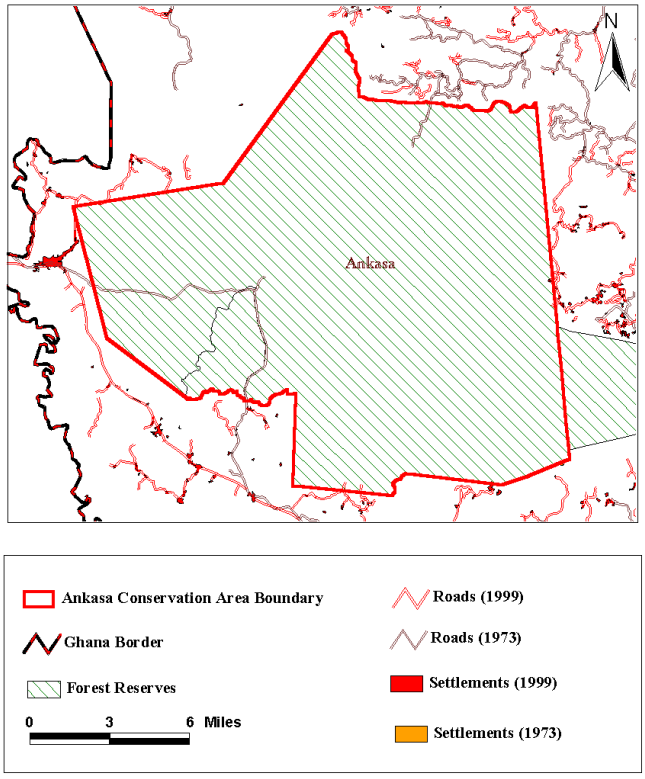
South: The Elubo – Axim national highway south of *Ankasa* is the only tarred road in the whole area. Many small feeder roads come off this to serve the major communities. A complex of logging trails constructed by Timber Permit and Concession holders has opened the area for settlement. But no maps of these trails exist.

West: The new Elubo – Enchi road (this will be tarred) is currently under construction along the western boundary. This road has illegally cut the western tip of the reserve and has brought with it increased problems of settlement and land clearing along this boundary. It has also made the narrow band of land between the Tano River and *Ankasa* accessible to both settlement and loggers leading to major environmental degradation in this area.

East: There are no official roads. A complex network of logging roads has opened this area to extensive settlement. These roads are in poor repair and are often impassable in the wet season. They are not planned nor controlled and the logging companies have opened roads along the Reserve boundaries. Draw River Forest Reserve is contiguous with Ankasa and is of equal biological importance. This area has been heavily logged in recent years and is continuing to be so. Roads have been cut through it but are not maintained and the bridges are poor. Currently fallen trees block this road. This route, when open, has one advantage. It makes it possible to travel by vehicle from Aiyinase HQ to the Eastern Camps in about four hours (a distance of 106km) rather than having to travel there via Tarkwa and Prestea (a distance of over 300km).

North: The main road through Asankragua to Enchi is currently under construction. It takes about two hours to travel south from this road to the *Ankasa* boundary. A network of logging roads exists and the Department of Feeder Roads is currently upgrading a few of these.

Figure 6: Road network around *Ankasa*



ii) Markets:

There are six small markets in the Conservation Area. Larger markets are to found in the major centres with good road access but are a considerable distance from the Protected Areas. The small markets generally deal with local supply of foodstuffs and commodities. They have only a small trade in bushmeat and other non-timber forest products. The farm produce is either bought at the farm gate along access roads or is transported to the larger market centres. Each market operates only on particular days in a week.

The scarcity and timing of such markets and the distance from the *Ankasa* boundary causes major problems for the Protected Areas administration. The wildlife staff need to purchase supplies for their patrol activities and by necessity are absent from their posts while preparing for such. This also constitutes a breach in security with local hunters becoming aware of an intended patrol if not exactly where the patrol will be. The timing of patrols is also tied to the timing of the local market as the food purchased is only available on certain days and is perishable.

iii) Education:

Education and the maintenance of educational facilities are the responsibility of the District Assembly. Primary schools serve the larger centres of population. Junior Secondary schools are more generally found in the major towns well distant from the Protected Areas (see Map 2.Y). Class sizes are generally large (50+), mixed grades and with a significantly higher proportion of boys to girls. There is a shortage of trained teachers, with many of the classes being taught by untrained assistants. The school infrastructure varies enormously from very good in the larger towns to rudimentary in the more remote locations. The curriculum has limited coverage of environmental issues. Teaching resources are generally limited and environmental literature and educational aids are virtually non-existent. A teacher-centred approach is universal and little use is made of "the living laboratory" of the natural environment outside the classroom.

Recent studies within the conservation area revealed a discouraging level of illiteracy and generally poor school attendance.[19] It was estimated that while 35% of the population had no schooling whatsoever, only 26% of male and 7% of female household heads had completed elementary school.

iv) Health services:

The Conservation Area is poorly served with health care facilities. There is one Level B facility in Elubo and another in Aiyinase[20]., which though outside the Conservation Area limits is currently the site of the Reserve management HQ. There is a Level C hospital at Eikwe, 30 minutes drive from Aiyinase In the East there are only widely spaced clinics that are of rudimentary construction understaffed and under supplied and none within the Conservation Area. There is a level B/C facility in Asankragua, at least two hours drive to the north of *Ankasa*. In the west the hamlets along the Tano River have no health facilities. Medical care and response to medical/traumatic incidents is costly in terms of both travel and time.

The population has a high dependency on Traditional Birth Attendants and Traditional Healers. A major management consideration is the development of a system by which such people can obtain and maintain supplies of medicinal herbs and plants from the Reserves to support such activities.

For the *Ankasa* management with responsibility for its staff and their families the placement of permanent camps is partly dictated by the reasonable availability of health care. A great deal of staff time is lost due to illness and injury necessitating costly transport to the appropriate facility.

v) Water supply:

Except for the larger villages where boreholes and hand pumps have been installed, virtually all settlements within the Conservation Area rely on streams for their water supply. During the course of various studies, a significant change in the hydrology of the area was noted. Many hitherto permanent streams are now drying up during the dry season. This has been due, to a large degree, to deforestation in the course of agricultural expansion. Water-borne diseases are also an important factor.

vi) Sanitation:

Few settlements outside the larger centres use pit latrines but operate a "free range" system. This has serious implications for public health. Rubbish is generally discarded though middens are common. Vermin, polluting run-off and possibility of disease and infection from such rubbish dumps is problematic. Agricultural waste, from coconut-oil processing especially, is dumped on stream banks and is a major source of pollution and environmental damage.

[19] Annex 17: Socio-Economic Survey of the Ankasa and Bia Conservation Areas, PADP March 1999 pps17-18

[20] Annex 14: Survey of Current Health Care Provision and Recommendations for the Construction of a New Clinic in the Area Northeast of *Ankasa,* PADP 1998

vii) Rural Electrification:

This program started in the Western region in 1995. Currently, the District capitals and the towns and villages along the major roads have been given access to electricity. The vast majority of settlements within the Conservation Area are not yet connected to the grid. The Protected Areas are not connected. Strategic placement of the proposed headquarters means that connection for this facility at least should not be a problem.

viii) Communications:

The only telephones are to be found in Elubo and Aiyinase. These are radiophones. There are no land-lines. This has major implications for management, as messages must be passed by hand. This is costly in terms of time and transport. Meetings with District personnel, chiefs etc. cannot be verified before hand and often the person travels to the meeting only to find that it has been cancelled as a key participant has been forced to travel. The WD has radio communication between its HQ in Accra and the Protected Area HQ.

ix) Police:

There are three Police stations in Jomoro at Mpataba, Tikobo I and Half Assini. A fourth is currently being built at Elubo. In Nzema East the closest Police station is in Aiyinase near the *Ankasa* HQ. Though all offences in *Ankasa* are committed in Jomoro District, for convenience, it is usual to charge the offender in Aiyinase.

Wildlife malefactors must all be taken to a Police station where they are charged. The police prosecute the case, but have had no training in the Wildlife laws. The Wildlife Warden provides the arrest forms and assists the prosecutor (usually verbally on points of law). If the offender is remanded then often the Wildlife Division is required to pay for his/her food. The Wildlife Division is also often required to provide transport to take the offender to court.

The police are responsible for issuing gun licences. Currently about 1,250 shotguns are registered. The annual renewal fee is ¢20. The fee for gun registration varies between stations[21]. It is not required for a licence holder to carry it with him when carrying the gun so, though illegal, each shot gun is used by more than one person. A person does not need a Wildlife hunting licence to acquire a shotgun licence. The District Assembly receives no revenue from this system.

x) Judiciary:

There are three circuit tribunals in Jomoro located at Elubo, Tikobo I and Half Assini. All offenders must appear before one of these courts, which one depending on the circuit timetable. On average, three appearances are necessary to finalise the case. Until 1999, the maximum fine under the Act (1987) was ¢10,000, one year in gaol or both. In practice, this was increased at the magistrate's discretion to ¢40,000 to ¢100,000. There is no process of reward to the arresting officer though some magistrates have given them up to 50% of the fine.

The Forestry Commission Act (1999) increased penalties for wildlife offences to ¢2,000,000. However, as yet the Judiciary has still not been officially informed of the increase and does not apply the new law.

The low fines, the total cost of prosecution in terms of time, manpower and logistics and the protracted process trivialises the value of wildlife and fails to act as a deterrent to illegal wildlife activities. It is of paramount importance to the future of wildlife management that the whole system be reviewed.

2.2.3 Non-decentralised Departments:

Within each District a number of central government departments operate that have a direct impact on the Protected Areas. The Wildlife Division itself, the Forestry Services Division and the Ministry of Food and Agriculture all play important roles in determining land use and resource management. All are undergoing the decentralisation process but only Food and Agriculture is currently the responsibility of the District Assembly.

[21] Annex 12: PADP – Bushmeat Survey, 1998

i) Wildlife Division:

The Wildlife Division is the National Authority for wildlife. It has two major roles in the District: Protected Area management and wildlife regulation and licensing.

- ***Protected Area management:*** In recognition of the importance to society of the biodiversity and representative landscape contained within it, *Ankasa* has been alienated on behalf of society and the responsibility for managing it has been assigned to the Wildlife Division. Thus, having both the authority and responsibility for the Protected Area it must bear the cost of its management.
- ***Wildlife regulation and licensing:*** The land off-reserve is privately owned by the Stool or individuals. The state in the form of the Wildlife Division is the authority for the wildlife found on this land, even though the communities are the *de facto* managers and therefore responsible for it. This produces a dichotomy where the *authority* (the Wildlife Division) has become disengaged from the *responsibility* (the farmer). The Wildlife Division is the licensing authority for all wildlife utilisation in Ghana. Unfortunately, the Wildlife Division lacks the resources and systems to adequately administer this authority. Currently there are only two Wildlife Officers for the whole of the Western Region authorised to issue hunting licences or permits for any form of wildlife utilisation. Both live in relatively remote areas generally inaccessible to the vast majority of the population. Seven Districts have no Wildlife Division representation at all. Wildlife utilisation is a fact of life, yet the current system criminalises it by default. This alienates the very people who as the *de facto* managers have the most interest in utilising wildlife.

Historically, the Traditional Authority was seen as the authority for wildlife. Wildlife was seen as a natural resource of the land belonging to no one. But there was tribute due the Stool from whose land it came. It is likely that the small population pressure was such that this *res nullius* system had a limited impact on wildlife around *Ankasa*. Whether or not this system was sustainable off-reserve in light of rapidly increasing population growth is a moot point.

The subsequent assumption of authority (for wildlife) by the state, however, is likely to have prevented any further evolution of communal systems for managing wildlife. Yet it is apparent that the existing legislative framework, given the minimal resources available to implement it, has created the perfect conditions for uncontrolled access to the detriment of wildlife. The farmer bears the costs of wildlife in terms of crop damage and cost of farm maintenance. To reduce these costs he will seek to kill the animal as quickly as possible. If he does not, then someone else may well enter his farm and kill the animal removing any income that the animal may represent to off-set the damage. If the intruder has purchased a license from the Wildlife Division, then his taking possession of the animal is legitimised by the state. As a result the management of wildlife off-reserve remains opportunistic. Wildlife has been removed from the equation of off-reserve land management as a legitimate enterprise and as such has become low profile when the farmer makes decisions on land use.

The Wildlife Division is currently undergoing institutional restructuring. The situation of Wildlife administration in the Districts is being reviewed and many of these issues will be addressed, particularly the devolution of authority over wildlife to the farmer on whose land it occurs.

ii) Forest Services Division:

Until 1999 this was known as the Forestry Department of the Ministry of Lands and Forests. As with the Wildlife Department it was reconstituted as a Division of the Forestry Commission. The Forest Services Division is the authority for timber in Ghana. It manages the timber resources on behalf of the traditional owners. Through a permit system it controls the access to timber and non-timber forest products both from Forest Reserves and off-reserve. As such, it is a key player in changing land use off-reserve.

Land managed by the Forest Services is not under the same management regime as wildlife protected areas that have actually been alienated. The Stool still benefits from the royalties paid by logging companies and the local populace still have an inalienable right of access for certain non timber forest products. This has effectively led to an open access system for wildlife and NTFPs within forest reserves.

The Forest Services has a Western Regional Office in Takoradi. Forestry Districts do not conform to the Administrative Districts. The District Office responsible for forestry activities in the Conservation Area is based in Tarkwa, 170km to the east. There was a sub-district office maintained at Axim in Nzema

East District but this has now been closed. Felling permits and concessions are issued by the head office in Accra and are administered by both the Regional and the District Offices. A detailed pre-felling inspection and post-felling verification are supposed to be performed but due to poor resources and manpower these are very rarely satisfactorily carried out. The Axim office, for instance, had been responsible for issuing timber permits to logging companies in the Conservation Area but was under-resourced. It had no transport and was completely unable to administer and supervise the logging operations for which it provided the permits. It would appear that having taken the authority for timber utilisation the Forestry Services has not assumed the responsibility for appropriate supervision.

Since 1997, several instances of abuse of permits within the Conservation Area have occurred. This has accelerated off-reserve degradation and opened sensitive areas of forest to settlement. One company entered the Ankasa Resource Reserve and felled twenty-seven trees. The WD initiated legal action but this is still unresolved 34 months later. The same company has opened logging roads along the eastern boundary of the reserve. Draw River Forest Reserve has been severely damaged by another company through irregular logging practices. Yet another company has opened a road along the Western Boundary.

In 1999, a Memorandum of Understanding for full co-operation between the then Forestry Department and the Wildlife Department was signed. This was intended to facilitate the implementation of the various regulations and improve relationships between the two departments. This MoU has not been widely circulated or understood and co-operation on combating illegal activities within the Conservation Area is poor. The new Forestry Commission is currently reviewing the interrelationship of the two Divisions and hopefully a more effective system will be developed.

As regards timber management by the residents of the Conservation Area, timber planted by a farmer is considered to belong to the farmer. Timber existing when the farm started is considered to belong to the Stool or landowner and therefore royalties are paid to the Stool when this timber is felled. The landowner also benefits from a percentage of royalties under this system. The tenant farmer only receives compensation for any crop damage caused during the felling operations. Compensation is a negative payment; it is not an incentive for management. There is therefore no incentive for the tenant farmer to protect trees already growing on the land that he is farming. Even if a tenant farmer or a landowner may own the trees he himself has planted he still needs obtain a permit from the Forest Services Division if he wants to harvest the trees. The actual ownership of the tree seems to be an issue that is problematic as many farmers are unclear how they can prove that a tree is "theirs" and not naturally occurring. The revised Timber Utilisation Bill (1999) covers these rights and processes for off-reserve timber management in detail.

In reality, the practice of growing trees is still mostly academic. There is little extension work carried out by the Forestry Services. Tree seedlings of economic indigenous species are very hard to acquire. One possible source is from *Ankasa* where wildings, cuttings and seed could be offered for sale and distribution to interested farmers, communities and educational institutions.

The Forest Services Division is formulating a system of community participation in both on-reserve and off-reserve forest management. This is under their Community Forestry Committees programme. Harmonisation between the Forest Services' approach and the Wildlife Division approach to community based management of timber and wildlife respectively is not essential but is strongly recommended at this early stage.

iii) Ministry of Food and Agriculture:

This Ministry is a key player in the conversion of forest-land to agriculture. It promotes the conventional crops for which established markets exist. There is little interaction between the Ministry and Wildlife or even Forestry thus missing out on a concerted and co-operative approach to consider optimum land use. Active encouragement of cocoa plantations by the Cocoa Services Division has seen a massive change in land cover, pollution of streams and degradation of soils.

iv) Non Governmental Organisations:

NGOs often play an important role in promoting sustainable land-use through supplying necessary technical skills, micro-financing and income generating micro-projects. There were no major NGOs working in the Conservation Area. In 1999, PADP in association with Effem (now Masterfoods) GmbH supported the work of TechnoServe Ghana to promote natural resource orientated micro-projects

in the Amokwasuazo area. SNV a Dutch NGO is also planning to work in the area. They will concentrate on Institutional strengthening of the District Assembly and Community structures. Unfortunately, their programme has been delayed and will now start in late 2001.

2.2.4 Traditional Authority

It is important to make a distinction between the role of the District Assembly and that of the Traditional Authority. The District Assembly is a governmental administration. The Traditional Authority has a socio-cultural function and effectively is the major landowner off reserve.

i) The Traditional Authority

This is the custodian of traditional practices and customs of a particular area and is enshrined within the Constitution. All land is vested in the Paramount Stool through the allodial title. The Paramount Chief is the head of the Traditional Council, made up of Senior Divisional Chiefs and Divisional Chiefs each of whom control specified areas of land from their own stools. Each of these has a number of Odikro or headmen. The Chief appoints them as his representatives and they administer smaller subdivisions of land on his behalf. At all levels, the chiefs/headmen perform some executive, legislative and judicial functions to a greater or lesser degree.

The complexity of the situation directly pertaining to the Ankasa Conservation Area is ably described in the PADP commissioned Socio-Anthropological Study on the Western Nzemas.[22] The Traditional Authority in Western Nzema consists of the Paramount Chief, Awulae Annor Adjaye III. Under him are a number of Chiefs (Ahenkro). Around *Ankasa* there are eight Ahenkro. Each Ahenkro has a number of Odikro. Settlers arriving in an area will generally seek an allocation of land from the Chiefs representative, the Odikro.

Within the Odikro there are a number of settlements which have a degree of collective decision making and conflict resolution which loosely equates to what might be termed a "community"[23].

The Ankasa Conservation Area is concerned with three traditional authorities (see Figure 2):

- **Western Nzema** Traditional Council - the entire area of *Ankasa* is contained within land that formerly belonged to this traditional authority.
- **Eastern Nzema** Traditional Council – covers the area to the East of the eastern boundary of the reserves and includes all of Draw River Forest reserve that is contiguous with Ankasa.
- **Wassa Amenfi** Traditional Council – covers the area north of the Nini River that forms the northern boundary of the National Park

The map shows that though all three traditional councils fall within the described Conservation Area only one has any claim on *Ankasa* as it lies wholly within the borders of Western Nzema Traditional Authority. The Traditional Authority has an important role to play in wildlife conservation.

- It represents social structures that can be used to partly define and delineate existing community structures.
- It defines appropriate land use for tenurial purposes
- It determines the allocation of land to immigrant farmers

All these factors are important for the development of a system of community-based wildlife management.

The Traditional Authority may claim to control land and land allocation. In practice there are numerous different agreements between tenants and *de facto* landowners and it is evident that both the tenant and the person who allocated him the land are quite clear as to what is the property of the landowner and that of the tenant.

ii) Boundary Disputes:

The boundaries of *Ankasa* are known and respected. However, farmers have cleared to the boundary in most places around the Reserves. In the few instances where a farmer has encroached this was brought to the attention of the appropriate Stool. On each occasion the farmer was ordered by the Stool to abandon the encroached area and surrender all crops planted without compensation. The farmers in question signed an undertaking with the Traditional Authority, copied to the *Ankasa* management, to desist from future encroachment.

[22] Annex 8: A Socio-Anthropological Study of the Western Nzemas, PADP 1998
[23] Annex 19: CREMA Development

iii) Compensation Issue:

The land now gazetted as *Ankasa* was land belonging to Western Nzema Traditional Council (the Stool). Under the Law compensation for such alienated land must be paid. The compensation payment to the Traditional Authority was never made in full and there were severe complications concerning the part that was paid. Consequently there is an outstanding claim against *Ankasa*. For a full account of the compensation situation see Appendix B.

2.3 Population Dynamics and Land Use in the Conservation Area

2.3.1 Demography

i) Special census of the ACA:

Little was known about the human population surrounding *Ankasa* at the start of the planning process. The EDG report[24]1991, stated that the number of settlements located on the perimeter of the reserves is unknown but estimated that there were about ten communities between the Elubo/Axim road and the Resource Reserve. The report did not define the parameters of "Community". This figure was found to be woefully inaccurate. The last national census was conducted in 1984. The population of the Conservation Area at that time was calculated as 11,884 spread over 142 settlements within 7km of *Ankasa*. Immigration since then has been high. The District Authorities in their Development Plans have used the National rate of increase (3.1%) to extrapolate population estimates. But visual evidence of the spread of new settlement and the rate of forest conversion to agriculture indicated that this rate was also too low for the area. PADP conducted a detailed census of the area in 1998/99[25] and found that there are about 25,000 people living in over 1,800 settlements within 5 to 7 km. of the *Ankasa* boundary. (see Table 4 and Figure 5). This represents an annual rate of increase of 5.5%.

Table 4: PADP Provisional Summary of Demographic Survey, Ankasa Conservation Area

District	*Number of Ahenkro*	*Number of Odikro*	*Total Number of Settlements*	*Total Number of Households*	*Household Population*			*Percentage Immigrants*
					Total	*Indigent*	*Non-Indigent*	
Jomoro	10	36	755	2,361	13,427	6,579	6,848	51%
Nzema East	1	11	337	1,257	6,222	579	5,643	91%
Wassa Amenfi	1	7	796	1,005	5,439	98	5,341	98%
Total	**12**	**54**	**1,888**	**4,623**	**25,088**	**7,256**	**17,832**	**71%**

ii) Ethnic Composition:

The Protected Areas lie within Jomoro District. This is the traditional area of the Western Nzemas. The District boundaries coincide with the traditional boundaries of the Paramount Stool of Western Nzema seated at Beyin. One Senior Divisional chief and five Divisional Chiefs occupy stools that had traditional ownership of the Protected Areas. Land to the east of the Reserve is also Nzema but falls under the Paramount Stool of Eastern Nzema. The land to the north belongs to the Wassa. Recent immigration has changed the ethnic balance. The relatively empty land attracted farmers from all regions of Ghana. Within the Conservation Area in Western Nzema they now just outnumber the indigenous population, while in Nzema East and Wassa-Amenfi immigrants now make up over 90% of the ethnic mix. A breakdown of the population by origin is given in Table 5.

Table 5: Percentage distribution of Non- Indigent Heads of Households in the Conservation Area by administrative district and region of birth

[24] Protected Areas Development in South-West Ghana, Draft Final Report, Environment Development Group for GWD Accra 1991.

[25] Annex 7:A Special Population Census of the Ankasa Conservation Area in the Western Region of Ghana, 1998. PADP Report February 1999.

Admin. District	Region of Birth							
	Brong Ahafo	Ashanti	Eastern	Central	Volta	Upper East	Rest	Total
Jomoro	19.3	15.2	6.5	11.3	8.2	4.6	34.9	100
Nzema East	6.6	31.8	23.7	16.5	5.0	7.5	8.9	100
Wassa-Amenfi	48.5	10.1	22.2	5.6	2.8	4.0	6.7	100
Total	**23.7**	**19.3**	**17.0**	**11.4**	**5.5**	**5.4**	**17.7**	**100**

The immigrant farmers all lease or rent farms from the indigenous owners. There is no squatting or illegal settlement. However, there is dilution of the influence of the Traditional Authority and their control on land use. It should be noted that most of the farmers living in close proximity to the reserves are now immigrants. As such they have no traditional claim on the resources of the Reserves. They have come for the benefits to be derived from the agricultural development of virgin land and as a response to socio-political events beyond the control of the Wildlife Division. This process has been accelerated by improved access afforded by the construction of new roads and logging tracks, most notably along the recently constructed Elubo/Enchi Road in 1997, which cut through the Northwest corner of the Nini Suhien National Park. Most settlers have come from depleted cocoa producing areas and are seeking new areas for cocoa production.

Care has to be taken however, when considering immigrants. There is a tendency to blame much of the environmental damage upon these settlers. Deeply entrenched prejudices about the introduction of unsustainable farming practices are not borne out in reality. Many of the settler farmers are closely integrated into the existing socio-cultural fabric. They are often more enterprising farmers and may well be major contributors to the local economy. Around *Ankasa* there is no evidence that these settlers are causing any greater or lesser damage to the environment than the indigenous population[26].

To avoid undue prejudice against these settlers they will be referred to in this text as *tenants* to differentiate them from people who have a traditional or family claim over the land. These tenant farmers are very important to the proposed community based wildlife management scheme. Furthermore, they are an integral part of the communities around *Ankasa* and care should be taken not to raise ethnic tensions through misplaced and inaccurate conservation initiatives.

iii) Settlement Pattern:

The recent immigration has dramatically changed the settlement pattern. Settlements around *Ankasa* initially consisted of small towns surrounded by a number of hamlets. The new settlements are based more on individual farms rather than cluster groupings. The dispersed nature of the settlements reflects this recent influx of tenant farmers from many different ethnic areas and as more land is utilised for cultivation widespread clearance of forests has occurred. The houses are generally constructed from locally available natural resources but the land clearance and the increase in population have caused a serious depletion of these materials, especially raffia and canes, in the off-reserve areas.

The Districts of Wassa-Amenfi and Nzema East have seen the greater proportion of newly arrived settlers in recent years. Settlements in these two districts are generally more recent and smaller in size.

2.3.2 Land Use

i) Land Tenure:

The Land Tenure System operating within the Conservation Area generally conforms to the Ghanaian tenurial system, particularly the Akan, under which the 'allodial title' is vested in the Paramount Chief with the indigenous individuals and families holding 'customary freehold' in the land. Immigrants must seek to lease land from either the Stool or the indigenous landowner.

[26] Annex 11: Agricultural and Animal Husbandry Survey PADP 1998.

PADP surveys in 1998/9 revealed that 60% of farming is on Stool land. Tenants pay for the land in one of three ways:

- 'Abunu' – the farmer clears and plants perennial crops. At maturity half of the produce belongs to the landowner. Recently, a cash payment is also required before the land is acquired.
- 'Abusa' – as for the above but at maturity one third of the produce belongs to the landowner.
- Rent – cash annual payments are paid to the landowner.

The system is complex[27]. The land always belongs to the original owner but the "property", the crop planted on the land, belongs to the farmer and is inheritable. Tenants gain usufruct rights to the land by farming it. This means clearing the forest and planting perennial crops. Food crops are planted while the tree crops are growing. The produce from food crops belongs to the farmer.

Land management is therefore driven by commercial production of recognised crops. Use of the land in an accepted manner imparts 'ownership'. This ownership may not be absolute, however, it implies a degree of authority. Natural resources are not perceived within this conceptual framework. They have been taken out of the equation of land management as they are perceived as 'belonging' to the State or land owner and are 'managed' by the State through licensing and permits. Security of tenure does not impart any claim to the wildlife on the land. The most important issue is the security and strength of usufruct rights and the ability of the community to arrange itself in such a way as to protect those rights. The nature of wildlife present around *Ankasa* means that long term security of tenure is not a prerequisite to begin community based wildlife management.

iii) Agriculture:

The area around *Ankasa* is characterised by poor agricultural soils[28]. Deeply weathered, acidic and infertile, they are prone to rapid impoverishment when they are subject to repeated cropping. Despite this there has been a rapid increase in agricultural planting in recent years. Fallow periods that are essential for the replenishment of soil fertility are becoming shorter due to increased pressure on the land as a result of population increase.

The recent main cash crop of choice is cocoa. Other perennial tree crops are coconut, oil palm and rubber, all of which are subject to processing and marketing problems. Subsistence farming of cassava, cocoyam, yam, plantain and maize is common to almost all farmers. Vegetables such as tomatoes etc. are also grown.

The Ministry of Food and Agriculture has actively encouraged cocoa through the work of the COCOBOD. Favourable pricing systems have encouraged the cultivation of cocoa in this area even though for the most part the soils are unsuitable for efficient cocoa production. Due to the infertile and highly acidic soils the cocoa is dying after about nine years. As a result of the arcane tenurial system that requires re-negotiation of the lease each time a crop is replanted, sick and dying trees are simply replaced individually, thus maintaining the problem and giving no chance for a consideration of an economic alternative. In most areas there have been dramatic crop losses due to blackpod and other diseases. New technology is unlikely to improve the agricultural situation. In fact, increased use of technology is likely to exacerbate the problem and put the farmers into debt.

Agricultural inputs, such as fertilisers and chemical sprays, are in short supply. The chemicals in particular present a problem. They are sold in small amounts without adequate instruction on mixing and use. They are often applied as and when the farmer has access to cash to buy them or when the pest is well established rather than on sound agricultural timing recommendations. So to a large extent they are ineffective. The farmers have also cleared land right to the river and stream banks removing all vegetation and thus any filter for the sprays. As a result many of the streams are now devoid of aquatic life. This has a major knock-on effect for fisheries (see below).

[27] Annex 8: Socio Anthropological Study of the Western Nzemas, PADP 1998
Annex 17: Socio Economic Survey, PADP 1999

[28] Ahn, 1961
Annex 11: Agriculture and Animal Husbandry Survey, PADP 1998

Crop losses due to wildlife are regarded as serious. The most common ways of reducing crop losses caused by wildlife are through trapping, weeding and in some cases fencing. Weeding to discourage wildlife is a net cost to the farmer (currently ¢20,000/ pole).

iv) Animal Husbandry:
The infertile soils, humid conditions, poor nutrient content of browse and prevalence of animal diseases mean that animal husbandry is not a viable option. It is practised as a means of wealth accumulation and as a casual occupation. A few goats, sheep and chickens are kept for this purpose but no large animal rearing is found. There are no cattle except those driven in for slaughter in the large towns. A small swine industry has started utilising the by-product of coconut processing.

v) Fishing:
There have been several attempts to start fish farms. These seem to have met with some success and the individuals should be encouraged to developing these further. However, care should be taken with the species introduced due to the conservation importance of the fish species within the *Ankasa* catchment area and the maintenance of the local ecology and economic sustainability e.g. the case of Nile perch introduction into Lake Victoria. A small but important fishery is established on the Tano River and many small streams are fished with nets and traps. The importance of *Ankasa* and the outflowing streams to the maintenance of the vast wetland and lagoon system between *Ankasa* and the sea cannot be overemphasised. Major fisheries research needs be done in this area.

vi) Non-Timber Forest Products:
The communities in the off reserve areas around *Ankasa* have a close relationship with non-timber forest products. They form an important part of the fabric of day to day rural life. For reasons very similar to that affecting wildlife, there is a *de facto* open access system operating off-reserve for their use. This has led to severe depletion of these resources to a point where often, they can only be found within the protected areas. The Forest Services Division is responsible for issuing permits for their extraction and conveyance in areas under its control. Unfortunately, this is poorly supervised or regulated. *Ankasa* has been heavily exploited in the past for rattans and chewing sticks (*Garcinia spp.)* and such illegal activity is one of the major concerns today.

The use of these resources meets both commercial and subsistence requirements. Many communities rely heavily on them for food, construction, health and income. Yet all too often ownership is unclear and the trade is criminalised due to the difficulty in obtaining permits. As with wildlife, the responsibility and authority over the resource has been abrogated to the State and taken out of the equation of land management. This has backfired with resources off-reserve so depleted that the reserves have come under unsustainable pressure. At the same time, no one has developed a system of care for the NTFPs or considered their management and commercial production. Despite a major rattan furniture industry in Ghana no commercial plantations of the raw material have been planted. This needs to be addressed.

Some authors have suggested that rural communities will rely less and less on non-timber forest products and become more dependent on imported manufactured alternatives. This is cited as a result of increasing affluence amongst these communities. This is not borne out by observations[29]. The use of more expensive (albeit more durable) alternatives is probably due to the overuse of the natural resources leading to a decline in their availability. This decline in use, possibly due to lack of availability, of many of these non-timber forest products as medicinal items may have long term effects on the health of these communities. Chewing stick for instance is used for dental hygiene. Scarcity of this could adversely affect the local communities.

vii) Wildlife as a Renewable Resource:
The bushmeat trade around *Ankasa* is substantial. The role of wildlife in both the economy and as a subsistence source of animal protein should not be underestimated. The replacement costs of this resource alone would be unachievable. In 1998, PADP conducted a survey of bushmeat utilisation within the Conservation Area[30]. The results put the annual value of the bushmeat trade, in all its facets, in the multi-

[29] Annex 15: Non Timber Forest Products Survey, Part 1, PADP 1999 & Annex 16: Part 2, PADP 2000
[30] Annex 12: Bushmeat Survey, PADP 1998

million US$ range. According to similar studies done in 1996 and 1997 around other protected areas and nationally this value was not unusual. Yet the trade is virtually unregulated. The government and local administration derive little revenue from it. This situation is desperately in need of review. Later in this Management Plan a possible methodology is presented for vastly increasing the economic management of this industry in the Conservation Area at least.

Contrary to the views of many authors, the bushmeat trade, at least around *Ankasa*, is sustainable. It is not managed at optimum efficiency, but maximum hunting effort is certainly taking place. The key species involved in this trade are not forest obligates. They thrive on the mosaic of primary and secondary forest, fallow lands, small plantation and subsistence farms that have until recently made up the off-reserve areas[31]. Typically their ecology is one of robust populations. Their reproductive rates are high and their habitat requirements are small in terms of land area. They can withstand intense hunting pressure and, even when reduced to very low numbers, are able to bounce back. They are ideally suited to small-holder farms and plantations.

This off-reserve industry depends mostly on common species, often regarded as crop pests. Species of conservation importance that are utilised come predominantly from within *Ankasa* and neighbouring Forest Reserves. Access to these species is therefore a Wildlife Division management issue that needs be addressed by the *Ankasa* authorities.

Probably the most important factor influencing the population dynamics of these key bushmeat species is habitat management. The clearing of large areas of forest and the resultant luxurious growth of ground cover favours these species. Once farms are established the patchwork of different types of cover provides ideal habitat for them and they are able to take advantage of this rapidly. Ironically, the recent emphasis on cocoa production has led to large areas of a mono-culture that is particularly unfavourable to wildlife.

All available evidence points to the fact that wildlife could make a sizeable contribution to farm incomes and the local economy and therefore to District revenue. It should contribute to the health and well being of the local populace through the provision of quality animal protein and it would support a local economy of production, processing and marketing.

viii) Existing use of wildlife:

The most important aspect of the bushmeat industry off-reserve is that it contravenes existing legislation. The current legislation inadvertently creates an opportunistic open access system that encourages over-utilisation as opposed to optimum utilisation. The legislation needs be reviewed to provide appropriate regulation of this valuable industry.

The pattern of hunting is extremely varied. The majority of people within the community are farmers. They will utilise wildlife on their farms when the opportunity arises. But there are also individuals who actively hunt for a living on and off-reserve. The PADP study estimated that there were over 5,500 active hunters in the Conservation Area. Many hunt part time but their utilisation of wildlife, while still very dependent on opportunity is more planned. Much night hunting using carbide lamps occurs and though completely illegal goes unchallenged. [32]

ix) Wildlife Farming:

No wildlife is being farmed in the Conservation Area. Kakum National Park has attempted to promote Grasscutter farming in its area but has had limited success. Most wild animals do not lend themselves to captivity. If they did it is likely that man with his industriousness would have already domesticated them. It is not just the suitability of the animal to consider but feeding and health are also important factors.

The concept that wildlife can be enclosed, as a means of defining ownership is a tortuous route that can be more easily achieved through rationalising legislation to permit 'proprietorship' for extensively

[31] Annex 20: Integrated Wildlife and Landuse Management. PADP 2001.
[32] *ibid*

managed wildlife. This way the wildlife can remain "wild" and there are none of the costs involved in maintaining wild animals in captivity.

Domestication is difficult to do even in cultures with a strong history of animal husbandry. Wild animals are selective feeders. In forest conditions where they are foraging on poor quality and unpalatable browse they select the most nutritious shoots and leaves. This allows them to thrive in a hostile environment. It is however, a time consuming process. Once the animal is enclosed the "farmer" will have to select browse for them. This is a major time cost to the farmer. Wildlife farming will not benefit the communities around *Ankasa*; moreover it may encourage them to become involved in unprofitable enterprises which require a large initial investment.

x) Resource Dependency and Replacement:

The concept of resource dependency and replacement is not a rational policy. If people value a natural resource they are more likely to manage off-reserve care for it. When that value is removed by replacing the resource with an alternative then people will cease to care about the resource. This Plan places great emphasis on encouraging community wildlife management based on the principle that wildlife is more likely to be conserved if it is given focused value.

Plate 2: Lowe's (Mona) Monkey - *Cercopithecus (mona) lowei*

SECTION 3 MANAGEMENT CONSIDERATIONS AND OBJECTIVES

3.1 Key Management Considerations

From all the foregoing, a list of key management issues can be established that needs be addressed by this Plan. These can be divided in to three main areas, biodiversity conservation, off-reserve wildlife management and tourism development.

3.1.1 Conservation Significance

i) Biological Significance:

The outstanding nature conservation values of the Protected Areas derive, *inter alia*, from:

- the only virtually intact representation of a wet evergreen high forest ecosystem in Ghana;
- the size of the area, which ensures the integrity of this ecosystem;
- the richness of the vegetation in terms of floristics, endemism and the distinct probability of new species with possible beneficial properties;
- the wealth of birds, including nearly all of Ghana's known forest species and especially the endangered White-breasted Guineafowl;
- the remarkable diversity of freshwater fish species endemic to the Eburneo-Ghanaian icthyofauna (nearly a half of all recorded Ghanaian fresh-water rainforest fish from this region occur in the Protected Areas and are specific to particular drainages);
- the extensive range of mammals, reptiles, amphibians and invertebrates with most still to be identified;
- the presence of suitable habitat for Ghanaian endangered animals (e.g.: Forest Elephant, Bongo, Leopard, White-naped Mangabey, Chimpanzee and Roloway Diana Monkey);
- the proximity of neighbouring Forest Reserves that extends the available habitat for these large mammals that have an important effect on forest regeneration through seed dispersal;
- the source of seeds, wildings and cuttings from economically important plants to replenish degraded stocks off-reserve.

ii) Physical Significance

The rainforest serves a major climatic and environmental protection role:

- the forest contributes to the maintenance of the rainfall and humidity necessary for agriculture in surrounding areas;
- it regulates the stream flow throughout the year maintaining important fishery cycles and water supplies;
- the trees act as giant nutrient pumps bringing scarce soil nutrients to the surface thus improving the nutrient value of the plants to support the complex biodiversity;
- the trees and associated plants act as a giant filter for the valuable dust of the Harmattan, improving soil fertility.

3.1.2 Off-Reserve Significance

The biodiversity significance of *Ankasa* is without doubt its representation of a wet evergreen rainforest climax community. As such it is unable to adapt to rapid change, rather being dependent on long term environmental stability. Rapid environmental change will lead, therefore, to destruction of biodiversity.

It is therefore apparent that the significance of the off-reserve to *Ankasa* is the conversion of forest to agricultural land resulting in a rapid change from an environment of high species diversity to one that is becoming simplified with far fewer species. It therefore makes good sense to the Wildlife Division to stabilise the situation off-reserve. The only feasible way the Wildlife Division can influence this is through the *promotion*, and not the *proscription*, of wildlife as a land use.

The significance of off-reserve wildlife management is that it recognises that:

- the importance of *Ankasa* is biodiversity. It is therefore, crucial that land uses immediately surrounding the protected area are not contributing to the loss of diversity;

- islands of primary forest are subject to all the pressures and risks of maintaining small populations of species;
- the success of any future protection measure on-reserve may result in key species needing to expand their range. *Ankasa* is a very small area and a diverse land use surrounding it would increase the available area to accommodate expanding populations;
- small areas are subject to rapid change. Therefore, effectively enlarging the area of *Ankasa* simply through the promotion of compatible land use will reduce the risk of cataclysmic change;
- continued pursuance of current practices off-reserve will result in further degradation. This will simply exacerbate the problem;
- the use of monocultures, particularly cocoa, but also monotypic land use creates a very hard boundary. This will create a larger edge effect reducing the effective area of *Ankasa* itself. Conversely by reversing the process it would effectively increase the area of *Ankasa;*
- threats from outside, typically poaching, stem from a genuine need for many of the resources that are contained on-reserve. The most cost-effective way in which this pressure can be reduced is to make available these resources on the lands around *Ankasa*.

3.1.3 Tourism Significance

I) The Tourist Industry

Ankasa should become an important component in the development of the Western Region and Ghanaian tourist industries. Interest in Ankasa as a tourist destination was expressed at the first Regional Tourism Conference "Awakening the sleeping giant" held in Busua in June 1998. The European Union funded programme has also raised the profile of *Ankasa* and the establishment of a website (www.wildlife.gov.gh) has gone a long way to updating many of the Tourism Guides on Ghana that currently are rather disparaging about its amenities and access.

A continuing increase in tourist numbers seems inevitable with improved access and facilities and as *Ankasa* becomes better known. The Ghana Tourist Board and Ministry of Tourism are keen to promote *Ankasa* both domestically and overseas. Whilst the major consideration is the protection of the unique natural heritage of *Ankasa,* the Protected Area management must be cognisant of tourism needs and the potential it provides to promote conservation ethics. Considerable scope exists to enable people to relax in essentially natural surroundings without posing a threat to the natural environment.

ii) *Ankasa* Visitor Numbers and Characteristics

The "Proposed Tourism Development Framework for the Western Region of Ghana" prepared under PADP provides a basis for Protected Area planning and management in relation to tourism and assists in assessing the current and potential contribution of *Ankasa* to the tourism industry in Ghana.

Based on rather poor records, the number of tourists to Ankasa has, up till 1999, been extremely small, with less than 100 people visiting the Reserves in the last ten years. These visitors were mostly researchers and backpackers. Facilities for tourists were virtually nil with only one 3km walking trail, no interpretation, or overnight camps. In the last two years numbers have increased to about a hundred per quarter. Facilities have vastly improved and much is planned over the next few months including major public promotion. Though national tourists are still very few in number, resident expatriates and foreign visitors are increasing. They have high expectations of what constitutes an enjoyable and informative visit.

Careful consideration of the needs and aspirations of the number and type of visitors provides the key to their enjoyment and appreciation of *Ankasa,* whilst ensuring protection of its unique values. In undertaking the provision of new major visitor facilities and upgrading interpretation and information, account will be taken of the recent study, environmental considerations and visitor capacity.

PADP has prepared "Recommendations for a Tourism Concession and Management System for the Wildlife Division of the Forestry Commission (2001)". This report will enable the WD to receive adequate returns and efficient management of its tourism assets.

3.2 Management Objectives

Biologically, *Ankasa* is possibly the most significant Protected Area in Ghana. Protecting its integrity is the first management objective. The Protected Areas System Plan (1994) identified the following general management objectives for National Parks:

a) **"**to perpetuate and enhance the natural and scenic values of these areas of national significance for cultural, recreational, educational, scientific and rational use, and to provide suitable facilities for such purposes through appropriate zoning of the parks assets.
b) to enforce the respect of those features leading to the establishment of the national park by preventing/regulating the illegal extraction or destruction of any wildlife species, community or natural features and controlling all development which will detract from these values.
c) to increase public awareness of the value and non destructive use of the parks resources.
d) to develop opportunities for local communities to benefit from the park through integrating its management into the processes of rural economic development.
e) To ensure that any management interventions such as culling for overpopulation, species introductions etc. are strictly in accord with an approved management plan and are scientifically justified.
f) Where appropriate, to establish buffer zones in which community wildlife-related projects can be developed.
g) to encourage and enhance compatible forms of land-use on the periphery of parks.

The management objectives for resource reserves were given as:

a) to assure the natural conditions necessary to maintain populations of significant species and to provide for the sustained production of wildlife and their products.
b) to manage the area primarily to support economic activities through zoning for specific conservation purposes.
c) to contribute to rural livelihoods by improving access to sustainable harvesting of wildlife resources.
d) to explore approaches to wildlife conservation that encourage popular support and increased local responsibility for the management of wildlife resources.
e) to encourage the natural migration and colonisation by surplus species into the surrounding lands for the benefit of local people.

These definitions, criteria and management objectives were intended to provide the basis for policy statements on protected areas and lend general guidance for their management. It is understood that these general management outlines are to be interpreted more precisely to serve management objectives for plans prepared for specific sites, in which details of management prescriptions and institutional arrangements for local community participation etc. as appropriate are laid out.**"**

The biological importance of *Ankasa* and the objectives of a Resource Reserve are not compatible with each other. The area of intact forest is now relatively small and if the integrity of this important ecosystem is to be maintained the whole of *Ankasa* will have to be put under a higher level of protective management. Therefore this management plan recommends that the Resource Reserve be given a higher level of protection commensurate with the national park (see Section 1.3). The management objectives therefore reflect this recommendation and treat the whole area as one.

The original proposal for the development of *Ankasa* called for the development of the Ankasa Resource Reserve in line with these given objectives. The accepted interpretation of these guidelines would have meant improving local community access to natural resources on-reserve by some system of controlled extraction of certain agreed products. However, following the management study there is now strong justification to reassess this interpretation in light of the various findings regarding the biological importance of *Ankasa.* Access to resources on-reserve is not necessary provided that the objective can be achieved by establishing systems to increase community access to natural resources off-reserve.

Logically, it is deemed to be imprudent to allow these neighbours access to a relatively protected resource, if they are not able to demonstrate, or have no track record of managing these same resources in

the off-reserve areas. Many of the resources important to the local communities are present off-reserve, albeit severely depleted. To allow access to the protected areas for the "sustainable" harvest of these resources without first securing a culture of sustainable management and individual responsibility, would be to simply transfer the pressures on the off-reserve resources to the protected areas system and speed the destruction of these areas. It is therefore evident that any management plan to ensure the long-term conservation of *Ankasa* must incorporate a system of off-reserve land use stabilisation and natural resource management.

Authority and *responsibility* are conceptually linked. Without one the other is meaningless. The authority and management (*responsibility*) body for *Ankasa* is the Wildlife Division. Off-reserve the *authority* for wildlife lies with the state, within the purview of the Wildlife Division. However, in effect it is principally individual farmers who carry out the management of these areas. They are therefore *responsible* through their day to day activities for wildlife off-reserve. From this it can be demonstrated that there is a discontinuity between authority (the state) and responsibility (the farmer).

This management plan seeks to rationalise the management and authority systems currently in place. Recognising that *authority* and *responsibility* must be linked for successful wildlife management, this must be reflected off-reserve as well as on-reserve. Therefore the following conditions must be recognised:

1. The management and authority for *Ankasa* lie firmly with the Wildlife Division.
2. The authority for wildlife off-reserve should be conditionally devolved to the *de facto* managers of wildlife off-reserve, i.e. the farming communities and/or individual farmers.

It is evident that the Wildlife Division cannot realistically take *responsibility* for the off-reserve areas. It has demonstrated neither the capacity nor the resources to do so. But it is the highest *authority* for wildlife in Ghana and it is therefore beholden upon the Wildlife Division to demonstrate and permit mechanisms that will allow the delegation of authority to communities to manage wildlife in their areas on its behalf.

There is, however, a cost involved in managing wildlife. Most often this is borne by the *de facto* manager. In this case the Wildlife Division should bear the cost on-reserve and the individual farmer off-reserve. Conversely, any benefits from such management should be seen deservedly as off-setting these costs. These two parties should logically therefore receive any benefits that accrue from their separate areas and the mechanisms to do so must be legally and effectively established and incorporated into the system.

There is another important issue that must be addressed here. The established thinking on Integrated Conservation and Development Programmes emphasises the role of income generating micro projects within communities neighbouring the Protected Areas as an alternative to wildlife poaching. The Protected Areas Development Programme responsible for developing this plan was no exception. During the planning phase various options to assist the local communities to develop income-generating enterprises were explored in the off-reserve areas.

This need for a programme of micro-enterprises has never been fully established as a pre-requisite for the conservation of wildlife. It is in effect a pre-conceived need of the local communities and rural development policy. There is no doubt that a small number of local people might benefit from such a programme but it is hard to see how this will satisfy the Wildlife Division conservation aims. After careful consideration of the results of these studies it is recommended that the Wildlife Division should avoid becoming involved in such general programmes, as it has neither the capacity nor the experience to implement them.

There is also a very real danger that the development stimulated by such a programme could be detrimental to Ankasa, drawing in more people to the area to take advantage of the development gains to be had there. The Wildlife Division should instead concentrate on the one thing that it has the authority for outside the Protected Areas, namely the wildlife.

This plan proposes that the only developments that the Wildlife Division should be involved in off-reserve is the development of community-based wildlife management systems and programmes

encouraging the re-establishment of economic forest products. By giving the wildlife a focused value the people who live in the area will manage it in a manner that is compatible with the interests of *Ankasa*. The local people will receive tangible benefits from this management. That these benefits accrue from the careful management of wildlife will result in the local people valuing wildlife and maintaining it on their farms and other areas of land. The development of this system will promote the maintenance of the mosaic of land use types that mimic the diversity of the forest. These provide the best habitat for wildlife and also for enrichment planting of economic species. The Wildlife Division will achieve land stabilisation and the *de facto* creation of a buffer zone to the Reserves, managed and controlled by the land users.

Thus, the primary long-term management objectives of the Ankasa Conservation Area are outlined below in the light of the above and the management policies of *Ankasa* described in Section 1.3.

Whilst ensuring the protection of *Ankasa* in perpetuity, the objectives for management must be consistent with the national and international importance of its natural heritage and its significance to the local population. The management objectives of *Ankasa* can be grouped into three broad categories, with a fourth directly concerned with the off-reserve area:

- Natural Heritage: the preservation of the natural value of *Ankasa*;
- Interpretation: provision of an educational and interpretative programme;
- Tourism: provision of appropriate recreational opportunities and access to *Ankasa*, providing that these do not conflict with, or take priority over the preceding categories;
- Off-reserve: to promote community-based wildlife management systems.

These objectives can best be served by increasing the protected status of Ankasa Protected Areas to that of a National Park, building the management capacity of the Wildlife Division and devolving authority for wildlife off-reserve to communities who can demonstrate suitable management capacity.

The key management objectives are as follows:

- to conserve the natural, scientific and scenic resources of Ankasa whilst developing a local perspective of management;
- to establish a program of management in which authorities with traditional associations with the land of *Ankasa* play a participatory role;
- to protect *Ankasa's* resources from the adverse consequences of misuse by people, environmental change and pollution;
- to restore areas damaged in the past by human impact to a condition approaching that resulting from the interplay of natural processes;
- to enrich the experience of visitors by providing informative, interpretative and educational programs relating to the international significance of *Ankasa*, its natural assets and the need for their preservation;
- to develop a range of facilities to permit public enjoyment of *Ankasa* without impairment of its values;
- to provide information and guidance to visitors about potential hazards of *Ankasa* and ensure their safety without unnecessarily restricting their movements;
- to develop an inventory of all renewable and non-renewable resources of *Ankasa*;
- to study the physical and biological processes as an aid to management and as a contribution to scientific knowledge;
- to develop a Protected Area managed to the highest international standards and having an important role to play in the tourist industry of the nation;
- to institute a management regime and develop innovative management to set management standards of excellence;
- to co-operate with neighbours in complementary management programs which help to protect and enhance *Ankasa*'s resources.
- Off-reserve: to promote community-based wildlife management systems and re-establishment of economically important non-timber forest products.

These overall management objectives guide the development of general policies for *Ankasa*. They provide a series of mandates for the Management and a basis on which performance can subsequently be evaluated. For particular aspects of management, specific objectives are listed in the relevant section of this Plan.

It is important that sufficient resources are allocated to allow the major objectives listed to be achieved. In allocating resources available the *Ankasa* Management will ensure that these are distributed in a manner which gives priority to the objectives set out previously.

Plate 3: Stream within the Protected Area

SECTION 4 MANAGEMENT STATUS and FUTURE PRESCRIPTIONS

4.1 PLANNING AND PROCEDURE

4.1.1 Introduction

It is now accepted as basic principle, that any protected area should have a management plan for guiding both day-to-day and longer term management options. In addition, the plan must also contain all of the background information, legislation and other reference materials required.

The Ankasa Conservation Area Management Plan will guide and control the management of *Ankasa*, the effective conservation and utilisation of this area and the development of tourist facilities within it. It will also guide the management interaction with bordering communities in the development of a system of sustainable Community Resource Management Areas or "CREMAs". This will promote stabilisation of off-reserve land-use through efficient wildlife utilisation for the benefit of the communities and the future integrity of *Ankasa*.

This Management Plan provides guidance for development activities and management actions for a period of five years. However, three years of change and implementation have already occurred and this plan takes cognisance of the ongoing developments. The Wildlife Division is currently in a state of redevelopment and structural change as part of the Forestry Commission. Thus, the short period remaining for the continued implementation of the Plan reflects the need for an early review to ensure that the policies and objectives concur with these as yet unknown changes. It is understood that such a plan cannot cover all possible situations and, most importantly, is not static. As new information is obtained, particularly regarding feedback on the effects of management actions, the programmes will be modified. Modification to the programmes, reflecting new information and changing requirements of *Ankasa*, should be carried out on an annual basis. These modifications should be done in the form of an Annual Work Plan (see Section 6). It should be noted however that the policies and objectives given in this Plan cannot be changed in Annual Work Plans.

The planning team has kept the Plan as simple as possible to facilitate the implementation and later development of its programmes. Where possible, real-life limitations on funding, staffing and equipment have been taken into consideration. Much of the proposed programme is based on the continuation of PADP (Phase II) with funding from the European Union. Where existing resources, both funding and institutional, are considered to be inadequate to achieve stated management objectives, the Plan can be used to show these shortcomings and, as a supporting document, to facilitate securing a solution.

The major impact on *Ankasa* is human interaction both legal and illegal. As previously explained, *Ankasa* does not lend itself to a simple zoning plan. However, there will be specific small areas that need different levels of management input. These areas need to be determined and their management prescriptions described as an important prerequisite for the future development and conservation of *Ankasa*. This is therefore covered in the first chapter (4.2) and is followed by three chapters dealing with the Administration, Law Enforcement and Infrastructure (4.3 to 4.5). Additional planning and management activities within Ankasa are covered in chapters on Research and Monitoring, and Tourism, Interpretation and Education (4.6 to 4.7). The very important issue of off-reserve liaison and District integration is dealt with in the last chapter (4.8). The output of each management prescription is considered a milestone in the development of *Ankasa*. All of these milestones are summarised in Section 5 where they are assigned a priority status. This will aid the managers to assign scarce resources in the most efficient manner and aid in the production of the Annual Work Plan. The design and procedures for Annual Work Plans and Cost estimates, based on these prioritised outputs are introduced in Section 6. Each Annual Work plan will, as it is developed, also assist in updating information on the current status of each management area of responsibility.

4.1.2 Procedures for Revision of the Management Plan

Revision of the Ankasa Conservation Area Management Plan, including its policies and objectives, will only be carried out by the production and publication of a new Plan approved by the *Ankasa* management, the Executive Director of the Wildlife Division of the Forestry Commission and the *Ankasa* Management Advisory Board.

4.1.3 Management Options

Several management options are available for any issue, either singly or in combination. Depending on whether the *Ankasa* management wishes to adopt an interventionist or non-interventionist policy, actions may involve:

- Monitoring
- Research
- prevention
- facilitation
- combat
- active encouragement

In an ideal situation understanding the causes of a problem should be a prerequisite of taking action. In reality, management action often has to be taken in the absence of full information and an incomplete understanding of the underlying causes.

Management efforts within *Ankasa* are at present primarily concerned with three issues:

- the control of human activities on-reserve (poaching, illegal logging, encroachment and tourism)
- the collation of information (Research, Patrol records, maintenance and administration)
- the stabilisation of land-use off-reserve (community wildlife management).

- Poaching, illegal logging and encroachment are managed by combat and prosecution (law enforcement). Tourism is managed by prevention (regulations and restrictions), by combat (law enforcement) and by encouragement (tourism development).
- Information is gathered from varied sources (monitoring and research) that will further both general scientific knowledge and the specific administration and development of the Protected Areas.
- The stabilisation of land-use off-reserve is managed by facilitation (legislative change, technical assistance and co-operation), active encouragement (development of CREMAs and devolution of wildlife authority) and monitoring (utilisation and abuse). This will also require a limited management through combat (law enforcement, licensing and permits, problem animal control). In the future, habitat and species management, especially in the adjacent Forest Reserves and remnant forest areas off-reserve, may become an option. This must be based on sound knowledge of the consequences of different options. Encouragement of research in these areas is therefore seen as a vital element to the future management of *Ankasa*.

4.1.4 Feedback and Evaluation

An important factor in the successful management of *Ankasa* will be regular, internal evaluation of progress. This should be conducted at three levels:

- progress on the Management Plan
- progress on the Annual Work Plan
- progress at an individual output level

It is suggested that regular (Quarterly) Park Management Meetings (PMM) be held to review progress. The minutes of these meetings will form an important source of reference material when the final review is carried out as part of each Annual Work Plan (see Section 6 for an introduction to the Annual Work Plans and Cost Estimates). An annual staff appraisal will be conducted to ascertain staff efficiency and training requirements.

4.2 SPECIFIC AREA MANAGEMENT

4.2.1 Background

Protected Area planning customarily identifies zones comprising distinctive landscape features and/or ecosystems. Each of these is then managed under an appropriate regime. *Ankasa* is relatively uniform in its landscape features. The vegetation types present in *Ankasa* are related to topography. Characteristic fauna is found throughout the entire area. A zoning policy is therefore not required in the usual sense. Management will therefore be directed to the control of human impact on specific areas and sites rather than zoning based on landscape and biotic features

4.2.2 Current Status

Since *Ankasa's* formation in 1976 no system of specific area management has been developed. *Ankasa* is simply divided into two parts, the National Park in the North and the Resource Reserve in the South. They are determined by their gazetted boundaries. The levels of protection and activities permitted are those laid down in the law. There has never been any attempt at either interpretation or specific application in consideration of the Ankasa Conservation Area.

Despite the fact that no specific area management exists there are parts of *Ankasa* that historically and currently have been subjected to specific and different management practices. These practices have, to a greater or lesser extent, changed the nature of the forest and are still detectable today and may require specific future management prescriptions:

- ***Logging Concession Areas:*** Prior to the re-designation as a Wildlife Reserve, the Ankasa River Forest Reserve had been divided into six logging concession areas. Two of these areas had been further compartmentalised into one hundred and nine logging compartments. The first eighteen had been logged in the south and extraction roads constructed. It is reported that a *Terminalia* plantation was established in this area. However, this is not evident today. At least eight compartments around the admitted village of Nkwanta had also been logged with the removal of all large trees and more especially all the Makore trees (*Tieghmella heckelii*). This area also has an extensive network of skid trails and tractor roads.
- ***Nkwanta Settlement Area:*** It is probable that a settlement has existed on the site of the present day Nkwanta Village for several centuries. Nkwanta is the crossroad of two major trading routes from Beyin to Enchi and from the Ivory Coast to the Wassa area. In the 1930s an extensive settlement covering an area of over 35ha (84 acres) was cleared and farmed. In 1976 when the Reserve was gazetted twenty-four buildings and thirty-one farms were assessed for compensation. In 1983 the WD gave permission for the inhabitants to continue food farming on their existing farms only. Most of the inhabitants abandoned this area when the new Axim – Elubo Road was opened in 1989. A few individuals, namely, the Chief and his family had re-opened old farms and cleared new ones during this time. They maintained their farms up to September 1999 pending payment of the outstanding compensation. The PADP facilitated payment of a resettlement allowance to all the families and everyone has now voluntarily left the PA and forsworn all rights to the farms including residence and access. A further sum was paid by the Government in 2000 leaving approximately ¢22 million still to be paid by the government to three farmers before the matter is finally settled.
- ***Admitted Farms***: available records indicate that a further nineteen Admitted Farms existed at the time of the formation of the Forest Reserve but were no longer recognised at the time of re-designation as a Wildlife Reserve. These farms were not extensive and were all located along the southern boundary of the Reserve. They were mainly planted to cocoa. These areas all contain exotic plants and may well have suffered species loss, though they are all now difficult to identify.
- ***Elubo – Nkwanta Road:*** From when it was built until 1989, when the new road was opened the Elubo – Nkwanta – Ankasa Road was the main international thoroughfare. In 1998 the WD reopened this road for use by tourists and management. Dense re-growth of primarily pioneer species had to be cleared. The forest along the sides of the road demonstrated the edge effect of forest clearing. This road will be maintained.

- ***Volta River Authority Power Transmission Line:*** The VRA transmission line was constructed in 1983. A right of way of 80 metres was cleared which crosses both the National Park and the Resource Reserve. Additional tall trees outside this right of way, which threatened the pylons and/or the lines, were also felled. A construction road was built along the right of way where possible but often diverted due to terrain features. In places this road was over one kilometre from the right of way. The right of way is periodically maintained and an inspection road is now planned along the route of the original construction road. The cleared right of way effectively splits the Protected Areas. Many understory forest birds and some mammals including the canopy primates will not cross the gap. No corridors to facilitate this movement were left and many populations are now divided.
- ***Off-Reserve Areas:*** Contiguous with *Ankasa* is an area euphemistically referred to as a Transition Zone which, although not under the auspices of the Protected Area management, still exerts a major impact on *Ankasa*.
- ***Draw River Forest Reserve:*** This lies in the East and is contiguous with *Ankasa.* This area falls under the jurisdiction of the Forestry Services Division and is subject to commercial logging. The western portion of this Reserve has now been declared a Globally Significant Biodiversity Area (GSBA). The implications of this designation for the *Ankasa* management are still being considered and recommendations for inclusion in the *Ankasa* Annual Work Plan and Cost Estimate will be addressed in the next review of this plan.

4.2.3 Management Prescriptions

Objectives: The following objectives need to be met:

- To provide the *Ankasa* management with an effective system of specific area management in order to facilitate planning and provide for a diversity of visitor experience.
- To give adequate protection to areas of sensitive habitat and/or are in need of time to recover from previous destructive land use.
- To allow for areas having different intensities of visitor use.
- To provide restricted areas within which accommodation, tourist camping sites and associated visitor facilities can be optimally developed whilst maintaining the natural character of the environment.
- To provide restricted areas within which long term research programmes can be safely conducted with minimum outside interference.
- To allow for areas from which limited amounts of specified resources (seeds, cuttings and seedlings) can be utilised/extracted for the benefit of the local communities surrounding *Ankasa*.

a) Intensive Management Areas:

These are areas with an expected year-round high human pressure and thus heavy environmental impact. These areas are

i. Ankasa Gate
ii. Elubo Gate
iii. Ankasa Gate to Elubo Road
iv. Dadwen Range Camp
v. Nkwanta Settlement Area
vi. Nature Trails

Management concerns cover sanitation and human/vehicular movements. Therefore the following guidelines should be strictly observed:

- Sewerage disposal will be by flush toilet and septic tanks.
- Water will be supplied where possible from boreholes, otherwise from dedicated wells near rivers/streams with gravel bed filters.
- Firewood collection and wood fires will not be allowed, except in specified areas. The wood will be collected and distributed to the campsites from normal clean up operations following road maintenance and windfalls. Viable alternatives to firewood (e.g. Kerosene or Gas Stoves) will

therefore be assessed and the appropriate option adopted. Charcoal for Bar-B-Qs will be made available for sale from sources off-reserve.

- Vehicles will be restricted to compacted hard gravel surfaces, with parking areas clearly marked out.
- Roads will be graded and compacted
- Repairs of erosion gullies, trenches and potholes; clearing of side vegetation, windfall and side-drain cutouts will be executed monthly.
- Width of Pathways/nature trails will not exceed 3m. To avoid compaction and erosion all soft ground on these heavily used trails will be covered with boardwalks and wooden steps will be constructed at all steep areas on pathways.
- Maximum party size per guide on nature trails will be 7 persons
- Maintenance teams will cover each nature trail and tourist facility at least once a week.
- Rules on tampering with flora and fauna (taking, slashing, damaging) in these areas will be strictly enforced.
- Guides will be provided with litter sacks for collecting all plastic, metal, paper and glass litter from visitors. These will be deposited in litterbins at camps and will be removed by the guide to a central waste collection site at Ankasa Staff camp for scheduled removal.
- All park litter will be disposed of outside the PA in designated areas.

b) Intermediate Management Areas

These are areas with lesser human impact from intermittent human pressure during the year. The major management concern here is regular maintenance. The areas include

i. Brasso Hill
ii. Tourist access trails and campsites
iii. Patrol trails and campsites

All camps under this category will be subjected to low-impact human use. Provisions for these camps are:

- Ventilated pit latrines
- designated swimming areas in streams (no soap allowed in streams).
- Water will be supplied either from rainwater harvesting or from designated places on streams.
- An organic waste pit will be provided.
- All litter will be carried out for disposal in litterbins at the nearest intensive management area.
- Though firewood use will be allowed, kerosene lamps and stoves will be provided for emergency use.
- Trails in such areas will be maintained regularly (at least quarterly) emergency maintenance will be subject to patrol reports.

c) Volta River Authority Transmission Line Area.

This is designated a Specific Use Area (Intensive) within the Intermediate Use Area. Its use is governed by the Right-of-way (RoW) privileges of VRA. Specific Management prescriptions for the annual clearing of the RoW (awarded on contract) are:

- The Contractor will give a month's notice to the Park Management before commencing work.
- The Contractor will supply details of the crew hired for the work e.g. number and names and must supply each crewmember with a photo identity card. The crew must prominently display this card at all times within the reserve. One extra photograph of each crewmember will be filed at the park headquarters. The cost of photographs and ID cards will be borne by the contractor.
- Armed wildlife guards will accompany the contractor and work parties at all times within the reserve. The *per diems* (Government rate) of such guards will be borne by the contractor.
- Camping of work crew will be limited to designated sites along the transmission line, where firewood collection and use will be permitted.
- Vegetation in valleys will be left uncut if they pose no threat to the transmission lines. Trees outside the RoW and in valleys, which pose any threat to the transmission line will be lopped where possible, rather than felled.

- VRA will grade annually the trans-*Ankasa* inspection road from Elubo HQ to the Dadwen Range Headquarters (once reconstructed by VRA) and from Ankasa Gate to Nkwanta Camp.
- Park Management will undertake the routine maintenance (clearing windfalls and repairing potholes and drains) of the inspection road at least monthly.
- A security hut (to be built by VRA) will be placed at both the eastern and western access points to control vehicular and human access. Wildlife guards will man these at all times.

The reconstruction of this road is of paramount priority in order that the Dadwen Range Headquarters becomes accessible to the Park Management. Every effort should be made to encourage VRA to award the contract for this road as soon as possible.

d) Recovery Areas

This is specifically the area of old farms (35ha or 84 acres) around the former Nkwanta Settlement, occupied by ageing coconut, oil palm, plantain, oranges and fig trees, with an understorey of Acheampong weed (***Chromolaena odorata***). Within this area are three intensive use areas: The Research Centre, the Ankasa Exploration Base and the Nkwanta Staff Camp/Bamboo Cathedral Tourist Camp. These will be managed accordingly. A long-term research programme will be conducted (in collaboration with a local/International University yet to be identified) to compare different methods of rehabilitating the cultivated area. A Restricted Area for archaeological digs will also be situated within this area.

e) Minimum Management Areas

These areas (the remainder of the park) will experience minimal human impact, mainly from patrol teams. The main impact areas, patrol trails and bivouac camps, will be maintained on a quarterly basis.

f) Restricted Access Areas

These are research areas yet to be defined. Such areas will be clearly marked with reflective plastic tape tied around saplings no more than 5m apart around their boundaries. Trails leading to such sites will be clearly sign-posted and access restricted to authorised personnel only. The research team will be required to bear the cost of such demarcation and to maintain the boundaries and trails within the area in accordance with the Protected Area's regulations.

Plate 4: Bamboo Cathedral

4.3 ADMINISTRATION

4.3.1 SYSTEMS

4.3.1.1 Background

Administrative responsibility for the Protected Area from 1934 to 1975 was vested in the Forestry Department for the Ankasa River Forest Reserve, and headquartered at Mpataba. The office accommodation was handed over to the Wildlife Department during the administrative change over in 1976. For various reasons, including inadequate residential accommodation for managerial staff, and a very poor access road to the District Administration and treasury offices at Half Assini, the headquarters was moved to Aiyinasi in 1994. Though this entailed shifting treasury responsibility to Axim in the Nzema East District, and increased the distance to the nearest entry into the Protected Area, it provided easier access to the District Administration, in addition to other administrative and social amenities.

4.3.1.2 Previous Management

i) Headquarters: The headquarters at Aiyinasi served both the Ankasa Resource Reserve and the Nini-Suhien National Park, though manpower, logistics and funding were provided solely for Ankasa Resource Reserve. It has been based in five rooms of the former workshop of the contractors of the Takoradi-Elubo highway and loaned by the Senior Divisional Chief of Aiyinase. Only management staff comprising the Warden, Deputy, Community Liaison Officers and Technical Officers are based at the headquarters, and these have had to travel 33km to the nearest reserve entry point at Ankasa Gate. All headquarters staff live in accommodation rented personally in various parts of Aiyinasi, as do virtually all field staff, as their families cannot be accommodated in the field camps.

In response to the unsuitable headquarters location and residential accommodation constraints, a 4.33ha (10.4 acre) piece of land has been acquired near Elubo, for a headquarters/staff quarters complex. It is located adjacent to the Old Axim-Elubo road approximately 0.6km west of the western boundary of *Ankasa*. Processing of the documents for the land acquisition is about 90% complete. A site survey and building plans have, however, been completed and a contract for the Supervising Architects for the construction has been awarded.

ii) Camps: Field staff were housed in seven operational camps mostly located in settlements on the fringes of the Protected Areas: Mpeasem, Elubo, Ankasa, Mile 5, Breproh, Asamang and Ayensukrom. With the exception of Ankasa Camp, which had six rooms in two buildings roofed with corrugated iron sheets (now severely rusted) and located in the reserve, all other camps consisted of mud walled, single rooms, roofed with raffia and were in deplorable condition. Nkwanta camp, located in the middle of the reserve, was similar in construction to Ankasa Camp, but was severely dilapidated and unoccupied.

Each camp housed 3-5 staff on patrol duties. Conditions were rudimentary, access to water, health care and markets often poor. Each man also rented a private house, usually in Aiyinasi, for his family. Each month patrol staff stationed in these camps were given leave to visit thus reducing the anti-poaching field force considerably. Lack of easy access to the camps meant supervision of activities was poor and management spent a great deal of time and resources on the simple task of paying salaries. This situation had to be reviewed.

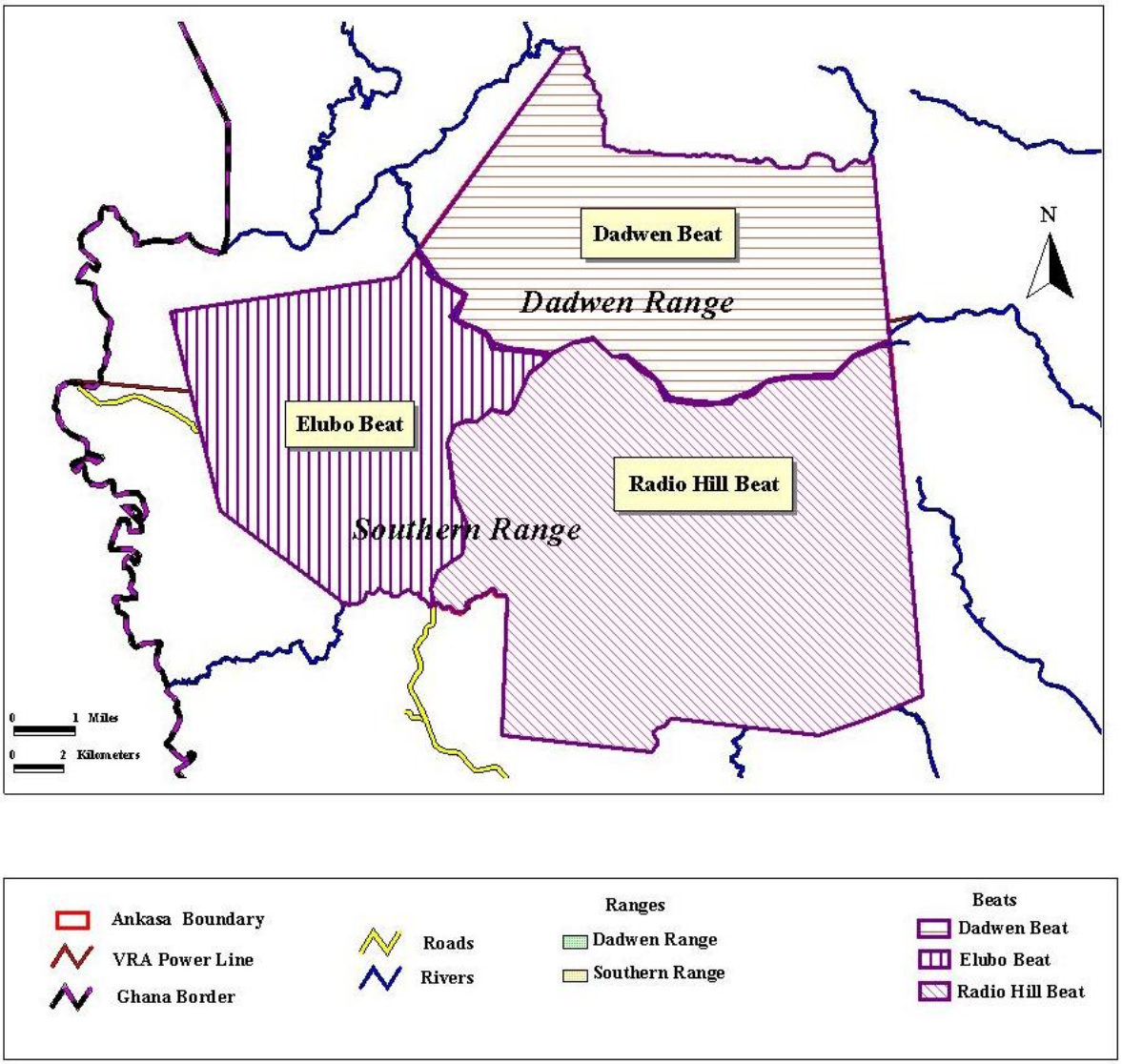
In 1997, the initial intention was to centralise the staff into two ranges to improve administration and patrol supervision. The proposed major staff housing building programme faced difficulties of design, land acquisition and finance. An interim plan had to be undertaken. In 1998, Ankasa and Nkwanta camps were refurbished, the outlying camps were closed and the staff re-deployed. In 1999, a Tourist camp was built at the Elubo gate on the Western edge of *Ankasa*. This is currently being used as a patrol camp until the new housing is built. Likewise, the camp at Breproh on the Eastern boundary has been renovated for patrol use, pending the construction of the Eastern range camp.

iii) ***Ranges:*** Previous administrative practices have essentially considered the Protected Area as one range. This has resulted in very poor coverage for law enforcement, research and monitoring, and tourism purposes.

4.3.1.3 Management Prescriptions

Objectives: The main objective is to provide an administrative structure composed of a headquarters with the Protected Areas divided into two ranges to achieve an efficient and integrated distribution of management resources.

Figure 7: Ankasa Ranges and Beats



Headquarters: A headquarters and management staff accommodation complex will be built at Elubo Gate to serve as headquarters for the proposed re-gazetting of the entire Protected Area to National Park status. The headquarters is within easy reach of a police station, a court, bank, health centre and major market. There is ready access to the District Administration and treasury at Half-Assini, the regional capital at Takoradi, and to Accra, as well as to Enchi and Asankragwa. In addition to the current road access to the proposed visitor centre and tourist camp at Ankasa gate and the Exploration Base and research facility at Nkwanta, the opening of the V.R.A. transmission line road will provide an efficient link to Dadwen range quarters in the eastern range.

Ranges: In conformity with recently adopted national wildlife policy, *Ankasa* will be divided into two ranges with the Suhien River as the natural range boundary. The 166km^2 north of the Suhien River, gazetted as the Nini-Suhien National Park, will be managed from the range headquarters at Dadwen and the remaining 343km^2 comprising the Resource Reserve will be managed from the Headquarters at Elubo. Sub-range camp facilities will be constructed at Brasso Hill and Radio Hill, for the Dadwen and Elubo ranges respectively. The range boundaries have been mapped and demarcated, and the respective range headquarters sites for office and staff accommodation have both been acquired and site surveys have been completed. Again it must be emphasised that the success of this plan relies on the reconstruction of the VRA inspection road along the power line. This road is vital to allow rapid access to the eastern border of *Ankasa*, improving communications and logistics to the Dadwen Range and providing a crucial component of the anti poaching patrol trail network.

Beats: *Ankasa* will be divided into 3 beats to provide effective patrol coverage to all areas of the reserve. The Dadwen range will be managed as a single beat, covered by three teams of patrols operating on a rotational basis. The Elubo range will be divided into two separate beats separated by the Ankasa Gate to Nkwanta road and Nkwanta to Suhien river trail (see Figure 7). Two and three patrol teams will cover these beats respectively, again operating on a rotational basis. A network of patrol trails that allow access to both the boundary and areas within the reserve from where observations can be made will cover each beat. (Table 6, Figure 9.).

Table 6 Ranges and Camps

Range	***Name of Range Headquarters***	***Post***
Dadwen	Dadwen [2]	*Brasso Hill(SRC)*[2] Bivouac Camps 1 - 4
Elubo	Elubo [1] ***Note:*** [1] **New PA Headquarters** [2] Planned Post	<u>Elubo Beat</u> Ankasa Camp Nkwanta Camp Bivouac Camps 5 - 7 <u>Radio Hill Beat</u> *Radio Hill(SRC)*[2] Bivouac Camp 8 - 15

4.3.2 STAFFING

4.3.2.1 Background

Ankasa is staffed by officers of the Wildlife Division. There are various categories of staff employed full-time:

- Professional Officers, with University educational background;
- Technical Officers, with diploma and certificate qualifications;
- Sub-technical Officers, and artisans (e.g. drivers, secretaries, masons, carpenters and mechanics).

In addition, certain administrative services e.g. Accountants and Stores Officers should be provided by full-time staff on secondment from various branches of the Civil Service.

New Staff should be given a six-week induction and in-service training course at the Wildlife Training School at Mole National Park. Additional training is available for staff with requisite qualifications to further develop skills at local and international courses, conferences and workshops. This is reflected in personal development and improved work performance.

4.3.2.2 Previous Management

i) Staff Levels

Staff levels have consistently been below requirement. Field staff, comprising technical and sub-technical staff have been about half the required number. Their activities have focused on anti-poaching patrols and minor maintenance duties that are inadequately executed. Artisanal staff: carpenters, mechanics, masons, have been chronically unavailable. There has been no station driver since 1998. At present, no specialised

administrative staff (accountant, stores officer) have been provided for *Ankasa*. In the absence of a management plan since 1976, several ad-hoc management strategies have been adopted to compensate for the staffing constraint, virtually all of which have yielded poor results, and imposed considerable strain on the management of the Protected Areas.

In response to the 1994 Wildlife policy's call for community collaboration in Wildlife Management, a new position of Community Liaison Officers was created. In 1998, four people were recruited and trained to work with the local communities to develop off-reserve wildlife management strategies. It was planned that only one or two of these officers would be permanently based in *Ankasa* while the others would be transferred. Additional CLOs would be then recruited and trained at *Ankasa* to expand this programme and provide a cadre of Wildlife Officers for the Division, experienced in working alongside local communities.

In 1999, A British volunteer from the Voluntary Service Overseas (VSO) was assigned to the Project to assist in the Infrastructural Development. The job description entails on-the-job-training of a construction crew and construction camps and trail network.

ii) Staff Training

Staff training is determined at the national level. Theoretically, all freshly recruited staff are supposed to be sent to Mole National Park for an induction course. Thereafter, staff with requisite skills are sent for training to the certificate, diploma, and degree levels. Regular training centres are the Sunyani Forestry School for certificates and diplomas (Since 2000 this has been renamed the College of Natural Resources and now awards diplomas) and Institute of Renewable Natural Resources for diplomas and degrees (now degrees and post graduate degrees only).

Prior to 1998, staff of Ankasa had had little or no formal training beyond their recruitment qualifications. About half of the technical staff had had no induction training. On the average it took 10years for a recruit to undergo induction training. However, the relevance or appropriateness of the content of the induction training at Mole to realities of the forest conditions/situations is questionable. Some promising staff are assigned to infrequent researchers to acquire necessary skills, often in ecological research. In late 1999, all field staff undertook a three-week general training course in leadership, bushcraft and anti-poaching tactics at the Jungle Warfare School of the Ghana Army at Akim-Achiase. The training there, however, emphasises military strategies, which did not fully cover the policing approach of the WD. If this training was to be repeated then a specific training regime needs to be developed.

iii) Staff Welfare

a) Housing: Since housing of the camps within *Ankasa* (Ankasa Gate and Nkwanta) were designed for single staff unaccompanied by families, all staff have their families living in rented accommodation in peripheral communities, notably Aiyinasi. This makes it necessary to allow staff to visit their families in batches at the end of each month with a concomitant reduction in patrol man-hours.

b) Health: Staff mainly report to the Aiyinasi Health Centre or occasionally to Elubo Health Post for their basic health needs. More serious health needs are generally referred to the Roman Catholic Hospital at the coastal town of Eikwe, about 15km from Aiyinasi, or to the Public Hospital at Axim, 40km away. Staff are not trained in first aid nor do any of the camps have medical kits. This either results in self-medication or reporting to health dispensers in nearby settlements for ailments such as malaria, diarrhoea and headaches.

c) Food: Until the middle of 1996, Wildlife Department staff benefited from the UN World Food Programme in Ghana. It supplied a subsidised food ration on a quarterly basis in support of tree planting. Following its termination, staff now purchase their food either individually or in groups, on market days. These markets are found at Sowodazem (Mondays), Aiyinasi (Tuesday/Fridays), Ayensukrom (Tuesdays), Elubo (Wednesdays) or Tikobo II (Thursdays). Due to the low staff purchasing power, and the perishable nature of preferred food items and the erratic patrol schedule, only small quantities are purchased at a time. Staff therefore need to go to market every week. This combined with the health needs and family visits, reduces the time spent on field duties.

d) Transport: Under the FRMP, a senior Wildlife Protection Officer and two Senior Wildlife Rangers were each supplied a Kawasaki 100cc motorbike on hire purchase basis. In the absence of official vehicles, these have been needed for field and administrative duties.

A few staff on transfer from other reserves also brought bicycles acquired on hire purchase under the FRMP or personal purchase. In the absence of roads or suitable paths, the use of these bicycles is limited to roads along the southern boundary.

e) Clothing: Annually, the WD issues each staff with two pairs of uniform and a pair of jungle boots. However, the supply of appropriate rain gear is inadequate.

f) Equipment:

- ***Firearms:*** There are two WIN 270 rifles (another was sent back to Mole for repairs and has not been returned) each with twenty rounds of ammunition, allocated in 1997 and twelve shotguns confiscated from poachers and in poor condition.
- ***Camping Equipment:*** Prior to 1999 there was no camping equipment at the station. Two 8-man tents, 10 camp beds, solar lanterns, camp shovels and full field kit (ponchos, stoves, torches back-packs, mess kits etc.) have been provided by PADP

4.3.2.3 Management Prescriptions

Objectives: To ensure that adequate and well-trained dedicated staff are deployed within an effective and efficient system of line management to implement the Management Plan.

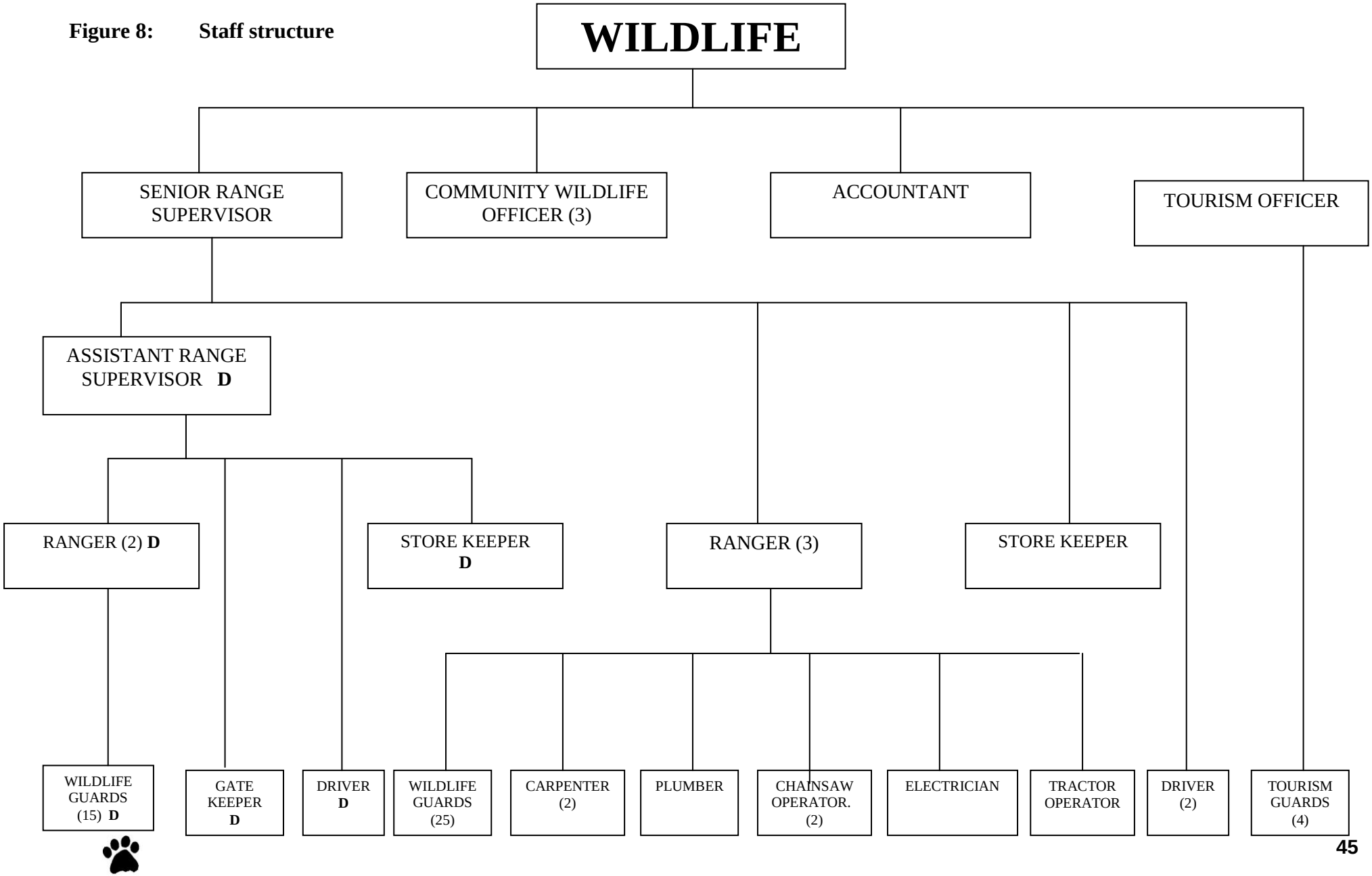
i) Staff Levels:

Permanent staff levels, as indicated in Table 7 are required to meet the workload generated by increasing visitation and the requirement of biological management; Figure 8 presents the proposed staffing structure organogram for Ankasa. The Executive Director will make every effort to achieve the staff number indicated in brackets. In keeping with proposed management policies, a higher proportion of resources will be allocated to law enforcement and monitoring and artisans will be based at Elubo Headquarters to ensure the maintenance of existing and proposed infrastructure developments. Job descriptions for all staff are given in Appendix D

Table 7 Staff required.

Position	Present staff levels	Proposed staff levels	Recommended Minimum rank
Reserve Warden	1	1	AWO
Community Wildlife Officer	2	3	AWO
Senior Range Supervisor 2 i/c on-reserve	2	1	WPO
Accountant	-	1	
Tourism Officer	1	1	WPO
Assistant Range Supervisor	-	1	SWR
Storekeeper	-	1	
Ranger	2	5	WR
Patrol Leader	3	9	STA
Patrol Staff	28	31	TA
Tourism Staff	-	4	TA
Driver/ Mechanic	-	3	
Carpenter	-	2	TA
Plumber	-	1	TA
Electrician	-	1	TA
Tractor Operator	1	1	TA
Chainsaw Operator	1	2	TA
Gatekeeper	-	2	
Total	**41**	**70**	

Figure 8: Staff structure



The position of the CLOs, now Community Wildlife Officer (CWO) should be maintained and further strengthened to reflect their role as facilitators in Community Wildlife management.

All avenues will be explored to acquire the services of volunteers with specific skills from both local and international agencies to execute specific assignments and to provide on-the-job training for PA staff when necessary.

ii) Staff Training

A definitive training programme will be designed for the highforest ecosystem. A national mobile training unit will be created for this purpose. This team will also service all other Protected Areas.

A classroom will be incorporated into the new Headquarters and Range Quarters buildings at both Elubo and Dadwen. Staff will receive regular instruction on a modular basis from Wildlife Officers and rangers on two days per week between patrols. Promotional opportunities will be created for fast-tracking promising/deserving staff.

To facilitate national and regional integration of wildlife management, an exchange programme will be developed between Protected Areas in Ghana and other countries in the West African sub-region.

iii) Staff Welfare

At the time of writing the whole Division, and indeed the Forestry Commission, was undergoing an extensive revision of its structure, organisation and staffing levels and benefits. The outcome of this deliberation will determine the policy covering Staff Welfare. The following recommendations for improving the situation must be seen as just that and could change in the immediate future.

a) Housing: Staff will be provided with family housing at the new park headquarters near Elubo and at the Range Camp near Dadwen. The Elubo location is off-reserve and families will be allowed small gardens in designated areas within the acquired area. Families will have to negotiate additional farming areas with the local landowners. The Dadwen location is on-reserve and no farms or gardens will be permitted. Families will have to negotiate farming areas with the local landowners off-reserve. Each house will be connected to water and electricity. Payment for amenities and responsibility for maintenance will be according to the WD policy on these issues.

b) Health: Currently there is a high rate of absenteeism as staff frequently leave their post claiming illness. The round trip to a clinic can take many days and the quality of medical assessment and prescription is subject to question (often staff are simply given four days leave regardless of diagnosis). The Health Needs Assessment Report[33], shows that the headquarters at Elubo should be adequately served by the Elubo clinic (according to the District Development Plan a new hospital will be built on the Trans-national highway, 800m from the Elubo headquarters). At Dadwen, the same report recommends the construction of a level A/B clinic at Dadwen village. This has been agreed, in principle, with the Nzema East District Assembly and assistance to the DA to build the facility has been included in the PADP Phase II proposal, thus alleviating this problem.

- A parade should be conducted each morning, during which any staff sickness (including families) will be reported, and sick persons transported to the recommended clinic.
- Records of all treatments will be inserted in the personnel files.
- The ranger resident at the sub-range camps will report each morning by radio on the health status of the staff and, should evacuation be necessary, arrange for transport and appropriate relief staff to be sent to the most convenient access point.

In the interim staff will remain in their current scattered camps. A policy must be developed to address this health issue. It is strongly recommended that the following should be taken into account:

- Clinical diagnosis cannot take place in the field. Staff are not trained and should not be asked to take the responsibility for the possible consequences.
- Any clinic that staff attend should be officially recognised by the WD. Such clinics will be identified for each camp and staff residential location.

[33] Annex 14: Health Needs Assessment of Ankasa PADP 1998

- In each camp, a parade should be conducted each morning, during which any staff sickness will be recorded. This list will be reported to the headquarters via radio. The officer responsible for staff deployment can then visit each camp, replacing sick men with relief staff and transporting the sick men to the appropriate clinic.
- Records should be kept on all members of staff indicating amount of sick leave taken, nature of illnesses and any comments made by the doctor.
- As well as the medical assessment made at commencement of employment with the WD, all staff should undergo an annual physical to determine their suitability for work, during which their physical record for the previous year will be examined.
- Recommendations for sick leave made by any unrecognised clinic will not be accepted.

First Aid: The Rangers and patrol leaders should all be trained in first aid by the Ghana Red Cross or at a recognised training facility and gain an official First Aid Certificate. First Aid training should then become an integral part of the training schedule established for men between patrols. A comprehensive First Aid kit should be maintained at the Head quarters and range quarters under the administration of the Ranger to treat minor ailments. Each patrol should be supplied with a First Aid kit and a record of usage should form part of the patrol report, at which point these items will be replenished.

HIV/AIDS Awareness: This should be an integral and regular part of the training schedule due to the nature of the work undertaken (sustaining and treatment of wounds in remote locations) and the increased possibilities of social interactions by the field staff. There are many agencies engaged in HIV/AIDS Awareness campaigns and the Park management should establish close liaison with a local branch of one of these organisations in order that they are integrated into the training programme.

c) Food (Patrol Rations): This whole issue is problematic due to the previously identified factors. The WD and Park management needs to form a policy on patrol rations that will consider the following:

- The nature of the food itself i.e. perishability, bulk, weight, nutritional value and calorific content
- Disruption to the work programme and transport costs involved in staff visiting markets
- The potential for security breaches when staff are at market
- The low purchasing power of staff
- The lack of appropriate cooking facilities when in the field
- The availability of potable water
- The disposal of rubbish

It is anticipated that the required policy will be developed as part of the Forestry Commission's restructuring process, as it has implications for all field staff and Divisional budgets. This Management Plan makes the following recommendations to assist in the development of this policy:

- That a standardised daily ration for patrol staff be established, which will address the issue of the nature of the food carried and the length of patrol
- The cost of the ration will be evaluated and a level of subsidy/allowance determined.
- That a regular source of supply be established. This could take the form of a shop, run by the WD, at the Range headquarters that stocks the required items and operates a credit facility for staff directly drawn from their salaries, or from any allowances. The possibility of re-establishing the issue of World Food Programme supplies exists, that can then be drawn upon as required from a centralised store.
- Another possibility exists (subject to government funding) that the subsidy for food supplies is issued directly to the Park Management, through the FE, on the basis of the number of calculated man-days on patrol. This money is then budgeted to the storekeeper who will buy non-perishables in bulk and perishables on a weekly basis from a local market. Rations for patrols would then be issued by the storekeeper on the production of the appropriate orders from the Ranger.
- The current practice of cooking on an open fire is neither practical nor desirable (time for wood collection which may be wet and depletion of wood source at regular campsites, security of the patrol may be compromised by presence of smoke, detrimental effect on patrol

equipment). Therefore each patrol should be issued with a portable kerosene stove and fuel bottles, fuel will be drawn from the stores.

- Although water availability is not normally a problem within *Ankasa*, its integrity may be in question in certain areas and at certain times of year. Therefore each patrol will be issued with the means to purify water and appropriate training provided
- Each patrol will be issued with a plastic bin-liner in which they will collect all non-organic rubbish generated at a campsite. Organic waste will be disposed of in the pit latrine provided at each camp or otherwise buried. Patrols will also collect any litter found along patrol trails, noting its location on the patrol log as an indication of human presence (PAMIS, Sect. 4.7).

d) Transport:

- ***Vehicles:*** Each range will be provided with one twin cab pick-up 4WD (Nissan Hardbody with standard WD specifications). The HQ will be provided with one administration vehicle (preferably a 2WD sedan). Authority over these vehicles is given to the Officer in charge of the station. Running costs will be calculated on an annual basis subdivided into monthly estimates of administrative use. Additional fuel costs in excess of this estimate will be borne by the officer concerned according to WD policy. Daily maintenance and regular servicing of these vehicles will be carried out by the driver/mechanics at the park service centre. Major servicing will be done under contract to a local service agent according to WD Policy.
- ***Motorcycles:*** All officers of the grade Ranger and above will be provided with motorcycles according to the WD policy. A monthly fuel allowance will be calculated and granted to the officer from the annual budget divided into a monthly limit. Additional fuel costs in excess of this estimate will be borne by the officer concerned according to WD policy. The officer concerned will carry out all regular maintenance and servicing. Major repairs will be done under contract to a local service agent according to WD Policy.
- ***Bicycles:*** All other staff will be provided with bicycles on a hire purchase system. Regular maintenance will be the responsibility of the owner, but the condition of the bicycle will be subject to regular administrative checks. An annual maintenance allowance to cover wear and tear due to use of the Bicycle for official duties will be given, subject to satisfactory maintenance reports.

d) Clothing: An annual issue of uniform and boots will continue to be given in accordance with WD Policy. A loss and damage reporting system will be established to replace defective items. The uniform issue will include a set of field fatigues for patrol and maintenance duties.

e) Equipment:

- **Anti-Poaching Equipment (Firearms):** In the past anti-poaching patrols have been minimal. One of the possible outcomes of an improved patrol program is the increased probability of confrontation. It is expected that increased patrolling with a subsequent likelihood of poacher apprehension combined with higher fines and sentences will deter the opportunistic hunters. The hard-core of dedicated poachers who depend upon hunting for their livelihood will make every effort not to get caught and to escape if confronted. As they are often armed with shot guns then the probability of risk to Patrol Staff increases. Staffing constraints and the size of the reserves restrict the patrols to four men. They need to carry suitable firearms as a deterrent and for adequate defence.

  Staff who have received the required training at Mole are authorised by the WD to carry firearms on anti-poaching patrols. The staff are currently armed with rifles (0.27 calibre) and supplied with soft-nosed ammunition. The weapons are cumbersome and heavy, more suited to a savannah location. In the forest the extra range of the rifle is not utilised and the weight makes it difficult to catch poachers who run away. Each PA has only 3 of the rifles and a minimum amount of ammunition. Some staff are armed with old shotguns, usually confiscated weapons and in very poor and unsafe condition.

  The issue of firearms, rules of engagement etc. are covered in Section 4.4. However the Policy is still subject to the Forestry Commission restructuring. This Plan therefore makes the

following recommendations for appropriate equipment supply to assist the formulation of the policy.

- The best Firearm to use in the forest is a short-barrelled pump action shotgun. It is compact and difficult to use for hunting. It gives the best coverage in all situations facing the patrols. Each patrol team should be equipped with two such weapons and regular training in their care and use should be conducted.
- Each man should also be armed with a side-handle baton and receive suitable training in its use.
- Each patrol team member should be issued with a set of handcuffs to deter escape attempts and the current practice of binding a prisoner's hands with ropes or canes should be banned as it has great potential for injury.

- ***Camping Equipment:*** Each patrol team will be supplied with a full field kit (Ponchos, webbing, mess tins, water bottles, compasses, back packs, cutlasses, fuel stoves, entrenching tools and plastic sheeting for the construction of bivouac camps). The equipment will be subject to regular inspection and a loss and damage report form will be given to each patrol leader. Replacement will be freely available from the stores for all items that can be shown to have been damaged by normal wear and tear. Lost items and those damaged through negligence will be replaced by the staff concerned at their own cost.

4.3.3 Financial Administration

4.3.3.1 Previous Management

i) Expenditure Ratios

Analysis of the budget for Ankasa Conservation Area (Table 8) reveals that over the seven-year period from 1993 and 1999 an average of 89% of expenditure was on salaries. The proportion of budgetary allocation to other expenditure (general expenditure, maintenance, transport, etc) has been below 10% for the last three years. This reflection of the general government economic administration largely accounts for the lack and poor maintenance of existing, infrastructure and insufficient funds to run the station's vehicles.

Table 8 Expenditure Ratios

Financial Encumbrance Item	***Year***						
	1993	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***
A. Salaries (gross + allowances)	7,983,530	11,947,900	18,320,240	40,568,175	52,761,920	107,440,075	90,836,435
B. Travel & Transport	259,280	821,170	1,806,000	3,050,000	2,800,000	5,250,000	6,400,000
C. Office Consumables	182,870	510,595	600,000	850,000	1,082,000	2,550,000	1,880,500
D. Maintenance of HQ Building	124,140	359,800	400,000	882,000	860,000	1,150,000	1,200,000
E. General Running Cost of PA	285,255	415,365	500,000	764,000	1,000,000	1,040,000	450,000
Total	**8,835,075**	**14,054,840**	**21,626,240**	**46,114,175**	**58,503,920**	**117,430,075**	**100,766,935**
Value at 1999 rates (assuming 40% inflation/year)	66,524,015	75,590,305	83,079,365	126,537,300	114,667,685	164,402,105	100,766,935
% operating costs to salaries	**9.6**	**15**	**15.3**	**12**	**9.8**	**8.5**	**9.8**
Annual Operating Budget requested	4,146,000	9,954,000	16,400,000	22,857,000	25,568,000	N/A	N/A
% Annual Provision Received	**20.5**	**21.2**	**20.2**	**24.3**	**22.5**		
Value at 1999 rates Operating Budget	**6,386,305**	**11,338,545**	**12,711,145**	**15,184,476**	**11,237,435**	**9,981,560**	**9,875,160**

Note: All figures have been rounded to the nearest ¢5

ii) Accounts

There has been a serious lack of suitably trained senior staff to produce timely financial reports and provide adequate supervision and in-house training for Junior staff.

iii) Stores

There is no Stores Officer in *Ankasa*. The system of stores is fragmented. As a result difficulties and delays are encountered in obtaining materials. Accounting for materials received and supplied to users is also inefficient and open to abuse.

iv) Revenue Collection System

Until 1998 entry fees for *Ankasa* had to be paid at the *Ankasa* Headquarters more than 28km from the entrance gate. This became unacceptable as tourism development progressed in the protected area and visitors started arriving in larger numbers. A system for collecting the fees at the gate is now in place and the Gatekeeper reports to the Warden.

Revenue is basically generated from the issue of guide fees to visitors to *Ankasa*, sale of confiscated bushmeat, rattan and chew stick (*Garcinia spp*).

v) Income

Until September 1999, income from *Ankasa* had to be deposited with the Central Government Accounts at the District Treasury. Under the new Forestry Commission structure, the question of income retention is being reviewed but no procedures for doing so have yet been established. Currently the old system is still being followed.

vi) Financial Encumbrance (FE)

The budget is inadequate to run *Ankasa*, difficult to obtain and implement. The Warden prepares his annual budget for the following year in May. This is sent to the Wildlife Division Head quarters by June. There is currently no feedback on its acceptability. The first indication of how much of the budget has been granted will be when he receives his first quarter payment. The new financial year starts in January. The first payment for the year is made in February or March. Subsequent payments are made in April/May, July/August and September/October. The Wildlife Division Headquarters notifies the Warden, usually by radio, that the FE document is ready. Having no Accounts Officer in *Ankasa* the Warden must travel to Accra. He then takes it to the District Treasury in Axim. He presents it to the District Finance Officer who controls government expenditure. The DFO gathers the FEs from all the government Departments operating in the District. He then returns all to Accra for Expenditure Authorisation. This process can take up to 3 weeks. No notification of success is given, and two or three trips to the DFO's office are necessary to ascertain the Funds' availability. In the meantime, the Warden operates on a system of credit with local suppliers, all of whom have to be registered companies. When the FE is available the Warden forwards all invoices for payment. The payment is by cheque and requires the signatures of both the DFO and the District Co-ordinating Director. All too often one or other is unavailable so further delays occur and credit sources can be strained. A warrant for a ¢1,000,000 imprest (last increase January 2000) against the FE to provide operating cash can be obtained from Accra in January/February and presented to the DFO for a cheque that can be cashed at a local bank. This can be reimbursed on presentation of receipts for the whole amount at any time of the year but must be retired in full by December 31st. It generally covers recurrent expenditure such as fuel.

4.3.3.2 Management Prescriptions

Objectives: The principle objective is to provide a system of financial management that will allow *Ankasa* to utilise its current funding to the maximum potential, taking into account the prescriptions of routine operations and the potential for further income generation from tourism and research.

i) Expenditure Ratios and Budgeting:

It is vital that the *Ankasa* management allocates and uses funds in a logical and appropriate manner. Guidelines for the preparation of a detailed Annual Work Plan and Cost estimate is given in Section 6. For the last four years, the development of *Ankasa* has been funded by the European Union, Project No. 6 ACP/GH 045. It is understood that further development of the recommendations within this Plan will be funded under PADP Phase II. Though this major funding far exceeds the funds allocated by the government, a system must be established during this period that will allow adequate funding in the future, from revenue generated by *Ankasa*, to adequately cover its operational costs and further development.

ii) Accounts

An accounts clerk will be employed or requested from the Accountant General's Department to be based at Elubo headquarters and directly responsible to the Wildlife Warden. The Accountant will administer all incoming monies, the budgetary requirements of each department and produce regular and up-to-date financial reports (see Appendix D for Job Description). A full description of procedures and systems that should be adopted is given in the Stores and Accounts Manual.

iii) Stores

Storerooms will be constructed at both Elubo headquarters and Dadwen range headquarters. A Senior Storekeeper needs to be appointed as soon as possible. Under his supervision, the Elubo store will be the recipient of all incoming goods and be responsible for stores purchases, replenishment and issue. It will also contain all materials and equipment necessary for maintenance, as the maintenance team (electrician, plumber etc.) will be housed and operate from Elubo. The Senior Range Supervisor through the PAMIS will determine maintenance tasks and will then allot the tasks to the appropriate Ranger. The Rangers will be responsible for all store issue requests. The stores at Dadwen will only stock equipment and materials necessary for the operation of that range and will be supervised by an Assistant Storekeeper (to be appointed) based at Dadwen. S/he will draw necessary store replenishment from the main store at Elubo and report all store issues to the Senior Storekeeper on a monthly basis. The systems and procedures to be followed are detailed in the Stores and Accounts Manual.

iv) Revenue Collection System and Income Retention

It is understood that, at present, all revenue generated from protected areas will accrue to the Forestry Commission. From there it will then be allocated to the four service divisions that fall under the Commission, namely, Forest Services, Wildlife, Forest Products Inspection and Timber Export Development.

With respect to *Ankasa*, where tourism development will take anything between five and fifteen years to reach its full potential, there is a critical need for revenue that has been collected to be reinvested in the Park. This will help cover infrastructural and operational costs and contribute, where possible and appropriate, to the District and Traditional Authority in recognition of the place of *Ankasa* in the District Planning process. A proposal for such a system is recommended in Section 4.8 under the management of the WD and the *Ankasa* Management Advisory Board.

4.3.4 Routine operation

4.3.4.1 Previous Management

Field staff carry out many and varied Routine Operations. The rapid increase in infrastructure development, research and tourism without corresponding staff increase has meant that time is devoted to other tasks at the expense of important duties. This shift in duties has taken place as required, without any formalised procedure, as such, duties are carried out on an '*ad hoc* basis'. Patrols are conducted if and when staff are available, often pooled from different camps, maintenance tasks are undertaken when possible and staff are regularly seconded to assist research activities. This uncoordinated approach to staffing routine operations has led to resentment and lack of motivation amongst staff as their specific role within PA operations becomes unclear.

4.3.4.2 Management Prescriptions

Objective: To ensure that routine operations within Ankasa Conservation Area have been clearly identified, are consistent with the Management Plan and the responsibility for such duties are assigned to specific personnel.

Table 9. illustrates the routine operations for the PA and the staff/ department responsible for their execution.

Table 9: Routine Operations

Operations	*Duties*	*To be carried out by*	*Supervisor*
Maintenance	-of visitor facilities -of roads -of trails -of buildings -of vehicles and equipment	Tourism guards & artisans Wildlife guards Wildlife guards Artisans & guards Artisans	Rangers
Information and Interpretation	-assisting visitors -answering written enquiries -guiding tours -providing on-site information	Tourism guards Secretary Tourism guards Tourism guards	Tourism Officer
Law Enforcement	-surveillance patrols -dealing with infringements	Wildlife guards Wildlife guards	Rangers Range Supervisor
Biological Recording	-data gathering from the field -collating information	Wildlife guards Range supervisors	Range Supervisor
Miscellaneous	-search and rescue operations -guiding visiting dignitaries -general administration		Warden and Range Supervisor

Plate 5: Kontanmiri *Uapaca corbisieri* ("Arrogant Tree" in Twi due to its "hands on hips" stance)

This tree is easily identified by its very pronounced stilt roots that can arch out several metres from the tree (Hawthorne, W.). It is common in evergreen forests and is typical of swamps.

4.4 LAW ENFORCEMENT

4.4.1 Background

Activities permitted and prohibited within *Ankasa* are defined within the Wildlife Laws of Ghana. The Wildlife Division staff are appointed pursuant to the Wild Animals Preservation Act (Act 43) of 1961, and exercise the powers and functions conferred on them by the Act, attendant regulations and subsequent amendments. Their role is predominantly one of law enforcement.

Within *Ankasa* the primary illegal activities are poaching, plant extraction and encroachment.

1) Poaching: Historically, *Ankasa* lay in a heavily forested area, surrounded by several adjacent or nearby forest reserves. The intensity of crop farming on the periphery of *Ankasa* is rapidly increasing. The population is growing at an annual rate of over 5%. This has led to a reduction of the diversity of bushmeat and in particular, local eradication of many NTFP resources off-reserve through an increased demand for these products. As a result, these developments have increased pressure on the wildlife resources in *Ankasa*.

A number of species, especially monkeys, are now severely threatened in *Ankasa*. These include the Diana Monkey and White-naped Mangabey. The Red Colobus, if it existed in *Ankasa* in the first place, is now probably locally extinct. Bongo, Ogilby's Duiker, Forest Buffalo, Yellow-backed Duiker, Giant Forest Hog, Giant Pangolin, Leopard and White-breasted Guinea-fowl are also threatened.

The list of animals hunted for bushmeat in the Ankasa Conservation Area comprises 82 named species (42 mammal, 35 bird and 5 reptile species). If smaller rodents and birds are included, the list certainly exceeds 100 species. Preferred species are rodents and antelopes, of which many are pests on farmland. Five species make up 60-70% of the volume, and are, in order of importance, Cane Rat, Giant Rat, Black Duiker, Maxwell's Duiker, Brush-tailed Porcupine and Bushbuck. These are all associated with farmland and secondary forest.

Three basic means of hunting are common: shooting, trapping (mainly wire snares) and dogs. Hunting takes place at all times of the day and season of the year, and in all available habitats, off reserve as well as inside *Ankasa*. Off-reserve areas include, farmland, bush fallow, secondary forest and forest fragments. The estimated total number of hunters in the area around the reserves (within 7km from the perimeter) is 5-6,000.

Estimates of the total annual Bushmeat production around *Ankasa* ranges from 3,200 - 3,800 tonnes, representing a value of $4.4 - 5.3 million (May, 1998). The yearly catch per hunter is estimated to be about 650kg valued at $820 while the average daily Bushmeat consumption per capita is put at 0.19kg.

According to hunters and bushmeat traders, both the Bushmeat trade in open markets and with outside retailers from urban centres in other regions of the country is collapsing. Trade with local chop bars is now more important. They attribute this collapse to the low bushmeat availability and, surprisingly given the constraints operating, to a too restrictive Wildlife Division control of hunting and Bushmeat trade activities. Chop bars report that they now rely on smoked bushmeat brought in by retailers from other regions of the country. This development has certainly affected bushmeat prices. The average kg-price for *Ankasa* is $1.80 for fresh meat and $2.34 for smoked meat. These prices are equal to or higher than domestic meat. The total annual Bushmeat trade in 20-25 chop bars around *Ankasa* is estimated to number 12,000 animals, weighing 45,000 kg, and valued at ¢214 million or $91,200[34].

ii) Plant Harvesting and Extraction: The felling of trees within the Protected Areas is only an infrequent occurrence. In the last two years, four illegal chainsaw operators have been apprehended and the lumber confiscated. Greater damage was sustained through the illegal entry into the reserve by the GDC logging company who cut 27 trees and damaged many more with their bulldozer in extracting 19 logs before they were stopped.

[34] Annex 12: Bushmeat Survey. PADP 1998

The extraction of Chewing stick and rattan from *Ankasa* is widespread and highly organised especially from the Nini Suhien National Park. Theoretically the Park forms a zone in which such activities can be controlled. In practice, however, the lack of Wildlife Division manpower, the poor training, pay and equipment levels, coupled with the lack of support from the police and the Forest Services Division in controlling the unlicensed movements of the products across the country means that most of the activities go undetected. The collection is blatant. The NTFP products are colour coded, with the initials of the collectors marked on the stems, often before harvest. The paperwork from the FSD is rudimentary and often for smaller amounts than collected and for areas outside *Ankasa*. No checking is done of local markets or for conveyance certificates at roadblocks.

With such a situation the law enforcement task of the *Ankasa* management is formidable.

4.4.2 Previous Management

4.4.2.1 Anti-Poaching:

i) Manpower: *Ankasa* is understaffed. Prior to 1997 there was only 21 patrol staff. The situation has improved and currently there are 31 patrol staff. They are expected to cover 509km^2 of rugged densely-vegetated terrain. The staff are divided between the two ranges and reside in small camps usually outside the periphery of the Reserve. The current force provides a coverage per guard of approximately 17km^2. A patrol guard force of 40 is required for *Ankasa* including 8 replacements for patrol staff on leave and those who are ill or absent for other reasons. When fully staffed, an average coverage of 13km^2 per guard is recommended. The present patrol guard distribution is shown in Table 10

Table 10: Current Patrol Staffing Levels

RANGE	CAMP	RANGER*	PATROL STAFF	TOTAL
West	Elubo		4	4
	Ankasa	1	6	7
	Nkwanta	-	12	12
East	Tweakor	-	5	5
	Breproh	1	4	5
Total		**2**	**31**	**33**

ii) Strategy: Anti-poaching strategies have been restricted by man-power and logistic constraints. Patrol teams of between 4 to 8 men typically conducted day -patrols in the area around their respective camps, with occasional longer patrols (of around 4 days), covering a greater distance, often in the vicinity of known poachers' trails.

The success of patrols has been severely limited, by the concentration of effort around the camps and the periphery of the reserve, due to an inadequate system of patrol trails, a lack of field equipment and ready source of food supplies. This led to the predictability of staff movements by poachers, loss of secrecy and large areas of *Ankasa* being left relatively unprotected. The practise of guards being located in particular camps for lengthy periods of time has resulted in the guards befriending the local populace. This has had a negative effect on the success of any patrols carried out in the vicinity.

Inadequate firearms, almost all of which are confiscated single-barrelled shotguns, and the practice of resorting first to firing a warning shot in encounters with poachers, (which means the guard must spend time re-loading before he can give chase), invariably leads to the escape of poachers. Those that are captured are normally those that guards have managed to approach close enough to be physically seized. In the course of a decade less than half a dozen instances of firearm use have been recorded. No other circumstances have warranted the firing of arms, reflecting the low level of resistance posed by poachers. However, this is gradually changing. As patrols get more effective and court fines get higher, thereby raising the risk of apprehension and imprisonment, poachers are becoming more aggressive, with some resorting to armed resistance. Under such circumstances patrol staff have to use appropriate means, including the use of arms, to effect an arrest. However, very few of them can adequately and confidently

handle their arms. They are not tested regularly on their weapon handling skills. Thus, the arms are seen more as status symbols (and, perhaps, a tolerated nuisance), effective only against timid poachers.

4.4.2.2 Labour Relations and Disciplinary Procedure

The conduct of all WD personnel, in relation to all aspects of labour relations and discipline, is subject to the Civil Service Act of 1960, as amended in 1994. Under this act, office personnel and armed guards are treated identically with respect to labour status. However, this does not adequately address the great differences between the Patrol staff activities and the administrative staff and this equal treatment gives rise to certain resentments and disciplinary problems. The duties of an armed guard can only be reasonably compared to those of the armed forces, police person or other security organisations, all of which operate under their own legal acts, and which are not controlled by the Civil Service. Trained to use firearms in the same way as the police or armed forces, wildlife guards face dangers and heavy responsibilities in the course of duty against well-armed poachers. The lack of such a consideration for the WD patrol staff has resulted in poor staff discipline and an inappropriate disciplinary code.

4.4.2.3 Legal Procedures

All court proceedings and anti-poaching cases are carried on outside the Protected Area. Senior officers often send arrested offenders to Aiyinasi Police Station after verification that an offence had been committed. In some cases, offenders are sent to Mpataba Police Station. There is a single Magistrate for Nzema East and Jomoro districts, who sits in rotation at Axim, and at Tikobo I, Half-Assini, and Elubo respectively. Suspects are arraigned before these courts subject to the convenience of the Police and Magistrate. Sometimes, suspects move from court to court with the Magistrate as a result of adjournments, which average 1 – 3 per case. In the majority of cases unnecessary delays cause considerable waste of time for guards who have to turn up time after time to give evidence against poachers. Invariably, poachers are fined, but at such low amounts that they serve no deterrence against regular re-appearance in court for more wildlife offences. The delays result in a reduction of patrol days, disruption to the work plan and wastage of funds (travel costs) in an attempt to secure a conviction.

Cases are often lost or treated lightly because of lapses or poor interest by the Police, which handle all prosecution for the WD. This reflects the generally apathetic attitude or lack of appreciation for wildlife in the district. WD staff provide relevant information to the police prosecutors, but this is often played-down or ignored during prosecution, thereby robbing cases of the seriousness they deserve. Wildlife officers, however, do not have the requisite legal mandate and skills to effectively prosecute offenders.

4.4.2.4 Licensing

The WD is the official agency for the issuing and monitoring of hunting licences. These can only be issued by the SWO-in-charge of the Wildlife Office. The only Wildlife Offices outside of Accra (and the zoos) are those at the various Wildlife Protected Areas. For the three Districts surrounding *Ankasa*, this means that hunters have to travel to Aiyinase to obtain a licence. The cost of travel far exceeds the value of the licence and there is little chance anyway of any hunter outside the Protected Area being apprehended. In the last six years no licences have been issued.

The issuing of Bushmeat licences, formerly issued by the WD, has been devolved to the District Assemblies, with the WD only providing monitoring and technical support. Very few licences have been issued over the years in the Districts around *Ankasa* as a result of various factors, ranging from lack of licence forms, limited public knowledge and publicity, to lack of capacity at the District Assemblies (for bushmeat trade licences). The long distances and the cost incurred by prospective hunters and traders to travel to acquire these licences at the *Ankasa* headquarters discourage the system. The WD has been unable to take the issuing of licences to the doorstep of prospective hunting licensees for reasons listed above, in addition to manpower and transportation constraints.

4.4.2.5 Boundary and Trail Clearing

Patrol staff are allocated portions of the reserve boundary to clear each year. However, it is not given a high priority, and due to staffing constraints and poor supervision, only about 20% of the total reserve perimeter is satisfactorily maintained. Virtually the entire outer boundary of the Nini-Suhien National Park was not cleared between 1986 and 1996, leading to occasional (some deliberate) encroachment by

farmers. Internal trails are supposed to be cleared during patrols, but this is rarely done in practice, at least not to any acceptable standard as patrol staff claim to have habitually focused on poacher detection, allocating very little time to clearing obstacles on trails.

4.4.2.6 Maintenance

Construction and maintenance of camp buildings is a task assigned to the respective residents. However besides basic maintenance of buildings built of traditional materials e.g. raffia palm thatch for roofing, poles and rattan twines, little regular, major maintenance or construction work has been done as a result of financial constraints.

4.4.2.7 Biological Data Collection

Patrol staff are expected to record all wild animal sightings to give an idea of animal species and their relative abundance in *Ankasa*. There is however, no systematic monitoring programme in place and sightings frequently go unrecorded. Existing patrol records for animal sightings are insufficient for assessing species status. More often than not figures are suspect and therefore unreliable.

4.4.2.8 Hunting

Although bushmeat activities are of major importance for the households and economy of the communities, neither hunting nor the Bushmeat trade are organised or effectively regulated by any local by-laws or current national wildlife regulations. No associations exist for hunters or bushmeat traders, apart from a few voluntary chop bar unions. Very few, if any, hunters bother to obtain hunting licenses from the WD, let alone attain Bushmeat Trading licenses from the District Assembly. Hunting and Bushmeat Trade are the most liberal and uncontrolled occupations in the areas surrounding *Ankasa*, despite the fact that bushmeat licenses are comparatively cheap to obtain, specially when considering the very high prices of bushmeat products. The current fee rates of permitted species are antiquated (L.I. 1357; 1988), and presently are the only guideline for revenue collection. Hence, the revenue generated from hunting and Bushmeat Trading licenses for the past seven years does not even reach 0.1% of the estimated annual value of bushmeat traded in chop bars.

4.4.3 Management Prescriptions

Objectives: To provide an effective and efficient system of law enforcement and human resource management that will protect the integrity of *Ankasa.*

4.4.3.1 Anti-poaching:

***i) Manpower*:** The primary objectives of patrolling are to walk the boundary of the reserve with sufficient regularity that any illegal entry can be identified and dealt with before damage occurs (identified as a frequency of twice per month); and for as much of the interior of the reserve as is feasible to be covered by guards in a manner that is unpredictable to poachers.

Other factors that affect the staffing levels are that each staff member is to be allowed time off in a range headquarter with his family and that the wildlife guards are also obliged to attend training sessions and carry out maintenance of patrol and boundary trails.

Each patrol team should contain a minimum of 4 members. For safety reasons no man should be in the forest on his own. If a poacher is caught and needs to be transported to a pick-up point then 2 staff members will accompany him, leaving two to make their way to the nearest camp, where they can be joined by others as soon as possible to continue the patrol. The same applies should any patrol member be injured or fall sick. Thus no patrol team can operate on less than 4 members.

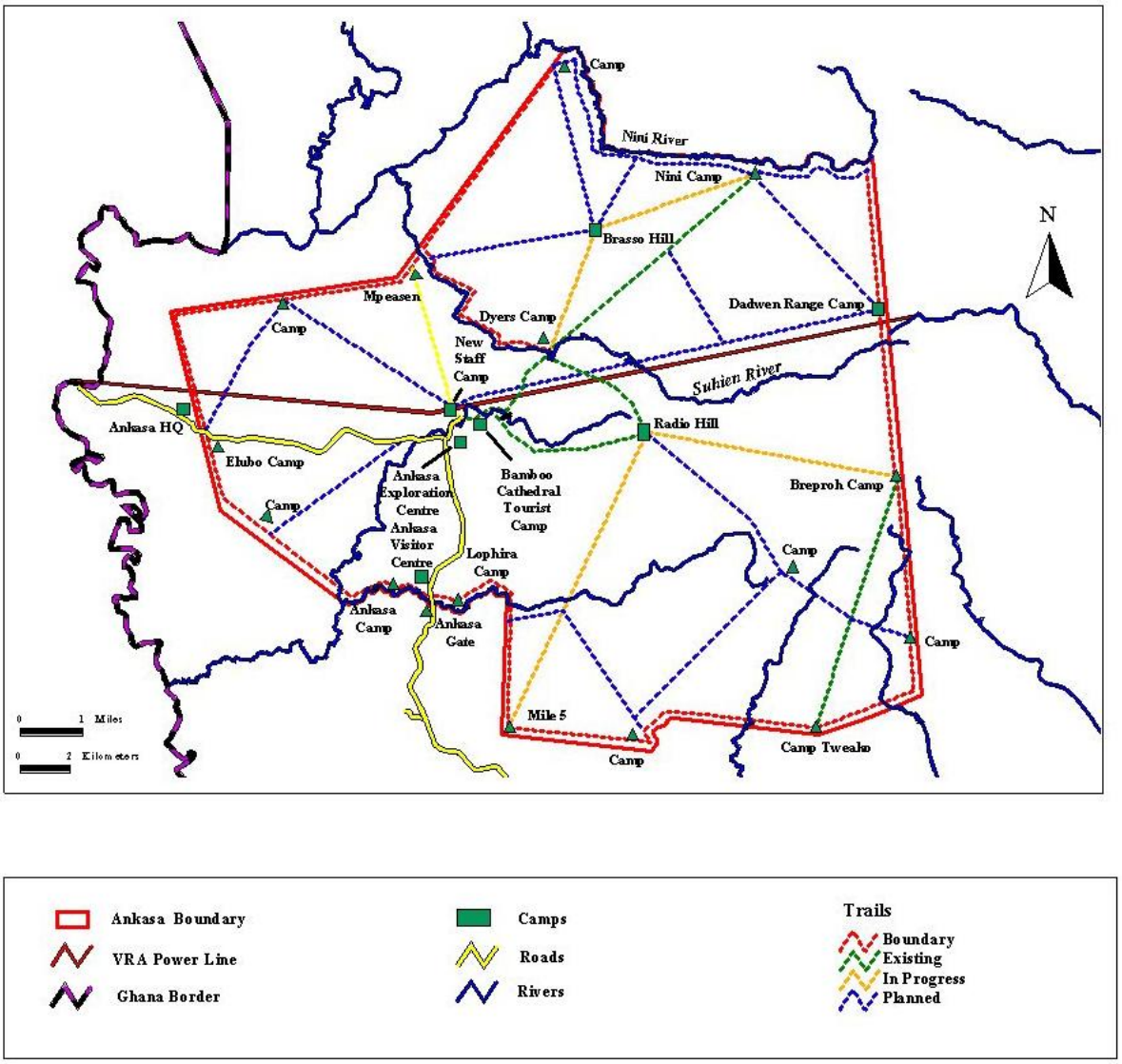
Each staff member is entitled to up to 28 working days of annual leave (according to length of service). It is also to be expected that unforeseen circumstances will prevent wildlife guards being available for patrol occasionally, e.g. sickness, injury, funerals etc. It is therefore important to have a surplus of men to cover these inevitable manpower reductions. Allowing for one additional man per team is the minimum staffing level at which the patrol force can meet its objectives of covering the boundary and maintaining a presence in each beat at all times.

The total number of field staff will increase to 40 Patrol staff, under the direct supervision of 5 rangers. These 40 wildlife guards comprise 8 teams of 4, one of whom is the patrol leader. The relief staff and those not on Patrol will act as a rapid reaction force, in the event of an illegal activity, or be involved in maintenance of park infrastructure and in-service training.

ii) ***Strategy:*** In order to facilitate effective management, maximise the impact of patrols and minimise the number of trails, bridges and other disturbances to the PA., *Ankasa* will be divided into 2 ranges. The range boundary will be the Suhien River. In effect one range will be the area gazetted as the National Park, to be known as the Dadwen range, and the other, known as the Elubo range, will be the gazetted Resource Reserve.

Due to the size of the Elubo range, and the complex logistics of its management, it will be further divided into two areas, known as beats: the Radio Hill beat and the Elubo beat. The Dadwen range will serve as a single beat. Each beat will be covered by a network of patrol trails. These will allow access to the boundary at regular intervals (see Figure 9).

Figure 9: *Ankasa* Camps and trail Network



The minimum number of teams that are needed for each beat are: Dadwen beat: 3; Elubo beat: 2; Radio Hill beat: 3. To supervise the patrol teams for the Dadwen and the Radio Hill beats it is necessary to have at least 2 rangers respectively. This will enable one to be in the field and the other to be at the headquarters. In this way there is always a supervising officer present to dictate the patrol regime or give

orders to the wildlife guards. For the Elubo beat there is only the need for one ranger as the patrol teams are operating from the headquarters at all times, not from the sub-range camps.

It is not feasible for one range supervisor to be able to collate all the information fed back to him from 5 rangers in geographically separate locations. Therefore, a range supervisor for each range is required. Data can be collected, tasks assigned quickly and specifically and reports produced for the Warden.

Patrol staff will be issued with a detailed plan for the proposed route to be taken within their beat. The ranger will issue this plan, formulated on the basis of meeting the needs of patrol objectives. Patrol teams operating from sub-range camps will therefore spend up to 14 days in the field, covering the internal trails and boundary as required, using the series of bivouac camps placed at strategic locations. They will have four days off at the sub-range camp within this period

Dadwen Range:
2 rangers will supervise 3 patrol teams. The 3 teams will operate from Dadwen headquarters and Brasso Hill sub-range camp on a rotational basis, with 2 teams in the field at all times:

Table 11: Roster for Dadwen Range/Beat Patrol Teams

No. of Days	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**
Team1	Brasso				Dadwen		Brasso				Dadwen		Brasso				Dadwen	
Team 2	Dadwen		Brasso				Dadwen		Brasso				Dadwen		Brasso			
Team3	Brasso		Dadwen		Brasso				Dadwen		Brasso				Dadwen		Brasso	

Elubo Range:
Radio Hill Beat: 2 rangers will supervise 3 patrol teams. The 3 teams will operate from Elubo headquarters and Radio Hill sub-range camp on the same rotational system as Dadwen range.

Table 12: Roster for Radio Hill Beat Patrol Teams

No. of Days	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**	**5**	**2**
Team1	Radio Hill				Elubo		Radio Hill				Elubo		Radio Hill				Elubo	
Team 2	Elubo		Radio Hill				Elubo		Radio Hill				Elubo		Radio Hill			
Team3	Hill		Elubo		Radio Hill				Elubo		Radio Hill				Elubo		Radio	

Elubo Beat: 1 ranger will supervise 2 patrol teams operating from Elubo headquarters on a one on/ one off basis.

The Tables are schematic, the shaded sections represent a fourteen day block of time spent in the field. Within this fourteen day period the ranger will decide when staff can take four days off and when training will take place, to ensure that one team is on patrol at all times.

The rangers will report to Range Supervisors, one for each range, who will collate on the PAMIS (Section 4.7) all information regarding illegal activities, trail and camp maintenance and wildlife sightings.

iii) Training: In addition to patrolling duties and maintenance of the reserve's infrastructure the wildlife guards will undertake in-service training sessions in conflict management, firearms use, first aid and wildlife recording techniques. The rangers, senior staff and invited organisations will conduct the training at both Headquarters and the sub-range camps during the teams' non-patrol days.

4.4.3.3 Labour Relations and Disciplinary Procedure: It is suggested that a disciplinary code be worked out for WD field force staff. Such a code should be orientated mainly towards the service requirement of Wildlife Division. It will define the role of the field staff, their duties and set out both offences and disciplinary measures taking account of the rigorous working conditions and expectations of performance of patrol staff.

For the protection of the fighting men, Rules of Engagement should be clearly established. This should provide for greater indemnity from legal action in the event of injuries or death that they might inflict

while carrying out their duties. The establishment of such a Wildlife Division Disciplinary Code, via supplementary legislation to the Wild Animals Preservation Act (Act43 of 1961) would be an important basis for the maintenance of morale and discipline. This is essential for the effective protection of *Ankasa*. It should also include a fair compensation scheme for death or serious injury sustained by field staff in the course of their duties.

The staff living conditions should also be considerably improved: New houses, suitable for families, will be built at Headquarters and at the Range headquarters at Dadwen and all issues relating to welfare addressed (see Section 4.3.3.). If WD staff are suitably catered for, staff morale, health, and enthusiasm for work, will increase. This in turn will impact on the PA operations, improving the efficiency and effectiveness in all aspects of work.

4.4.3.4 Legal Considerations: Wildlife Division Headquarters should liase with the Attorney General Department Office to review the minimum fines and prison sentences to take account of the economics of the poaching industry. Prosecution is an expensive and time-consuming business. The Forestry Commission's legal department should undertake the prosecution of all wildlife offenders or failing that, should provide appropriate legal training to Senior Wildlife Officers, possibly the Warden or Senior Range Supervisor and assist them where possible with advice and case review.

4.4.3.5 Licensing of Hunting: This issue needs be addressed by policy decision at the Wildlife Division Headquarters. A new and effective system is required that takes into consideration the proposed CREMA management and encourages community and District Assembly participation in appropriate licensing administration.

4.4.3.6 Construction and Maintenance: Trail networks and the maintenance and construction of infrastructure in *Ankasa* should be given a higher priority. A Wildlife Ranger should be assigned specific responsibility for this area of operations, thus ensuring better staff supervision and enabling enlightened strategic planning. This will increase the effectiveness of *Ankasa*'s management. (See Section 4.5, Infrastructure)

4.4.3.7 Biological Data Collection: The collection of data on *Ankasa's.* flora and fauna will be improved by better recording and monitoring procedures described in Section 4.6, Research and Monitoring.

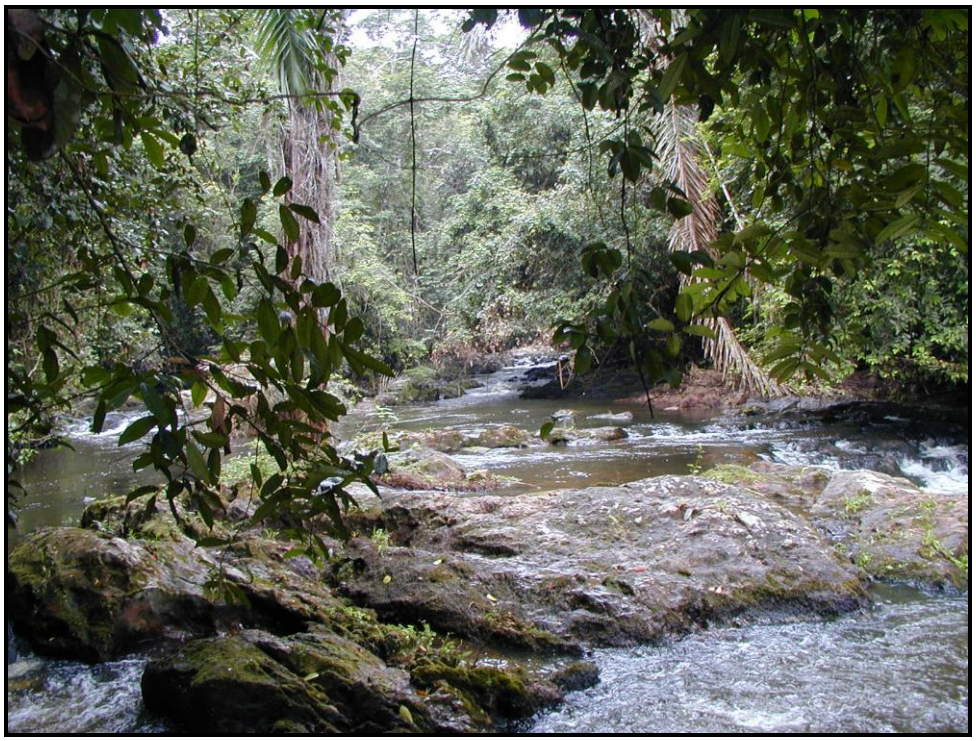


Plate 6: Ankasa River

4.5 Infrastructure

4.5.1 Roads

4.5.1.1 Present Situation

i) ***Access:*** The West Africa Highway provides good primary access to *Ankasa*, although certain sections of the road are in need of repair, especially towards Elubo. The maintenance and repair of the Highway is the responsibility of the Ghana Highways Authority. Secondary access to Ankasa is along two dirt roads that link the West Africa Highway to Elubo and Ankasa Gates (2km and 6km respectively) These roads are the responsibility of the Jomoro District Assembly through the Department of Feeder Roads. To the east and north are the Prestea-Brepoh and Prestea-Ayensukrom-Mmoframfadwen feeder roads respectively. They provide access to the Dadwen Range headquarters and are the responsibility of the Wasa-Amenfi and Nzema East District Assemblies respectively through the Department of Feeder Roads. There are a number of other roads that, though not providing direct access to *Ankasa*, closely approach the boundary and are therefore of major concern regarding security and illegal access to resources of the Protected Area. The new major link road, currently under construction, from the West African Highway to Enchi, Tikobo II, Aiyinasi – Kukuom and Gravel Yard, falls into this category (see Map 2.X).

ii) ***Internal Roads:*** In keeping with the nature of rainforests and the experience they have to offer visitors, it is not desirable to have many tourist roads within *Ankasa*. The management approach adopted is one of minimum absolute need, with the focus of tourist experience being on walking trails. However, for administrative purposes and to broaden the visitor experience and reduce pressure on specific sites, a limited road network is deemed necessary. At present the only road existing in A*nkasa* is the 19km section of the former West Africa Highway from Axim to Elubo, which passes through Ankasa Gate and Nkwanta Camp. Rehabilitation work was completed in February 2000 after a decade of deterioration following its closure to public use. An inspection road for the 28km section of the V.R.A. transmission line passing through *Ankasa* has been surveyed for re-construction, providing access from the proposed *Ankasa* headquarters in Elubo, through Nkwanta Camp, to Dadwen Range headquarters in the East.

4.5.1.2 Management Prescriptions

Objectives: The main objectives are to provide year-round vehicular access to selected destinations sufficient to accommodate so far as practicable the needs of management, researchers and visitors. In providing access it is essential that roads be located to minimise adverse environmental effects and that road design and construction is appropriate.

i) ***Access Roads:*** All major access roads are the responsibility of the Ghana Highway Authority. Feeder roads will be maintained as such by the appropriate District Assembly through the Department of Feeder Roads. The Wildlife Warden will liase with the District Assemblies to facilitate the prioritisation of maintaining these roads.

ii) ***Internal Roads:*** Whilst the existing road from Ankasa Gate via Nkwanta Camp to Elubo headquarters will be kept as a gravelled double lane, the V.R.A. inspection road, when re-constructed by V.R.A., will remain a gravelled single lane road. As part of the V.R.A. road maintenance through *Ankasa*, they will grade and re-shape the main roads each one to two years. This work will commence preferably at the onset of the dry season. The Warden and the WD should pursue the possibility of the Department of Feeder Roads maintaining the internal roads for the promotion of tourism. Speed limits will be set at 30km/h anywhere within the reserve.

4.5.2 Trail Network

4.5.2.1 Present Situation

Prior to 1998, only one nature trail of 3km existed at Ankasa Gate. Five major trails were used for patrol duties by field staff on a regular basis, all of which link major camps: Ankasa - Nkwanta, Mile 5 –

Ankasa, Tweakor - Breproh, Breproh - Mmofranfadwen, Nkwanta - Mempeasem. Since then 6 more have been opened: Nkwanta – Mmofranfadwen, Nkwanta – Radio Hill, Radio Hill - Breproh, Radio Hill - Mile Five, Nkwanta – Brasso, and Nkwanta – Dadwen. None of these have been mapped, therefore distances can only be estimated. Numerous minor trails created by poachers and plant harvesters up to 1996 have mostly overgrown from disuse. These, however, serve as good connectors to the main trails. Boundary lines are occasionally used for patrol.

The Suhien River represents a major barrier to effective patrolling of the Nini Suhien National Park during the wet season. The major trail to Brasso Hill and all points north crosses the river at Dyers Camp. During the wet season this is often impassable. When in flood, it presents a real danger to staff trying to cross it and furthermore disrupts planning of patrols and limits response to illegal activities as the management cannot be certain that staff will be able to cross.

4.5.2.2 Management Prescription

Objectives: The main objective is to establish an adequate network of anti-poaching patrol trails that will provide easy access to the boundary at regular intervals and adequate coverage within Ankasa to meet the requirements of anti-poaching and monitoring activities. In addition to these trails, it is intended to establish and maintain an appropriate level of tourist access footpaths, nature trails and night game viewing paths.

i) Patrol Trails: New trails will be developed and existing trails will continue to be upgraded in accordance with the schematic plan to establish appropriate anti-poaching coverage (Figure 8). Each patrol trail will be properly demarcated with signage depicting distance and direction posts at each junction. The actual trails once constructed will be mapped. Range and Beat maps will be produced. Some of these trails will also serve as access trails for tourists and researchers. Maintenance patrols will be conducted over all trails. Footbridges will be built and all impeding windfalls and branches cut away where necessary. Emphasis is placed on utilising the boundary lines as patrol routes in anti-poaching duties

ii) Tourist Trails: The ability to be able to walk through a rainforest is undoubtedly one of the greatest attractions of *Ankasa*. However, trails are expensive to maintain both in time and resources. Too many trails can also detract from the visitor experience. Therefore over the period of this plan the following trails will be established:

- One nature trail consisting of a maximum 3km loop will be constructed at each tourist camp. In the design of this trail care will be taken to design part of it as suitable for night walks. These trails will have appropriate interpretative signs to enhance the visitors' experience.
- A short overnight loop trail will be constructed from Nkwanta to Suhien Falls.
- A longer trail will be constructed from Suhien Falls to Brasso Hill and from there to Mempeasem on the Tano River. These trails will also double as patrol trails but they will emphasise visitor enjoyment as well as providing direct access. Interpretation along these trails will be minimal, reinforcing the remote nature and thus the enjoyment of walking into the forest.

iii) Suhien River Bridge: A suitable site for the bridge has been identified at the Suhien Falls. It is recommended that a suspension footbridge be constructed over the ravine. This will ensure year round access to the northern areas as well as providing a major tourist asset. A second, road bridge will be built as part of the VRA inspection road, East of this location.

iv) Boundary: The 100km-boundary line of Ankasa forms an important part of the anti-poaching patrol network. Prior to 1997 approximately 70kms had been opened but not regularly maintained. The northern sector was particularly poor. The boundary line will be cleared in its entirety and regular maintenance carried out to maintain this status. Where the boundary is a river a track is maintained parallel with the river but avoiding the difficult terrain along the banks. A boundary survey has revealed that three pillars need to be replaced and intermediate markers installed to adequately identify the border. The inscription on the pillars needs be changed to reflect the re-gazettement to a Wildlife Reserve

according to the Act. The position of each pillar will be accurately fixed and existing maps changed accordingly.

4.5.3 Regional Tourism Road Signage

4.5.3.1 Present Situation

Most tourists coming to Western region will be doing so by road as self-drive visitors. Consequently, the presence and quality of road signage and directions is very important. At present, tourist-related signage in Western region is virtually non-existent. Signage prior to 1998 consisted of three directional signposts: two at Aiyinasi and one at the Ankasa Gate junction on the West Africa Highway. All three were no larger than 2 x 4ft. and referred to the Ankasa Resource Reserve. Tourists often missed them and were subsequently misdirected. Since then 8 large (4 x 8ft) directional signboards have been placed at strategic junctions from Takoradi to Elubo. The colourful boards have the Western black-and-white colobus (*Colobus vellerosus*), the initially proposed *Ankasa* emblem, names of the two reserves, and distance to Ankasa Gate. Positive results from their placement already reflect in the greater number of visitors and recognition by the Ghana Tourist Board as a contribution to Tourism. Village signs have also been posted to all communities within the primary community development pilot area of Amokwasuazo.

4.5.3.2 Management Prescription

Objective: The primary objective is to establish a system of clear, functional and appealing directional signs within and outside the Conservation Area.

i) External Signs: The signboards have been redesigned in accordance with the design of the Visitor Centre in *Ankasa*. The Ankasa emblem is now the Leopard. The signs at Takoradi, GREL Junction, Sowodadzem and Elubo will be changed to conform to this. The WD needs to liase with Highways Department to ensure proper placement of these National Road signs and award them the same protection to ensure good visibility and avoid vandalism. Signs will also be placed at Tarkwa and Enchi. The Ankasa Management will maintain them. A regional system of signage as proposed in the Tourism Framework Survey[35] will be promoted through the appropriate authorities.

ii) Internal Signs: Within the reserve, signs will be placed at appropriate vantage points to provide information on directions and regulations. Whilst road signs will be as conspicuous as possible to draw attention to them, those on-reserve will blend with the environment as much as possible, with emphasis on the use of local materials.

4.5.4 Buildings

4.5.4.1 Administration and Staff Housing

i) Present Situation

The *Ankasa* headquarters currently occupies five rooms in a building donated in 1994 by the Senior Divisional Chief of Aiyinasi. This is in Nzema East District and about 30km from the nearest entrance to *Ankasa* by road. Field staff were housed in seven operational camps mostly located in settlements on the fringes of the Protected Areas: Mempeasem, Elubo, Ankasa, Mile 5, Breproh, Asamang and Ayensukrom. With the exception of Ankasa Camp, which had six rooms in two buildings roofed with rusty, corrugated iron sheets and located in the reserve, all other camps consisted of mud walled, single rooms, roofed with raffia and were in deplorable condition. Nkwanta camp, located in the middle of the reserve, was similar in construction to Ankasa Camp, but was severely dilapidated and unoccupied.

Each camp housed 3-5 staff on patrol duties. Conditions were rudimentary, access to water, health care and markets often poor. Each man also rented a private house, usually in Aiyinasi, for his family. Each month patrol staff stationed in these camps were given leave to visit thus reducing the anti-poaching field force considerably. Lack of easy access to the camps meant supervision of activities was poor and

[35] Annex 22: :*A Proposed Tourism Development Framework for the Western Region of Ghana with particular reference to Ankasa and Bia Protected Areas, PADP 1999*

management spent a great deal of time and resources on the simple task of paying salaries. This situation had to be reviewed.

In 1997, the initial intention was to centralise the staff into two ranges to improve administration and patrol supervision. The proposed major staff housing building programme faced difficulties of design, land acquisition and finance. An interim plan had to be undertaken. In 1998, Ankasa and Nkwanta camps were refurbished, the outlying camps were closed and the staff re-deployed. In 1999, a Tourist camp was built at the Elubo gate on the Western edge of *Ankasa.* This is currently being used as a patrol camp until the new housing is built. Likewise, the camp at Breproh on the Eastern boundary is currently being renovated for patrol use, pending the construction of the Eastern range camp.

ii) Management Prescriptions

Objectives: The main objective is to provide for strategically located *Ankasa* administration and suitable staff accommodation.

a) Headquarters Complex – Elubo Gate: This will provide for the main Administration of *Ankasa* and house the Elubo range staff. It will have an office block that will include a staff training room, houses for the Reserve Warden, Senior Range Supervisor, Community Wildlife Officers, Rangers and 38 Wildlife Scouts, artisans and administrative staff (see Table 13). A borehole will supply water and the complex will be connected to the electricity grid. Septic toilets and showers for the staff will be provided.

Finalisation of the Site acquisition is still pending. The site has been surveyed. It is steep and deeply divided by streams. Care will be taken in the layout to prevent erosion and stream pollution. Roads will be kept to a minimum and boardwalks and steps used where possible. Designs for each building have been prepared[36]. The designs call for the use of local timber to reduce cost and ease of maintenance.

Table 13: Staff Accommodation at Elubo:

Staff Member	***Number***	***Accommodation Type***
Reserve Warden	1	Senior bungalow
Community Wildlife Officer	1	Middle staff quarters
Tourism Officer	1	
Senior Range Supervisor	1	
Ranger	3	
Accountant	1	
Store keeper	1	
Community Liaison Officer	1	Junior staff quarters
Wildlife Guard	25	
Driver/mechanic	3	
Carpenter	2	
Chainsaw operator	2	
Plumber	1	
Electrician	1	
Receptionist/Secretary	1	
Visiting Officer	1	

b) Range Quarters Complex – Dadwen Gate: Situated on the extreme Eastern edge of *Ankasa*, the site has been surveyed. It will be cleared and housing for 24 staff (see Table 14) constructed and will include a simple administrative building, garage and store. The buildings will be of a similar design to those of the Elubo Gate Headquarters. All buildings will be constructed of timber, utilising that felled in the site clearance where possible.

A borehole will supply water and a generator will supply electricity on a limited basis (Solar electricity has proved to be very expensive to install and of poor efficiency in the Harmattan and wet season). Health-needs will be met by the construction of a Level B clinic at Dadwen Village

[36] Annex 9: Building Design Reports for the Staff housing of Ankasa, PADP 2000.

approximately two kilometres away. This will be done in conjunction with the District Administration. A 600m road will be constructed to connect the Range Quarters to the V.R.A. road through *Ankasa*.

Table 14: Staff Accommodation at Dadwen

Staff Member	*Number*	*Accommodation Type*
Assistant Range Supervisor	1	Middle staff quarters
Ranger	2	
Store keeper	1	
Community Liaison Officer	1	Junior staff quarters
Wildlife guards	15	
Secretary	1	
Driver/mechanic	1	
Gatekeeper	1	
Visiting Officer	1	

iv) Sub-Range Camp – Brasso Hill: This will act as a base and classroom for the teams patrolling the Dadwen beat/range and provide office space for the ranger in charge. It will also serve as security for the proposed tourism camp development in this area. The building will be of a similar design to the junior staff housing at the Headquarters site, utilising timber felled in site preparation where possible. The construction will be contracted out to a local contractor. Rainwater harvesting will be used and the camp powered by solar lighting.

v) Sub-Range Camp – Radio Hill: This will serve the same function as the building at Brasso Hill, acting as a base for patrol teams in the Radio Hill beat and as a field office for the ranger. The building will be of the same design as the Brasso Hill camp, though there is no proposed tourism development in the area and as such location will be more focussed on receiving a good radio reception. A sealed well, supported by rainwater harvesting will be employed and the camp powered by solar lighting,

iv) Ankasa Gate and Nkwanta Camps: Refurbished to a high standard in recent months, these camps will be maintained. Ankasa Camp will house the gate staff and staff for the visitor centre. Nkwanta camp will house the research facility watchmen and the ancillary staff for the Exploration Base as required. This camp will also be used as a central base for patrol, tourist and research activities. Septic toilets will be built. Water is supplied from rain harvesting, a solar powered borehole in Nkwanta and an electric pump from a stream at Ankasa gate. Solar powered light is installed.

v) Anti-Poaching Patrol Bivouacs: Simple campsites will be prepared at strategic points along patrol trails throughout *Ankasa* (See Map...) These will consist of a tent frame, wood store and pit latrine.

4.5.4.1 Visitor Facilities

a) Present Situation

This section deals with the tourism and education infrastructure that will require construction and maintenance. Visitor facilities provided in *Ankasa* as part of the Protected Areas Development Programme include tourist camps, nature trails, sign posting, park furniture and basic pit toilets, among others. Due to increasing visitors numbers at *Ankasa* in recent months there has been the need to improve and expand visitor facilities to meet the varied tastes and interests of different visitors.

Until 1999 there were no overnight accommodation facilities available and overnight visitors needed to find their own spot to pitch a tent or erect a hammock, often in the vicinity of Guard Camps. Two tourist camps sited near Ankasa Gate, one on either side of the road, with accompanying nature trails have been constructed. Ankasa Camp built with the assistance of Raleigh International is fully equipped with two sleeping shelters (each accommodating five persons comfortably), a kitchen with sink, running water and cooking facilities (gas stove), two pit latrines, a shower and picnic bench/ seating area around a designated campfire. Lophira camp is currently being constructed to the same standard. Visitor security is provided by the WD staff in the adjacent camps.

A Visitor centre and restaurant are currently under construction at Ankasa Gate, also with the assistance of Raleigh International. Visitor parking, septic tank, water supply and electrical generator are being installed.

Bamboo Cathedral, the tourist camp near Nkwanta, currently comprises two sleeping shelters and a cooking area. This camp is also currently being constructed to the same standard as Ankasa camp.

Raleigh International also assisted in the building of two wooden chalets, pit latrines and a picnic table near Elubo Gate. Though at the moment the camp is being used by patrol staff it will revert to a tourist camp and facilities completed as soon as the staff are able to move to Elubo Headquarters.
Six kilometres of nature trails have been constructed, these, as previously indicated, form two loops on either side of the road at Ankasa Gate. Two further trails are proposed for Bamboo Cathedral and Elubo.

The Ankasa Exploration Base has been constructed with the assistance and operational sponsorship of Masterfoods GmbH. This is an educational facility for local school children and available for educational conferences on a commercial basis.

b) Management Prescriptions

Objectives: The main objective is to provide facilities for visitors which increase visitor awareness and appreciation of *Ankasa's* natural and cultural heritage, meet the needs of various recreational activities and different visitor categories and are in accord with the *Ankasa's* environment while at the same time generate revenue[37]. A range of overnight accommodation facilities to exploit the widest tourist market as possible based on both the spending power and desired experience of potential visitors will be provided.

i) Visitor Centre: The Visitor Centre will be completed and maintained at Ankasa Gate. The interpretative material is currently being prepared.

ii) Ankasa Exploration Base: A Memorandum of Understanding will be agreed between the WD and an NGO to manage the facility. The park management will undertake regular maintenance for the first five years at which time the NGO will be expected to be responsible for the maintenance.

iii) Research facilities: A research station with accommodation facilities will be established on the recently-vacated Nkwanta Village site. A site plan and building designs have been completed.

vi) ***Tourist camps:***

- ***Existing Camp Shelters:*** The existing camps need to be completed to the same standard. All will provide sleeping accommodation, kitchens, toilets and ablutions and a source of potable water. The park management will be responsible for the regular maintenance of the facilities.
- ***Tented camps:*** In addition to the present tourist camps, there is room to expand the range of facilities to a more upmarket level. It is proposed that private sector investors be encouraged to develop one fully serviced tented camp. Ideally, this needs to be located adjacent to a special feature, such as a waterhole or other area frequented most often by wild animals. Suitable sites such as Dyer's camp will be considered.
- ***Fly-camps:*** Fly-camps, are low impact, temporary camps which can be rebuilt at another site with relative ease. They are operated as an extension to a central tented-camp operation run by a private sector concessionaire. Three fly-camps will be considered. Possible sites include Brasso Hill and the eastern boundary of Nini-Suhien National Park in the vicinity of the Dadwen Range Camp.

iv) Signs: Information signs will be erected at key places to help visitors orientate themselves, locate features of interest and to indicate the services provided, access conditions and regulations pertaining to Park use. The on-site signs will complement centralised displays such as that at the Visitor Centre.

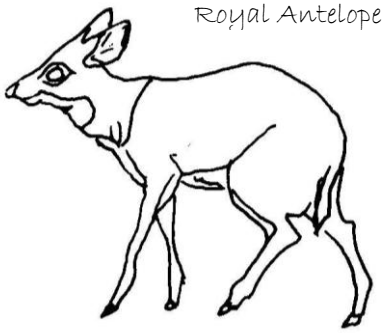
[37] Annex 22: Tourism Survey, PADP 1999 ibid; and Annex 23: Recommendations for a Tourism Concession and Management System for the Wildlife Division of the Forestry Commission, Ghana. PADP 2001

iv) Park Furniture: Picnic tables, benches and other park furniture will be provided at camping and day use areas. It will be of an appropriate design to withstand the climatic extremes. Rubbish bins will be provided at frequently visited sites.

v) Observation hides: To help improve the chances of visitors seeing game animals, it is desirable to build one or more observation, or game viewing and/or bird watching hides at suitable locations along the trails and rivers. in accordance with the recommendations made in the Studies.

vi) Viewing platforms: Viewing platforms will be erected at key places to enhance the visitor's enjoyment of interesting features such as large trees, waterfalls and pools.

vii) Observation towers: A tall, three-level (ground, mid canopy and emergent level) observation tower will be constructed near Nkwanta in *Ankasa* offering good views of the surrounding forest canopy in accordance with the recommendations made in the Studies.


Royal Antelope

viii) Feeding Stations and salt licks: Game viewing, and bird watching, for that matter, are not easy in a rainforest. Almost all of the mammals found in the forest are nocturnal, cryptic or extremely wary and shy-or all of these characteristics. Suitable feeding stations and salt licks to attract animals to specific view points will be established at appropriate sites, within *Ankasa* to help give the best possible opportunities to see animal species living in the rainforest. Feeding stations for butterflies will be installed and maintained at frequently visited areas.

ix) Trails:

- ***Nature trails:*** These will be provided at each tourist facility and be self-interpreted using labels, signage and accompanying rest spots.. Additional interpretative materials will be installed along access trails (hiking trails between facilities) to enhance the visitors' orientation/awareness.
- ***Patrol and hiking trails:*** Certain trails within Ankasa serve a duel purpose, Patrolling and Tourism. From the tourist's point of view, the ability to be able to walk through the rainforest provides one of the greatest attractions to *Ankasa*. It is therefore necessary to establish a number of interconnecting trails between existing patrol trails and tourist facilities to create shorter loops. A number of these trails have been planned. But trails are expensive in both time and resources to maintain. Management must therefore limit new trail establishment in *Ankasa*, until such a time that demand from tourists begins to exceed supply.
- ***Footbridges and walkways:*** Most of the trails established in *Ankasa* will need to cross streams and marshy areas. Simple but safe wooden footbridges and wooden walkways will be constructed to traverse these sections.

x) Volunteers: Construction and maintenance of all the above structures are expensive and use scarce resources. The use of suitably qualified volunteers/volunteer groups can make a significant contribution to *Ankasa's* development. Over the last three years a successful association with both VSO and Raleigh International has enabled much of this work to be done at limited cost to the WD and Park management. It is recommended that the management make every endeavour to continue this association with VSO and Raleigh International and actively seek out similar arrangements with other volunteer organisations and individuals.

4.5.5 Plant and Equipment

4.5.5.1 Present Situation

A considerable proportion (>50%) of the government allocated budget for *Ankasa* is spent on the operation and repair of vehicles used for administration and patrol. *Ankasa* has no garage facilities or trained mechanics. All repairs are carried out by commercial mechanics either locally or in Takoradi. All fuel is bought commercially from local suppliers as and when required. This has often led to considerable

transport delays and curtailed response time to emergencies (anti-poaching and clearing windfalls blocking roads).

Prior to 1998, *Ankasa* had only two vehicles, neither of which was functional. A Dodge pick-up that is still defunct and a Mitsubishi pick-up supplied under Forest Resources Management Programme in 1992. In October 1996 to July 1997 the latter vehicle was non-functional. During this period most administrative transport relied on three personally owned Kawasaki 100 motorcycles.

Under the PADP a Nissan Patrol twin-cab pick-up was supplied in January 1998 and three motorcycles were given to the CLOs and one to the VSO Volunteer. Ten bicycles have also been supplied. Seven have been allocated to staff on a hire purchase agreement and three are reserved for hire by tourists.

A 4-wheel drive tractor and trailer, with back-hoe and grader blade were supplied under the PADP in 1998.

Prior to 1997 there was no ancillary equipment in *Ankasa*. Under PADP, 2 chain saws, a brushcutter, one Ripper saw mill and a Lucas Mill (shared with Bia) have been provided along with a 7.5 KVA generator and power tools. Six GPS units, a computer and peripherals have been purchased. A camera, video camera, public address system, TV and video have been supplied along with office furniture and air conditioners. Gas bottles and burners have been installed in the camps as well as solar panels and lights. Fire extinguishers have been placed in all camps and buildings.

4.5.5.2 Management Prescriptions

Implementation: Further purchases and replacements of plant and equipment are needed to permit efficient management of *Ankasa*. Desirable additional equipment, including the staff transport recommended in Section 4.3.2.3 iii) (d) includes:

- Motor bikes for the Rangers
- Bicycles for the staff and for tourist use
- the provision of a 'Jungle Buster', or similar, for regular removal of vegetation from the roads
- a small compactor to enhance road maintenance.
- a boat suitable for patrolling the Tano river,
- canoes or rubber raft for the Suhien River for tourism purposes

4.5.6 Radio Communication Facilities

4.5.6.1 Present Situation

Prior to 1998, *Ankasa* had one HF Motorola radio that enabled daily contact with the Wildlife Department nationlly. A VHF system was installed in 1998. This consists of three handsets for patrol use, a base station at the HQ and a mobile unit in the Warden's vehicle. A solar powered repeater station was erected in the centre of *Ankasa* to provide radio reception from all points of the Reserve. Unfortunately, due to the dense and frequently wet vegetation transmission is limited.

No telephones are available in *Ankasa*. There is one radio-phone in Elubo and two in Aiyinase.

4.5.6.2 Management Prescriptions

Objectives: The prime objective is to provide an efficient communications system both for management and public safety.

i) VHF Radios: An integrated system of communication between mobile units, base stations and head quarters must be established as a priority. Three additional base stations have been purchased but need to be installed. They will be positioned at Nkwanta, Ankasa Gate and Breproh. Two more units need to be supplied for Elubo Gate and Brasso Hill.

Poor reception needs to be addressed. VRA have offered to supply a 30m mast to replace the 6m mast currently installed. This needs to be done as a priority.

All anti poaching teams will be supplied with handsets. The current handsets will be tested once the new mast is erected. If they are still inefficient then the handsets will be upgraded. Ten units will be needed. Radios must be regularly maintained. A maintenance contract should be let with the supplier.

ii) Telephone: Radio-phones should be installed at the Head quarters and the Range quarters. In the interim a field telephone could be installed between the two sites along the power line.

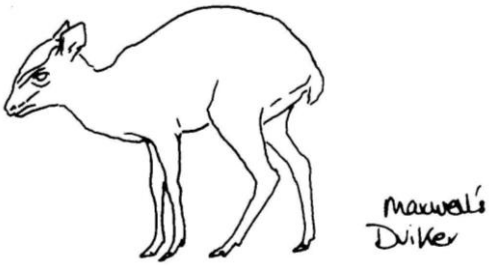


Plate 7: Footbridge on nature trail

Plate 8: Bamboo Cathedral Tourist Camp

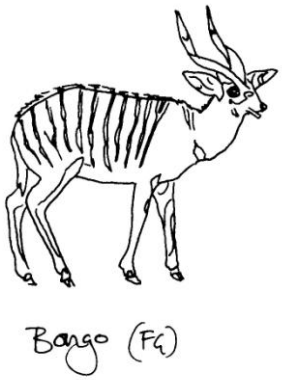


Plate 9: Ankasa River Camp

4.6 RESEARCH AND MONITORING

4.6.1 Background

As already highlighted in Section 2 (Faunal Descriptions), almost every taxonomic group has received very limited or no research and monitoring inputs, neither from Wildlife Division nor external academic institutions, locally based as well as international. This chapter aims at addressing this unhealthy situation, which poses severe constraints to the desired effective protection of vulnerable species important for conservation. In line with this, it is crucial that any such efforts *must* be geared towards a basic Wildlife Division-based low-cost monitoring and research system to ensure long-term viability and continuity to achieve long-term conservation objectives. Expensive and sophisticated monitoring schemes that depend on future high inputs cannot be supported – Wildlife Division is unlikely to meet the inputs necessary in the long term. Management will seek to promote externally funded research schemes by improving research facilities in the centre of the reserve. These infrastructural inputs are dealt with elsewhere in this Plan.

4.6.2 Previous Management

i) Wildlife Division Based Inputs: Presently, monitoring or research effort in *Ankasa* is unorganised and carried out on *ad hoc* basis. Patrolling staff are neither trained nor equipped with even basic knowledge or know-how on monitoring or research techniques. High-ranking officers mainly undertake the limited research conducted in addition to their normal administrative duties. They are all too often responsible for the research organisation and arrangements for funding. Due to these constraints, the scientific value and standard of these efforts are limited and discouraging to the researcher/officer concerned. Recognising this, the WD has recently appointed a Research Officer and also established a Biodiversity Monitoring Unit to enhance biodiversity research in Ghana in collaboration with other institutions both local and International. The Unit has conducted a one-month biodiversity monitoring training course at *Ankasa* for twelve Rangers from different WD protected areas throughout Ghana.

ii) Academic Institutions – Local and International: Currently, no local or international institutions are formally involved in any long-term research or monitoring schemes. However, some research has been undertaken by Forestry Commission officers from the Resource Management Support Unit (RMSC), Kumasi. Potential national institutions are the Institute of Renewable Natural Resources (IRNR) at the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi as well as botanical and zoological departments of University of Ghana, Legon (UG) and University of Cape Coast (UCC).

International researchers of varying competence have frequently visited *Ankasa*, mostly on a short-term basis. In recent years these have included: Cambridge Expedition (UK) – birds and mammals (1989); Ph.D-student (Denmark) – birds and mammals (1993); University of Bergen expert team and Zoology Department/UGL (Norway) – insects (1993); IUCN expert (Denmark) – butterflies (1993-1994). Only some of these interventions had permanent Wildlife Division counterparts, all limited to technical staff. Very few of these researchers have ever sent back copies of their resultant research papers, despite the existing requirement to do so. Prospective universities to be incorporated as permanent partners could be considered, by the marketing of *Ankasa's* research facilities through brochures and/or the Internet.

A series of baseline studies have been undertaken under the PADP and these are attached as Annexes to this document.

4.6.3 Management Prescriptions

Objectives:

- To facilitate and encourage a viable long term monitoring programme.
- To identify priorities for research.
- To encourage a multi-disciplinary programme of research.
- To specifically encourage research with management implications.
- To develop institutional links with Wildlife Division for joint research efforts.

i) Implementation: PADP Extension and Phase II, will encourage and promote management related conservation research and monitoring by providing technical and logistical support to basic monitoring training programmes of Wildlife Division staff (PAMIS), as well as constructing basic research facility infrastructures at Nkwanta (Research Centre). In line with this, high priority will be given to establishment of links between Wildlife Division and national as well as international research institutions.

ii) New Approaches – The Protected Areas Monitoring Information System (PAMIS): A new system of monitoring to suit the above outlines of continuity and low cost implementation is being prepared – the Protected Areas Monitoring Information System (PAMIS). This incorporates a simple GIS approach, and will be based on existing and future trail networks as well as Wildlife Division patrolling schemes. This system will serve as the baseline information collection scheme run by the *Ankasa* Management. The structural set-up including responsibilities, target officers and requirements for training programmes and equipment, are currently being addressed by the WD and FC.

iv) Priorities for Research and Monitoring Programmes:

a) On-reserve

- Research on general ecology and behaviour of endangered species, recognised forest indicator species and popular "tourist animals".
- Research on specific habitat requirements of endangered species, recognised forest indicator species and popular "tourist animals".
- Research on plant-animal interactions in the Nkwanta succession ecotone
- Research on edge effects from VRA power line on animals and plants.
- Research on appropriate seedling collection and handling techniques.
- Research into improving tourist visitor facilities and Wildlife Division services for tourists.
- Monitoring of tourist visitor facilities.
- Monitoring of tourist visitor impacts on forest environment and wildlife populations.
- Monitoring of abundance, density and distribution of endangered species and popular "tourist animals".
- Monitoring of VRA power line canopy corridors.
- Monitoring of NTFP harvesting activities.
- Monitoring of hunting activities.

b) Off-reserve research and monitoring:

- on general ecology, habitat requirements and behaviour of uncommon species, recognised and indicator species.
- into useful wildlife species and their products and their importance to the people within the Ankasa Conservation Area.
- of bushmeat production in relation to land-use and farming practises.
- in appropriate NTFP production methods in relation to land-use and farming practises.
- of bushmeat consumption in selected communities.
- of bushmeat trade and marketing in selected communities.
- of abundance, density and distribution of common bushmeat species.
- in sustainable hunting methods.
- in cost-benefit analysis of hunting methods.
- in appropriate nursery techniques of seedlings/cuttings/seeds from on-reserve.

Plate 10: ***Psychotria ankasensis*.** This ground cover plant endemic to *Ankasa* is being grown for export by local farmers as a household plant through an agreement with Seramis, part of the Masterfoods GmbH group.

4.7 INTERPRETATION, TOURISM AND EDUCATION

4.7.1 Information and Interpretation

4.7.1.1 Background

Tourists to the Ankasa Protected Area are keen to learn more about the rainforest: Its flora and fauna, its functions and importance. Interesting facts, statistics or anecdotes will also greatly enhance a visitor's appreciation of the site. This is very important in the reserve, for many of the points of interest will not be immediately apparent to the uninformed: Tiny parasitic flowers, animal tracks and the benefits from certain plant species, are all too easily overlooked by the casual visitor.

4.7.1.2 Previous Management

Until recently the only form of interpretation available to the visitor, was through the medium of a guided walk accompanied by one of the Wildlife Guards. The quality of this experience varied widely, depending on the guide's interpersonal skills, knowledge and duration of service in this protected area.

4.7.1.3 Management Prescription

Objectives: To bring the Ankasa Forest alive to visitors. To enhance their experience of the forest by instilling a sense of wonder, magic and place through a multi-sensory approach. Essentially, to make visitors fall in love with the forest, understand its complexity, and care about its sustainable future.

i) Visitor Centre: The interpretation boards and layout at the centre are in an advanced phase of development and need to be installed. The associated restaurant and nature trails are an integral part of the interpretation and need to be developed accordingly. A concession for the management of the restaurant and associated souvenir shop needs to be finalised in accordance with the recommendations of the Tourism Concessions Plan[38].

ii) Ankasa Exploration Base: This is primarily for educative purposes, it may also be possible to create a small interpretative display for passing visitors, but this must not replace the function of the visitor centre at Ankasa Gate

iii) Community interpreted sites: It is recommended that communities living adjacent to Ankasa be encouraged to provide useful interpretation of wildlife resources as well as other historical sites within *Ankasa* to be made available to visitors at the Centre. These interpretation examples could feature subjects such as the use of medicinal herbs, edible plants, hunting methods and so on.

iv) Interpretive signs: To assist the tourist in self-guided trails, a comprehensive signage program be provided. This will include interpretative text and illustrations. Suggestions and designs for such a system have been prepared and now requires implementation[39].

v) Publications: A wide variety of publications are envisaged for dissemination among tourists. These will include visitor maps, interpretative booklets on self-guided trails, checklists for birds, mammals etc, educational pamphlets, and leaflets containing guidelines on health, safety etc. These should be prepared from existing reports and surveys, and from future research. They should be produced by the Wildlife Education Unit in Accra.

vi) Tourist Guides: A cadre of suitably trained, skilled and licensed Tourist guides, comprising certain Wildlife Divisional staff and/or individuals drawn from local communities, will be established in *Ankasa.*

[38] Annex 23: Recommendations for a Tourism Concession and Management System for the Wildlife Division of the Forestry Commission Ghana. PADP 2001

[39] Annex 24: Recommendations for the Visitor Interpretation in the Ankasa Conservation Area, PADP 2001

4.7.2 Tourism

4.7.2.1 Recreational Activities:

Hiking has and clearly will be the main activity for visitors to Ankasa. This has and will undoubtedly be closely linked to other activities, such as research, game viewing, bird watching, butterfly watching and the simple and relatively unique experience of a rainforest.

4.7.2.2 Previous Management:

Visitor use of *Ankasa* in the past has been mostly for research, with the odd tourist on an occasional and opportunistic basis. These visitors would be accompanied into the forest with an armed Wildlife Guard(s), who would try to assist the visitors' various wishes. The trips followed no set pattern or procedure, but were arranged on an *ad hoc*. basis and the unexpected visitor could expect confusion and bureaucratic delay during the process of obtaining entry.

4.7.2.3 Management Prescriptions

Objectives: To provide a comprehensive and satisfying choice of recreational experience to enhance the visitor's enjoyment and understanding of the forest, while at the same time providing a source of revenue to *Ankasa* and local communities.

i) Research: One form of wildlife-and nature based tourism, is based on scientific research undertaken in Protected Areas. The WD will facilitate this by a standardising the procedure for project approval and establishing an appropriate fee structure.

ii) Hiking: In general walking through the rainforest is a relatively safe activity. Much of the enjoyment of a rainforest is being able to wander quietly through the forest, either alone or with a group of friends. It is recommended that the use of park guides should not be compulsory for nature trails, as the presence of a guide, may well detract from the visitor's experience. Guides must be used on overnight hikes and designated hiking trails.

iii) Wildlife viewing: Game viewing and bird watching in the forest will mostly be done on foot, this activity will be conducted almost entirely during the day and should be linked to the various observation points and feeding stations along or beside the trails. Opportunities, however, must be made available to visitors to take part in night walks. For night walks however, groups of a maximum of eight people, should be accompanied by at least one park guide, and an experienced night hunter. The Wildlife Division would provide the necessary torches. An appropriate charge for all these services would be made.

iii) Mountain biking: It is recommended that either the Wildlife Division or a local entrepreneur provide mountain bikes for hire by visitors. The depot would be at Ankasa Gate and hire could be on an hourly or daily basis and subject to a deposit. Bikes would be restricted to a limited number of trails and main tourist roads.

iv) Bicycle rickshaws: It is recommended that either the Wildlife Division or a local entrepreneur provide a minimum of five rickshaws, operated by local community residents, for hire by tourists. The depot would be at Ankasa Gate and hire could be on an hourly or trip basis and restricted to the main tourist roads.

***v)* Canoeing:** There is an opportunity to allow canoeing to a limited extent, along the Suhien River once the VRA road is opened. It is recommended that either the Wildlife Division or a local entrepreneur as part of a concession agreement provide canoes for hire by visitors.

vi) Angling: It is recommended that sport fishing will be permitted at a limited number of sites in *Ankasa*. Fees, permits and bag limits will be set by the Warden and adherence to a strict code of conduct be required.

4.7.2.4 Tourism Infrastructure:

For Tourism infrastructure including accommodation, trails and viewing stations, see Section 4.5.4.2.

4.7.3 Education

4.7.3.1 Background

With *Ankasa* being the only Wet Evergreen Rainforest and having the highest biodiversity rating in the country, there is the need for that awareness, as well as the understanding of the role of such a Protected Area, to be created for the field staff, local communities, District Administration and visitors.

4.7.3.2 Previous Management

i) On-reserve: There was no active education or informative programme in Ankasa. Until November 2000, there was no central area for visitors to meet. Information in the form of leaflets, signboards, species lists or other guides did not exist No educational staff were employed.

There was no mechanism to allow local communities access to the protected area to engender a feeling of ownership or to foster understanding of the importance of the forests. Local communities, often ignorant of the role of the protected area, have often, due to the forest destruction off-reserve, never been in primary forest before. Others may have in the past and could have a deep nostalgia for primary forest

The capacity of the Wildlife Division in terms of Education and interpretation was limited.

- When visitors arrive there was little for them to see in the way of interpretation.
- The Wildlife Division staff were not trained specifically to deal with visitors.
- There was a lack of environmental awareness amongst staff who interacted with the public.
- Information on flora and fauna was not available for visitors.
- There was no means by which schools and other visitor groups could stay in the protected area and make use of its facilities.

ii) Off-reserve: The WD through PADP recognised a need to rationalise the role of conservation education. The Protected Area's responsibilities towards education were seen to be quite simple. The purpose of an education programme is to educate society on the ecology and natural history of the rain forest. Society should respect the Protected Area because they appreciate it and perceive benefit in doing so. One of those benefits is the use of the Area as an educational resource where people can go and learn about the forest, ecology and generally appreciate natural history.

Education off-reserve should not be seen as a means to avoid addressing major conflicts between the Protected Area and the local population. The perceived ignorance of the Protected Area's neighbours is often not due to a lack of knowledge about ecology, rather it is a result of those people's logical response to existing pricing and tenurial systems. Therefore, programmes which seek to take a conservation message to the communities themselves in fact reinforce the communities' perception that the "conservationists" do not know what they are talking about. In sum:

- Conservation education can be perceived to be an institutional requirement that a compliant community may barter for certain developments.
- The area in question is large and logistically difficult to service.
- The shortage of human resources within the Wildlife Division will lead to competing roles for the Community Wildlife Officer.
- The very diffuse nature of the settlements coupled with the Protected Area circumference mean that Community Wildlife Officers can not expect to reach everybody through meetings in central locations.

4.7.3.3 Management Prescriptions

Objectives: The primary objective is to give guidance and offer interpretative and educational services and facilities to groups and individual visitors. It is also important to increase the level of environmental awareness in all staff of *Ankasa;* to develop a cadre of professional staff for all interpretative and educational programmes and facilities within the Conservation Area, and to provide logistical and

technical support to these staff. The community based wildlife management programme should be discussed and refined through dialogue with communities facilitated by the fieldwalker programme[40].

Implementation:

- Establish a visitors centre at Ankasa Gate.
- Source and engage a suitable experts to design the interpretation for the Visitors Centre.
- Conduct a training needs assessment amongst WD staff at the Conservation Area in basic ecology, and develop a comprehensive training programme to address these needs.
- A non-governmental organisation should be engaged to develop a training course in all interpretative and educational programmes.
- Establish a facility (the Ankasa Exploration Base) to accommodate children of school going age from the surrounding communities.
- Source and engage a suitable non-governmental organisation to run the Exploration Base.
- Produce quality brochure for Ankasa in both English and French. These should be contracted out to printers to ensure quality.
- Establish a cadre of fieldwalkers to support the community based wildlife management programme.
- Identify a non-governmental organisation to take up the provision of technical support to the Community Wildlife Programme, while the Wildlife Division provides logistical support.

Plate 11: Ankasa Exploration Base
Operated with the support and sponsorship of Masterfoods GmbH

[40] Annex 13: Conservation Education Programme, Vol. 1.PADP 1998

4.8 DISTRICT INTEGRATION

4.8.1 Background

Integrating the management of Protected Areas with the relevant District Administration has become of increasing importance for the Wildlife Division. The Forest and Wildlife Policy, 1994, makes provision for the inclusion of people in both the management of the Protected Areas and their greater responsibility and authority over the off-reserve natural resources (including wildlife). The current legislation, however, falls short of these objectives and will need to be addressed by the Wildlife Division. Currently the only revisions to the Wild Animals Preservation Act since 1961 have been the inclusion of National Park boundaries and the inclusion of CITES information in compliance with Ghana's international obligations under this Convention. The 1961 Act was intended to "consolidate and amend the law relating to wild animals, birds and fish and to continue the observance of the Convention signed on the nineteenth day of May, 1900."

A major reason why district integration has become important to the Wildlife Division is the limited capacity within the Division to implement its statutory duties, i.e. enforcement of the Wildlife Act in most of the 110 Districts within Ghana. With the decentralisation process, under Act 462, the powers of the Wildlife Division and the management responsibilities of the Division in areas outside of Protected Areas, i.e. "off-reserve", ceased to exist and were transferred, theoretically, to the District Assembly. This transfer of responsibility has been poorly understood and communicated. The DA should form an environmental sub-committee with representation from the WD. This committee should set the licensing and regulatory conditions for wildlife management within the District. Though the Act was passed in 1992, no enabling L.I for the Act was established and hence, to a great extent, implementation has been minimal. Devolution of authority and responsibility for wildlife has been the subject of much discussion and has not yet been resolved. The result is that little has changed on the ground and the Wildlife Division is still perceived as the responsible authority. Indeed, in respect of the issuance of hunting licences the Division still maintains this role.

The conflict between the Wildlife Division and people is highest around the Protected Areas where, with an increasing demand for land to farm, the Protected Area is seen as a source of new land, which could be made available for farming. Further, resources, which once existed on land off-reserve now can only be found on land within the Protected Area. With no tangible benefits from the Protected Area the local farmers often enter the Protected Area in order to access a range of resources, from wildlife to other forest products. The incentive to do this is fuelled by a scarcity of these resources on their own land due to poor management and destructive land use practices and a consumptive or financial reward to be obtained from the use of these resources taken from the reserves.

The Wildlife Division staff are charged with protecting these resource and it is this function that creates conflict with those living on the Protected Area boundary. While enforcing the law, the Division staff are placed in the position of having to arrest people from neighbouring farms. At some of the remote stations staff are often dependent on the neighbouring farms for food and supplies. For the staff their law enforcement function presents them with a dilemma in making an arrest. The result is that the staff may turn a blind eye to "illegal" resource use by members of neighbouring communities.

The conflict that arises is an inevitable outcome of the disharmony between the recognised needs of the local people and the Wildlife Division as laid out in the 1994 Policy and the current legislative framework that the staff are required to enforce. The legislation should be seen as an enabling tool to allow the desired changes envisaged in the policy to be translated into actions on the ground. But when that legislation is highly prescriptive and not in keeping with the spirit of the policy there is a disharmony in which wildlife is the first to lose.

The inability of the Wildlife Division to fulfil its national mandate has led to difficulties in the manner in which the Division relates to the general public. With only 15 protected areas (effectively the only Wildlife Division offices outside Accra) and no Regional or District offices, the ability of the Division to conduct its statutory licensing and regulation duties has been severely restricted. As such it has been

regarded as fundamentally unfair that a bushmeat trader must travel long distances, often some hundred kilometres or so, simply to obtain a license to trade. With such barriers to legal trading ordinary people become "criminals" by default.

There have been attempts by the Division to address these problems, most notably through the Wildlife Development Plan 1998-2003[41]**.** However, institutional changes and budgetary constraints have prevented the recommendations of this plan from being implemented as envisaged. The Division has reassessed its capacity within the current institutional framework and funding constraints. This reassessment has also seriously considered the role that the Division will fulfil in the management of off-reserve resources. A priority for the Division remains the development of a management system that ensures the conservation and integrity of *Ankasa* in the national and global interest while assisting the aspirations of park neighbours through a beneficial and symbiotic relationship with neighbouring communities.

To achieve this, the Division recognises the importance of legal access to wildlife resources off-reserve and the beneficial impact that the sustainable use of these resources holds for rural livelihoods. The Division recognises the following principles to be critical in this regard:

1. Effective management of wildlife is best achieved by giving it focussed value for those who live with it. People seek to manage the environment when the benefits of management exceed the costs. Simply put if the income/protein benefit from wildlife exceeds the cost of crop damage then people will tolerate and conserve wildlife.

2. Differential inputs must result in differential benefits. This principle relates to the question "value for whom?" The answer is – those who have the resources and pay for its existence. At a national level the Wildlife Division has been recognised as the custodian of wildlife Protected Areas and the need to return revenues generated by these Protected Areas to the Wildlife Division is widely accepted as sound economics. In "off-reserve" situations it is equally important to recognise that the farmer is the *de facto* custodian of wildlife and should be the principal beneficiary for wildlife on his/her land.

3. There must be a positive correlation between quality of management and the magnitude of benefit. The differential input requiring differential benefit involves not only the assets and costs mentioned above, it also incorporates management costs, both quantitative and qualitative. A fundamental policy objective is to provide the motivation for good management; thus policy should ensure that good management pays. Failure to encourage and reward good management will result in "mining" of the resource for short-term gain.

4. The unit of proprietorship should be the unit of production, management and benefit. This means that the unit of decision making must also be the same as the unit that manages and benefits (the farmer). This component is fundamental to any "off-reserve" resource management regime. However, it is recognised that due to issues of scale and the mobile nature of wildlife resources mechanisms that allow for collective management decisions need to be used. These mechanisms generally exist within the community and need to be identified.

5. The unit for collective management should be as small as practicable and functionally efficient within ecological and socio-political constraints. From a social dynamics perspective scale is an important consideration; large-scale externally imposed structures tend to be ineffective, increasing the potential for corruption, evasion of responsibility and lethargy in respect of broad participation. Where new collective management structures are based on existing management structures and are at a scale that ensures regular contact of the members, it becomes possible to enforce conformity to rules through peer pressure and existing mechanisms that control individual actions through collective means.

With significant conceptual changes within the Division and with the adoption of the above principles the Division has committed itself to developing *Ankasa* as an integral part of a much wider programme of land use based on the conservation and sustainable use of natural resources. The alternative of developing and protecting *Ankasa* as an ecological island is widely regarded as unsustainable in the long term.

4.8.2 Previous Integration

Ankasa was established in 1976 and involved the payment of compensation to the Traditional Land Owners (see 2.1.1(b) and Appendix B), alienating the land and abrogating their traditional rights to land

[41] PAMWCP, Wildlife Development Plan 1998 – 2003, Vol. 4: Community Conservation, Wildlife Department, Accra, December 1997.

use. The current management practice is based on securing the reserve through a law enforcement system that uses a team of wildlife officers stationed at several places in the reserve and charged with powers of arrest for persons found entering the park illegally. These powers of arrest also extend to areas outside of the Protected Area, for offences such as the killing of wildlife on neighbouring farms. As mentioned earlier there are significant constraints in relying on this type of law enforcement alone. In particular, this type of management tends to be highly labour-intensive and expensive. Over 90% of the annual budget for *Ankasa* is spent on salaries, which represents a minimum man-power cost of ¢200,000/km^2. Evidence to date shows that a reliance on this type of management in the Protected Area has not significantly reduced the threat of illegal resource use within the reserve and there is no evidence to show that it has had any positive effect on containing illegal resource use off reserve.

Until recently, there has been little effort to integrate either on- or off-reserve management activities with local government structures. The authority to issue and collect revenue from bushmeat trading licences has been decentralised to the District Assembly. However, this has not been well co-ordinated and little or no revenue has been generated under this scheme.

4.8.3 Management Interventions

There are three interrelated areas of management in respect of the resource reserve, the surrounding district and community activities:

- **Protected Area management**: The development of an off-reserve community programme should not be viewed as revocation of the conservation objectives for the reserve. The enforcement of law and control over access to the resources of the reserve is critically important. However, the manner of enforcement and the relationship between the Wildlife Division staff and their neighbours needs to be addressed.
- **Off-reserve community based natural resource management systems**: The development of *Community Resource Management Areas (CREMAs)* will form the basis of the off-reserve program that will allow neighbouring communities to access and benefit from the resources on their own land
- **Conditional access to on-reserve resources by communities**: Limited access to the resources of *Ankasa* by communities will be permitted provided it is conducted in a manner that promotes a co-operative relationship between the Protected Area and the community without endangering the integrity of *Ankasa's* boundaries or any of its resources. The limited access refers to materials for propagation of the desired materials (seeds, cuttings and seedlings) and not to commercial extraction.

4.8.3.1 Protected Area Management and District Integration

The management of *Ankasa* and its integration with district activities falls into two categories. The first is the manner in which the Protected Area relates to local government structures through the District Assembly and the second is how the Protected Area relates directly to surrounding communities.

i) Integration with the District Assembly: The District Assembly will play an important role in the development of the CREMAs through its ability to set and pass by-laws. The District Assembly also has important sub-committees, such as the Environmental Committee. It is important for the Warden and the Community Wildlife Officer to maintain a close dialogue with the District Assembly, particularly with the following officers: District Chief Executive, District Planning Officer and the District Education Officer (in respect of the outreach programme and Exploration Base).

The District Assembly is also represented on the Protected Areas Management Advisory Board (PAMAB). This board will be mandated to:

- examine community/individual resident requests for propagation material from *Ankasa*;
- arbitrate in conflicts between *Ankasa* management and the surrounding communities;
- serve as a forum to create stronger linkages between relevant stakeholders.

ii) Law enforcement, Wildlife Division Staff and Community Relations: It is this area that poses a considerable challenge to any protected area manager. The need to firmly enforce the law without

alienating surrounding communities is dependent on clear guidelines being given to WD staff and close dialogue with communities clearly outlining the rules regarding access to the reserve.

To achieve this the following needs to be done:

a) Game Guard Training: The field staff will receive training on how they should interact with members of the public. This training is intended to supplement the conventional wildlife and law enforcement training that field staff already receive. The training component involving community relations should be carried out by the CWO and should include:

- explanation of the off-reserve programme, the rationale behind it and why it is important for the long-term conservation of *Ankasa*;
- basic sensitivity towards the community. In this aspect, field staff need to understand the position of surrounding communities. The CWO should organise staff dispositions to enable members of the field staff to be included in meetings held with community members.

In addition, under the direction of the Warden, field staff require an in-service training program that:

- ensures a clear understanding of the law, local wildlife regulations and by-laws and arrest procedures as determined by law. It is extremely important that the field staff follow nationally prescribed arrest procedures to ensure proper convictions in court.
- emphasises the importance of staff conduct off-reserve. A code of conduct for personnel when off-reserve (covering both on- and off-duty) needs to be developed as a priority.

b) Community Liaison: Members of the *Ankasa* staff will be selected and tasked with a community liaison role. This will be backed up with training in communication and conflict resolution, carried out under the direction of the Community Wildlife Officer. These staff will be tasked with visiting communities on a regular basis to promote *Ankasa* and the role of the Wildlife Division. They will also respond to complaints from the communities following problem-animal incidents and conflicts between Protected Area staff and the community.

A rotation of these trained individuals should be made so that each group of children from the surrounding communities visiting the Ankasa Exploration Base would come into contact with one of them. The Exploration Base also affords the opportunity to explain to these children the role of the Wildlife Division in the protection of natural resources and the need to have Protected Areas and laws for conservation.

4.8.3.2 Community Based Natural Resource Management

A major component of the Protected Areas Development Programme is geared to developing mechanisms for the sustainable use and management of natural resources outside of protected areas. The rationale applied is, that if a protected area increasingly becomes an ecological island, the pressure from neighbouring communities to utilise the otherwise scarce natural resources contained within it will eventually overcome the ability to protect these resources. Community based natural resource management (CBNRM) is essentially a revision of existing land use practices. This is achieved by integrating the use of natural resources into existing land use and agricultural practices. A major reason for the loss of natural resources is the "tenure" status of these resources. For the most part, natural resources are considered as common property with no incentive for individuals to conserve them. The "common" status of these resources is often reinforced by legislation that vests the ownership of these resources with the state, the result is that these resources are used and replaced by other land use practices where the individual has a greater degree of tenurial security. For wildlife, a further complicating factor is in the "nature" of the resource; wildlife is mobile and does not recognise farm boundaries and it is difficult to identify individual animals as belonging to any one person. Wildlife in these circumstances still requires a collective decision making process.

In adopting a CBNRM approach for resources off-reserve the Wildlife Division is developing a process based on the establishment of Community Resource Management Areas (CREMAs). The CREMA defines the "community" and area of management. The decision making body is the Natural Resource Management Committee (NRMC) and the composition of this will vary among different communities. The CREMA and the NRMC are not an abandonment of control, rule or regulation but a transference of

this responsibility to a structure and level of organisation that is in a position to enforce rule and regulation in a manner considerably more effective than state enforcement.

The Wildlife Division plays a critical role in the development of the CREMA and the Division has established a unit in Accra to oversee this development for *Ankasa* and other protected areas. The principal officer responsible for facilitating the development of the CREMA is the Community Wildlife Officer. This officer is responsible for:

- Conducting background research to determine the mechanisms used by the community in collective decision making.
- Gathering baseline data on the nature of the resource base and current modes of use by the community.
- Identifying external factors that are influencing resource use, such as the presence of external registered hunters or poachers in the case of wildlife.
- Holding awareness meetings with the Traditional Authority, District Assembly and community to introduce the CREMA concept.
- Developing, with the support of the Accra based Unit, the Natural Resource Management Committee, with its appropriate constitution.
- Facilitating the development of the NRMC constitution and any other rules deemed necessary by the community and local stakeholders.
- Facilitating communication with other stakeholders, including other government agencies and the District Assembly.
- Assisting the community in developing an internal monitoring programme for resources used by the community and acting as a focal point for any technical assistance provided in this regard.
- Developing and running a monitoring program for the Wildlife Division. This program will be used to gauge the effectiveness of the CREMA and to rapidly identify problem areas that may require detailed attention and/or external intervention from the Accra based support Unit.
- Ensuring that the Warden and other field officers are well informed on the progress and constraints being faced in the CREMA.
- To make recommendations to the PAMAB as required on the use of on-reserve resources by members of the community.
- To participate as required by the Warden in meetings of the PAMAB.
- Ensuring that the District Assembly is well informed of developments in the CREMA and wherever possible involving Assembly staff in CREMA activities.
- Ensuring that the Traditional Authority, from Divisional Chief down, is well informed of developments in the CREMA and that they are incorporated into the planning and implementation of the CREMA.

4.8.3.3 Conditional Access to On Reserve Resources by Communities

The use of resources from the reserve and the possibility of sharing revenue generated by the reserve with surrounding communities are envisaged as mechanisms for ensuring that they maintain a stake in retaining the integrity of *Ankasa*. The reserve can act as a pool of resources that communities have exhausted in their own areas. These resources may therefore be considered as parent stock for reintroduction off-reserve. The control of resource use by communities will need to be closely monitored and this will be the responsibility of the Senior Range Supervisor and the Community Wildlife Officer reporting in this instance to the PAMAB. The use of resources will be governed by the PAMAB. The PAMAB will be comprised of relevant stakeholders from national to local level. In particular, the role of the Western Nzema Traditional Council is recognised in respect of the Ankasa Resource Reserve.

The responsibility for establishing the PAMAB will rest with the Wildlife Division and its terms of reference will include:

- To ensure adequate representation of interests of all significant stakeholders in *Ankasa*.
- To determine the manner of use of any resources from the Protected Area.
- To arbitrate in the event of any serious disputes between Wildlife Division staff and communities.

A framework for the Protected Area Management Advisory Board and a draft constitution is given in Appendix F.

SECTION 5 MILESTONES AND SCHEDULES

5.1 INTRODUCTION

Effective management requires a complete listing of necessary milestones that mark the attainment of the Plan. Sections 1 to 4 of this Management Plan present the guiding principles, policies and proposals for the management of the Ankasa Conservation Area over the next three years. This Section considers all the Management Prescriptions recommended under the various headings in Section 4. These are summarised by sub-section and recommended phasing for each is given. The Plan has been based on the continuation of PADP. There will be a bridging Phase before PADP II begins in 2002. Those milestones that have or will be reached in Phase I are indicated accordingly as are those that should be reached in the Bridging Phase and PADP II. The tasks and budgets necessary to reach each milestone are left to be devised by the *Ankasa* Management Team on an annual basis.

Before the majority of these tasks can be implemented each task must be described in detail in the Annual Work Plan/Cost Estimate (AWP/CE) outlined in Section 6 to this plan. The Management Team should always remember that very few of these tasks stand alone and that usually they are dependent upon, or are a prerequisite for, at least one other task. The timing of one task therefore often depends on the completion of another. Many tasks are also seasonally dependent, especially in the high forest zone with extensive and high rainfall. Therefore the AWP/CE should consider the complex interaction of task order including their relationship to each other, seasonality, resource availability and other management priorities before establishing a detailed task schedule. The detailed guidelines in Section 6 will assist the Team to carry out this activity.

5.2 MAJOR PRIORITIES

This Plan has identified three major areas of concern that are absolutely crucial to its successful implementation. Management should pay particular attention to achieving the milestones associated with these priorities, even at the expense of all others.

1. **Infrastructure:** Unless the required buildings, trails and other facilities are put in place, many of the recommendations for the development of *Ankasa* will be unattainable.
2. **Staffing:** It is imperative that the required staff are recruited or assigned as soon as possible, in order that the required management systems can be developed and monitored.
3. **Legislation:** Many of the recommendations in this Plan, particularly those for District Integration, are based on the Wildlife Policy (1994). This Policy, and therefore many of the initiatives of this Plan, are still unsupported by appropriate laws as the expected legislative changes have yet to be made. It is imperative that appropriate legislative change, both nationally and at the District Administration be enacted.

5.3 MILESTONES

The following Milestones are the accountable outcomes of the recommendations made in the various parts of Section 4. The rate, number and distribution of achieved milestones will be a valuable tool for management to assess their progress in implementing the Plan and form the basis of reports to the WD and donors.

Table 15: Milestones for Management Plan Accomplishment

Section	Milestone	*Phasing*		
		PADP I	***Bridging***	***PADP II***
4.1 Planning and Procedure		X	X	X
	• Annual Work Plan produced	X	X	X
	• Park Management Meetings held quarterly	X	X	X
	• Staff Appraisal conducted annually			

Section	Milestone	*Phasing*		
		PADP I	***Bridging***	***PADP II***
4.2 Specific Area Management	• Areas of specific management determined	X		
	• Management prescriptions for each area described	X		
	• Guidelines for sanitation and vehicular movements devised	X		
	• Guidelines for sanitation and vehicular movement implemented		X	
	• Maintenance schedules for roads, tourism trails & camps and patrol trails and camps designed		X	
	• Maintenance programmes implemented			X
	• Monitoring program of VRA power line road and corridor management initiated	X		X
4.3 Administration 4.3.1. Systems	• Headquarters complex (HQ) constructed		X	
	• PAMIS established	X	X	
	• Range and beat system of camps and trails established	X		
4.3.2. Staffing 4.3.2.1 Levels	• Staffing levels increased to meet proposed numbers		X	
	• Proposed staff structure established		X	
4.3.2.1 Training	• Definitive training program designed	X		
	• Training program implemented		X	
	• System for fast-tracking/promotion designed		X	
	• System for fast-tracking/promotion implemented			X
4.3.2.3 Welfare	• Staff housing constructed		X	X
	• Health clinic constructed in Dadwen			X
	• Station vehicles purchased	X		X
	• Monthly running costs for vehicles calculated	X		
	• Station motorcycles purchased	X		
	• Monthly fuel allowances calculated	X		
	• Hire- Purchase system for bicycles established	X		
	• Maintenance checks/reports for bicycles designed		X	X
	• Bicycle maintenance system established		X	
	• Uniforms and boots issued annually	X	X	X
	• Equipment issued	X		
	• Loss and damage reporting system for equipment, uniforms and boots established		X	
	• Policy addressing health issues developed		X	
	• First aid training completed		X	X
	• HIV/AIDS awareness training completed		X	X
	• Policy addressing food/patrol rations designed		X	X
	• Policy on firearms use developed		X	X
	• Health policy implemented			X
	• Food policy implemented			X
	• Firearms policy implemented			X

Section	Milestone	Phasing		
		PADP I	***Bridging***	***PADP II***
4.3.3 Financial Administration 4.3.3.2	• Accounting and Stores unit filled and established.		X	X
	• A revenue collection system, with gate clerks categorised as accounts clerks and responsible to the Accountant authorised and established		X	X
4.3.4 Routine Operations	• *Routine Operations clearly defined and assigned to specific Staff*		X	X
4.4 Law Enforcement	• Bicycles provided for staff	X		
	• Motorbikes provided for rangers and senior officers	X		
	• Wildlife ranger assigned specifically to construction and maintenance	X		
	• Patrol teams formed		X	
	• Relief staff teams formed		X	
	• Programme for providing training in conflict management, firearms use, first aid, wildlife recording and PAMIS designed		X	
	• Disciplinary code devised		X	
	• Patrol trail network planned	X		
	• Camp locations identified	X		
	• Radio Hill Sub Range Camp constructed	X	X	
	• Brasso Hill Sub Range Camp constructed			X
	• Ankasa Camp constructed	X		
	• Elubo Camp constructed	X		
	• Suhien Bridge constructed			X
	• PAMIS established	X	X	
	• Disciplinary code established		X	
	• Patrol trails cut to specification	X	X	X
	• Patrol camps constructed	X	X	X
	• Bivouac camps constructed			X
	• Patrol team rotation system established		X	
	• Training programme established		X	X
	• Review of fines and penalties undertaken		X	
	• Rewards system for apprehension formalised and established			*X*
	• Legal training completed by senior officer			X
4.5 Infrastructure 4.5.1 Roads	• Access road maintenance programme agreed with District Assembly		X	X
	• Access roads in vicinity of Ankasa included in EU funded Country Support system			X
	• EU Country Support system extended to include internal roads.			X
	• Refurbishment and maintenance programme established with Feeder roads Programme			X
	• "Jungle Buster" mower or similar purchased	X		
	• Maintenance programme established			X
	• 25km of main road re-opened and maintained	X		X
	• VRA line inspection road refurbished			X
	• VRA line inspection road maintained			X

Section	*Milestone*	*Phasing*		
		PADP I	***Bridging***	***PADP II***
4.5.2 Trails Patrol Trails:	• Patrol trail network planned	X		
	• Maintenance schedule designed (PAMIS)	X	X	
	• Maintenance schedule implemented		X	X
	• Patrol trail network established	X	X	X
	• Patrol trail network mapped and plotted	X	X	X
	• Suhien Bridge constructed			X
	• Bridges and other necessary infrastructure constructed on all patrol trails	X	X	X
	• Patrol trails demarcated with grid references and directional signage installed			X
4.5.3 Regional Tourism Road Signage	• External direction signs prepared	X		
	• External signage installed		X	
	• Regional signage system promoted		X	
	• Internal signage prepared			X
	• Appropriate locations for internal signs identified	X		
	• Internal signs installed			X
4.5.4 Buildings	• Headquarters complex constructed			X
	• Staff accommodation constructed			X
	• Health clinic constructed at Dadwen			X
	• Patrol camps constructed	X	X	X
	• Bivouac camps constructed		X	X
	• Ankasa camp constructed	X		
	• Bamboo Cathedral Camp constructed	X		
	• Lophira Camp constructed	X		
	• Elubo Tourist camp constructed	X		
	• Visitor Centre constructed	X		
	• Research centre constructed			X
	• Ankasa Exploration Base constructed	X		
	• Observation hides constructed			X
	• Observation tower(s) constructed			X
	• Long term operational contract agreed with research organisation(s)		X	X
	• Buildings maintenance system designed	X	X	
	• Buildings maintenance program established		X	X
	• Private sector investors approached regarding the provision of further tourism facilities			X
	• Agreement established with private investor and plans for tourism facilities produced			X
	• Additional tourism facilities constructed			X
4.5.5 Plant and Equipment	• Two 4 -wheel drive vehicles purchased	X		X
	• Administrative Vehicle			X
	• Motorbikes for rangers purchased	X		
	• Staff bicycles purchased	X		
	• Mountain bicycles for tourism use purchased			X
	• Additional 4-WD tractor purchased			X
	• “Jungle Buster”, or similar, purchased			X
	• Small compactor purchased			X

Section	*Milestone*	*Phasing*		
		PADP I	***Bridging***	***PADP II***
4.5.6 Radio Communication Facilities	• Integrated communication system established	X	X	X
	• 30m mast installed at 'Radio Hill'		X	
	• Ankasa Base Station installed		X	
	• Nkwanta Base Station installed		X	
	• Brasso Hill Base Station installed			X
	• Radio Hill Base Station Installed			X
	• Elubo Camp Base Station installed		X	
	• Dadwen Range Camp Base Station installed			X
	• Radio-phones installed at HQ			X
	• Radio-phones installed at Range Quarters			X
	• All patrol teams supplied with handsets			X
	• Maintenance contract with supplier established			X
4.6 Research and Monitoring	• Research Centre at Nkwanta constructed		X	X
	• GIS based PAMIS produced			
	• train Wildlife Division patrol staff in use of the PAMIS	X		
	• Staff trained in interpretation and management of use of PAMIS data.	X		
	• PAMIS. Implemented and expanded	X	X	X
	• Marketing document on *Ankasa* research facilities, services and fees to research institutions produced.		X X	X X
	• Website expanded to include *Ankasa* research facilities, services and fees		X	X
	• Initiate off-reserve monitoring programmes for bushmeat production, consumption, trade and marketing.		X	X
4.7 Interpretation, Tourism and Education	• Visitor centre constructed	X		
	• Interpretative materials produced	X	X	
	• Community led interpretation sites identified			X
	• Community led interpretation designed		X	X
	• Locations for observation hides, towers, feeding stations and salt licks identified	X	X	X
	• Information signs installed	X	X	
	• Publications(maps, and brochures) designed	X	X	X
	• Publications produced		X	
	• Interpretative materials installed		X	
	• Candidates for tourism guides identified		X	
	• Training program for tourism guides devised			
	• Tourist guides trained and licensed		X	X
	• Night game viewing possibilities identified	X		
	• Schedule of night walks/viewing established			
	• Mountain bikes available for hire by tourists			X
	• Observation hides and towers open to tourists		X	X
	• Salt licks/ feeding stations established	X	X	X
	• Furniture installed along tourist trails			X
	• Rubbish bins installed	X	X	X
	• Training assessment in ecology conducted		X	X
	• Local NGO identified to develop a conservation education program	X		X
	• Conservation education program established	X		

Section	*Milestone*	*Phasing*		
		PADP I	***Bridging***	***PADP II***
4.8 District Integration Training and Information Dissemination	• Training needs assessment in Community interaction and information dissemination	X		
	• Training module for Field staff designed.	X		
	• Training for Field Staff conducted	X		
	• Impact of training monitored and evaluated	X	X	X
	• Training module for Community Field Walkers designed	X		
	• Training for Field Walkers conducted	X	X	X
	• Impact of Field walker program monitored and evaluated	X	X	X
Community Based Wildlife Management	• Areas for CREMAs identified & demarcated	X	X	X
	• Structure and Composition of CREMAs determined and constitution written	X	X	X
	• Support Legislation passed		X	X
	• CREMA Licence/Permit system established	X	X	
	• CREMAs inaugurated – authority devolved		X	X
	• Exchange visit completed			X
	• CREMA activity monitored and evaluated		X	X
District and Traditional Authority Issues	• Role of District Assemblies in CREMAs established		X	
	• Supporting legislation passed		X	X
	• Role of Traditional Authorities in CREMAs established	X	X	
Ankasa Management Advisory Board	• Structure and composition of AMAB designed	X		
	• AMAB Draft Constitution accepted		X	
	• AMAB established and inaugurated			X

Plate 12: Fruiting tree at Ankasa Exploration Base

SECTION 6: ANNUAL WORK PLANS AND COST ESTIMATES

This section of the Plan outlines the important steps required for the preparation of an Annual Work Plan and Cost Estimate.

As described in Section 4.3 the Wildlife Warden prepares an Annual Budget in May each year and sends it to the Wildlife Division HQ by June. In the past this budget has been based on a proposed work plan of estimated needs. The work plan is not detailed and the budgets are simple estimates not based on hard fact. No feed back on the acceptability of the proposed budget is received and the Warden does not know what his actual budget for the coming year will be until he receives the first tranche of the Financial Encumbrance (FE) in February/ March of the following year. This has made it very difficult for him to plan and fund activities with regard to priorities or seasonal timing.

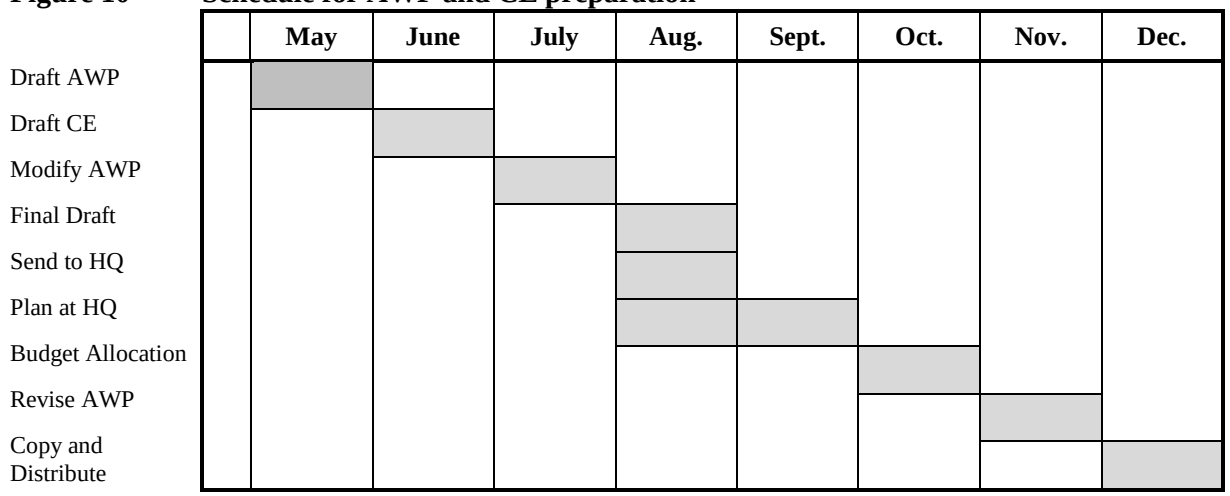
Section 4 describes the management prescriptions for all aspects of the development of *Ankasa* over the period of this Plan. The milestones that mark the achievement of each of these management prescriptions have been prioritised in Section 5. In order to assist the budget acquisition process the *Ankasa* management team can now devise the necessary tasks to achieve each milestone and match them to expected funds. From this they will prepare the Annual Work Plan and Cost Estimate (AWP/CE). Each Annual Work plan will, as it is developed, also assist in updating information on the current status of each management area of responsibility.

6.1 AWP/CE Schedule

The first draft of the AWP (see example WP/CE 2000/2001 given to each Warden) must be drawn up BEFORE the preparation of the annual Cost Estimate (see Figure 10). The Cost Estimate itself will be based on the AWP, and therefore an integral part of the AWP. Once the Cost Estimate has been presented to the Wildlife Division headquarters and the approved budget received, it will be necessary to produce a final AWP, which should then be copied and distributed throughout the *Ankasa* management and the PAMAB.

The timing of these operations is important if the AWP is going to succeed in meeting its goals. The entire process of creating the AWP is expected to last about seven months from start to finish. Whilst all Officers and senior rangers in *Ankasa* must necessarily be involved in the preparation of the AWP, it is important that a single person, or unit within the management structure, is responsible for the production of the AWP. For this reason it is considered vital that a PLANNING OFFICER, based in *Ankasa*, be appointed to co-ordinate this process. Given the man power constraints currently experienced this person should be an existing staff officer who is multi-tasked with this responsibility. S/he would work under the guidance of the Wildlife Warden.

Figure 10 Schedule for AWP and CE preparation



6.2 AWP Contents

The AWP should be based on the Management Plan, but will inevitably diverge from it. Taking account of delays and unexpected or unforeseen events and requirements. Some of the tasks necessary to achieve the desired milestones planned for completion during the course of a year can be delayed or postponed without undue problem. Others cannot be delayed and will be vital to the smooth running of *Ankasa*. In addition, further tasks can only be carried out at certain specified times during the year.

In general the AWP provides the following information:

- Statement of progress made in implementing the overall Management Plan and the previous AWP.
- Major management problems
- Limitations on effective management (e.g. administrative support, personnel housing and equipment)
- Availability and condition of existing infrastructure and equipment
- List of personnel positions, training, field distribution and an organisational diagram indicating the chain of command.
- The objectives for the coming year, expressed as the milestones referred to in the Management Plan
- Detailed work to be carried out in the coming year. This should be listed under the various section headings.
- Tools and supplies needed to carry out the planned work.
- Personnel needed to carry out the planned work with required training and staff changes.
- Suggested task priorities.
- Cost Estimate, summarising all costs, both recurrent and development, and in terms of staff and material cost.
- Suggested sources of outside funding.
- Time charts showing the schedule for all tasks/activities and the distribution of workload over the year.

6.3 Suggested Procedures for Preparation of AWP/CE

i. List the Year's Tasks
List all activities planned for the year as given in the Management Plan, plus any tasks still outstanding from the previous year and any newly-arising needs, together with priorities for management action.

ii. Give Priorities
Classify these activities according to their urgency or priority. Indicate those tasks that are vital and must be completed, those tasks that are necessary but not so urgent and those that are desirable if the time, funds and manpower are available but which could be postponed if necessary.

iii. Set Important Events
Put dates against all activities which must be completed within a given time period.

iv. Task Relationships

Indicate those activities that are dependent on the prior completion or other activities and indicate which activities they must follow. Very complex chains or task associations may result. This will assist the managers to assign realistic priorities to the year's activities.

v. Plan Schedules

Plan out all the tasks on a bar chart. This should start with the vital activities and any time constraints must be clearly marked. Gradually fill up the chart with bars so that the most important activities are fitted in first and their dependent activities are in the correct time sequence. Within the time scales given for the various tasks try to spread the workload evenly throughout the year. Keep in mind the need to have some free manpower available for emergency situations. (Some seasons will require greater emergency manpower than others, e.g. for increasing anti-poaching patrols during festive periods and unplanned expedition back-up).

vi. Plan Detailed Task Schedules

Once all activities are arranged on the bar chart, this can be used to guide management activities throughout the year and each sub-manager can start to prepare individual work schedules for each task. At the same time as scheduling each task manager must estimate the quantities of materials, consumables and other resources required to complete each activity.

vii. Calculate Required Cost Estimate

Once the detailed task schedules and resource requirements are known, it should be possible to calculate the entire budget required for the coming year.

viii. Reschedule

It is highly likely that at this stage it will be found that the required Cost Estimate is considered too large (or possibly too small). If this happens it is necessary to reschedule tasks and priorities to bring the expected funding requirements in line with the desired budget levels.

Managers may also find it useful to prepare a graph of expected expenditure throughout the year in addition to the bar charts. The manager can then at any time check actual expenditure against the expected, and thereby ensure that management activities are not only completed on time but are also within the allocated budget.

Within the above framework, specific tasks (e.g. the building of a new patrol camp or construction of a new road/trail) are likely to require more detailed planning. It is suggested that the same procedures be used, breaking the task down into its component activities and scheduling each activity. When carried out in this manner, it will be possible to make accurate estimations of the cost associated with each activity and, by adding up the cost of all component activities, the cost of the task as a whole.

6.4 Information Required for Each Task

In order to complete task scheduling as outlined above it is necessary to compile a list of information on each individual activity within the AWP. If this is carried out according to the guidelines given below (Table 6.1) it will facilitate the monitoring of progress on each task and also the final review of the year's activities, which is the first stage in the preparation of the next AWP.

Table 16 Information needed for each Management Plan task.

WHAT

1. Task Name
2. Objective of task
3. Description of task
4. Referenced in which section of Management Plan
   Referenced in which section of the AWP

WHO

5. Department/Unit responsible for implementation
6. Person/Unit responsible for organising task
7 Person/Unit responsible for implementing task
6. Person/Unit responsible for checking task

WHEN

9. Priority level
10. Status – e.g. ongoing, delayed, postponed, finished etc.
11. Connected tasks:
    tasks on which this one depends
    tasks depending on this one
12. Expected start date
    Expected duration
    Expected end date

WITH

13. Equipment requirements:
    - type
    - date needed
    - duration needed
    - section responsible

14. Materials/Consumables needed:
    - from stores
    - to be purchased
    - section responsible

15. Personal requirements
    - number of staff by skill and seniority
    - number of working hours/days/weeks for each staff
    - duration required

16. Outside contracts required
17. Outside or casual labour required

CONSTRAINTS

18. Time constraints:
    - wet or dry season activity
    - deadlines which must be met
    - cannot start until a given date
    - holidays (staff and National)
    - number of working days/hours per week
    - availability of equipment

HOW MUCH

19. Costing:
    - Staff time
    - Materials/Consumables
    - Equipment
    - Outside costs

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§§§§§§

Appendix A

WILDLIFE RESERVES (AMENDMENT) (DECLARATION OF GAME RESERVES) REGULATIONS, 1976

In exercise of the powers conferred on the Supreme Military Council by section 11 of the Wildlife Animals Preservation Act, 1961 (Act 43) these Regulations are made this 27th day of July, 1976.

1. There are hereby established Reserves to be known as " the Nini-Suhien National Park", "the Ankasa Game Production Reserve", " the Bia West Game Production Reserve" and " the Bia South Game Production Reserve", and accordingly immediately after paragraph (j) of regulation 1 of the Wildlife Reserves Regulations, 1971 (L.I. 710) as amended by the Wildlife Reserves (Amendment) Regulations, 1975 (L.I. 1022) there is hereby inserted the following:-

   (k) Nini-Suhien National Park

   (l) Ankasa Game Production Reserve

   (m) Bia West Game Production Reserve

   (n) Bia South Game Production Reserve

2. Immediately after the particulars relating to the Gbele Game Production Reserve in the Schedule to the Wildlife Reserves (Amendment) Regulations, 1971 (L.I. 710) as amended by the Wildlife Reserves (Amendment) Regulations, 1975 (L.I. 1022) there is hereby inserted the particulars specified in the Schedule to these Regulations.

3. These Regulations shall come into force on the 1st day of August, 1976.

NINI-SUHIEN NATIONAL PARK BOUNDARY DESCRIPTION

All that piece or parcel of land known as Nini-suhien National Park situated north-east of Ankasa Game Production Reserve and south-east of River Tano in the Ankasa River Forest Reserve in the Nzima Evalue-Ajomoro-Owira District of the Western Region of the Republic of Ghana the boundary whereof commencing at a pillar marked NSNP.1 which pillar marks the north-western corner of the site for Ankasa Game Production Reserve and is approximately 3,300 feet east of Longitude 2^0 40' and approximately 2,000 feet north of Latitude 5^0 30' and Latitude 5^0 30' whose intersection of the said pillar NSNP.1 is Longitude 2 ^{0}39' 28" and Latitude 5^0 20' 20" the boundary runs in a north easterly direction on a bearing of 35^0 30'--- which bearing together with all further bearings hereinafter mentioned is referred to Meridian 1 West Longitude for approximately 33,200 feet to a pillar marked NSNP.2 which pillar is on the left bank of Nini River and follows the left bank of the said Nini River in a north easterly direction upstream for approximately 4,600 feet to its confluence with Nsuta Stream to a pillar marked NSNP.2A and thence follows the aforesaid Nini River in a southerly and easterly direction upstream for approximately 51,300 feet to a pillar marked NSNP.3 which pillar is at the confluence of a stream with Nini River and a foot path from Kesekrom to Barimanso and thence on a bearing of 173^0 30' for approximately 33,400 feet to a pillar marked NSNP.4 which pillar is on the left bank of the Suhien (Sui) River in a north westerly direction downstream for approximately 81,500 feet to the point of commencement then enclosing an area of 16570.645 hectares (63,980 square miles) be the same several dimensions little more or less as the same premises are more particularly delineated and shown edged pink on the plan attached herewith.

ANKASA GAME PRODUCTION RESERVE BOUNDARY DESCRIPTION

All that piece or parcel of land known as Ankasa Game Production Reserve situated and lying and being at the northern side approximately 24,000 feet north of the motor road from Tikobo No.1 to No. 2 and south-east of River Tano and south-west of Nini-Suhien National Park in the Nzema-Evalue-Ajomoro-Owira District of the Western Region of the Republic of Ghana the boundary whereof commencing at a pillar marked NSNP.1 which marks the south western corner of the said site for Nini-Suhien National Park and is approximately 3,300 feet east of Longitude 2^0 40' and approximately 2,000 feet north of Latitude 5 30 whose intersection is the said pillar NSNP.1 of Longitude 2^0 39' 28" and Latitude 5^0 20'20" the boundary runs in a south easterly direction along the left bank of Suhien (Sui) River upstream for approximately 81,500 feet to a pillar marked NSNP.4 forming a common boundary with the aforesaid site for Nini-Suhien National Park and thence on a bearing of 173^0 30' which bearing together with all further bearings hereinafter mentioned is referred to Meridian 1 West Longitude for approximately 36,200 feet to a pillar marked AGPR.3 and on a bearing of 249 15' for 14,100 feet to a pillar marked AGPR.4 and thence on a bearing of 276^0 15' for approximately 19,150 feet to a pillar marked AGPR.5 which pillar is at the left bank of Bosoke stream downstream for approximately 6,300 feet to a pillar marked AGPR.6 and thence on a bearing of 275^0 30' for 19,750 feet to a pillar marked AGPR.7 which pillar is at the right bank of Abodyeri stream and thence on a bearing of 02^0 15' for approximately 19,200 feet to a pillar marked AGPR.8 which pillar is at the left bank of Ankasa River and thence follows the left bank of the said Ankasa River for approximately 12,400 feet to a pillar marked AGPR.9 which pillar is at the point where a foot track cross the Ankasa River and thence follows the left bank of the aforesaid Ankasa River for approximately 13,700 feet to a pillar marked AGPR.10 which pillar is on the left bank of Eguntwi stream and then on a bearing of 307^0 00' for approximately 20,000 feet to a pillar marked AGPR.11 and thence on a bearing of 345 45' for approximately 3,800 feet to a point of commencement thus enclosing an area of 34,299.459 hectares (132,431 square miles) be the same premises are more particularly delineated and shown edged green on the plan attached herewith.

Appendix B

COMPENSATION SITUATION - *ANKASA*

COMPENSATION FOR LAND ACQUISITION

Ankasa Game Production Reserve was acquired in 1976 under Acquisition Order No. L.I.1085. Nine chiefs were assessed for compensation, but three of these conceded their claims to two of the other chiefs. The six remaining claims were assessed at ¢3,554,550. Payment of ¢2,041,162.16 was made to six persons in 1978/79, leaving an unpaid balance of ¢1,513,387.84. However the payment was made to a fraudulent group organised by one of the claimants. In 1985, the tribunal formed to investigate this fraud submitted a judgement. In this judgement it was recognised that ¢1,459,618 was repaid by one defendant to the state, leaving ¢581,544.16 not accounted for. The six accused were fined a total of ¢3,600,000. Additionally they were ordered to pay a total compensation of ¢36,000,000. There is no record in the WD files of whether this was paid or not. In any case it would have been repaid to the state. Nothing was paid to the remaining five legitimate claimants.

In 1994 the chief of Samenye submitted a petition to WD on behalf of seven other chiefs, all who now claim to be legitimate claimants (this petition was unknown to the Omanhene). They asked for ¢7,000,000 each, as full settlement of the adjusted value of their claims. There is no record of any action being taken. As of March, 2000 the legitimate claimants have received no compensation whatsoever.

PADP have held a series of discussions with the Omanhene of Nzema West and his traditional council on this issue. They recognise that the original concept of compensation was a one off payment by the government through the WD, in recognition of the change in the state of the Game Production Reserve. The money was to compensate them for the loss in perpetuity of any income derived from the Reserve, such as royalties etc.

The Omanhene on behalf of his Ahenkro has publicly stated that they do not want a lump sum payment, but would much rather receive a share of the income generated by the development of the reserve, as specified under PADP. This was first mooted at the Second Ankobra Round Table Conference on Rainforest Conservation in November 1998. The Omanhene repeated this offer at the opening of the Ankasa Camp. Here, in the company of the Western Nzema Traditional Council, he stated that all claimants would forgo all outstanding compensation claims in return for a share of the income generated by the Protected Areas in perpetuity. They see participatory management as ensuring this income in the long-term and are willing to serve on a Management Advisory Board to assist with the conservation of the Reserves.

This fits in admirably with the 1994 Ghana Wildlife and Forestry policy and with the mandate of the PADP. It also solves the problem of trying to assess the current day value of the original compensation, as this would not now have to be paid. However, they do want clarification of the compensation funds paid back to the state and feel that they should receive this money for the loss of revenue in the intervening 20 years.

This issue of compensation must be settled to provide a sound basis for a long-term management plan. But this solution does need certain legislative changes to enable the Resource Reserve to retain income generated, in whatever way, through both the consumptive and non-consumptive utilisation of the resources. This would provide the basis for a distribution of royalties/dividends and ensure the co-operation and participation of the landowners in the management process.

Until late 1999, the current legislation required all revenue to be returned to the government chest. Such revenue covered an entry fee, vehicle and camping fee and revenue derived from the sale of confiscated resources. These fees were set many years ago and have not been amended for inflation, or to the real value of the activity. They are currently under review.

In September 1999 the Forestry Commission was reconstituted and the Wildlife Department was made a Division of it. Under this new situation the Protected Areas may retain the revenues earned for their support. Thus, it is now possible to consider the generous offer of the Traditional Authority. Any payment agreed would have to be made to the Stool Lands Commission.

Income received by the reserves will be deposited in the Ankasa Development Fund. This account is established at the Eco Bank Takoradi and is currently operated by dual signatories of the Executive Director of the Wildlife Division and the Team Leader of PADP. Once the PAMAB is established the Board will manage the fund. Proper safe guards and transparency would be instituted. It would be this fund that forms the basis of the payment of royalties/dividends to the participating groups, on a yet to be established *pro rata* percentage basis. The Board would also decide what proportion of this fund would be reinvested in the reserve, before deciding on the remaining amount available for dividends/royalties.

COMPENSATION FOR RESETTLEMENT

In 1976, when the Ankasa River Forest Reserve was reconstituted as the Ankasa Game Production Reserve (now Resource Reserve) there was only one village resident within the boundaries of the Reserve. Nkwanta village had been originally settled as a hunting camp in 1937 and had now grown into a farming settlement with 34 resident families. When the final litigation concerning the original Forestry reserve boundaries had been settled in 1954, Nkwanta had been given admitted farm status and the area under cultivation was given as 87 acres (36ha). A further 18 farms that had been given admitted status in 1954 were no longer active and had long since returned to forest.

The Nkwanta residents did not own the land but had settled the area with the permission of the Divisional Chief of Nuba, the Stool that traditionally owned the area. The Land Evaluation Board assessed the value of the immovable property in order that compensation could be paid in accordance with the law. However, no compensation was paid at that time and the farmers were permitted to stay and continue farming their established farms until such time as the compensation could be paid. This caused tremendous difficulties for the Reserve management as hunting activities continued virtually unchecked.

Most of the residents voluntarily re-located outside the Reserve in 1989 when the new Axim to Elubo highway was constructed and the main road through the reserve via Nkwanta was abandoned. The Chief of Nkwanta maintained his residence and occupied the land continuing to hunt and farm in protest for the non-payment of compensation. Relatives would visit and stay and a fluctuating community of up to 15 persons remained within the reserve.

In December 1997, the Land Evaluation Board re-assessed the claims of all the Nkwanta farmers. The amount identified was given as ¢189 million. The Wildlife Division had budgeted ¢60 million for compensation payments in 1998 and for a further ¢38 million in 1999. Unfortunately, this money had not been forthcoming. In September 1999, as part of the PADP initiative, the situation was mostly resolved. The Nkwanta residents, both those still living within the Reserve and those who had re-located without assistance were paid a total of ¢129 million as a resettlement allowance to assist them to meet re-location and re-establishment costs. In return, they all signed an agreement to vacate the Reserve and surrender all rights to residence, access and property in perpetuity. The Government has undertaken to pay the outstanding compensation in instalments. The final resident left the Reserve in November 1999 taking with him all his goods and chattels that were wanted. The Chief will return on a supervised visit in early 2000 for the pouring of libations and the final ceremonies governing the departure and resettlement of the village. In February 2000, the Government of Ghana made a further payment of ¢38 million that was distributed on a pro rata basis to the claimants. The balance is budgeted for payment later in the year.

OTHER CLAIMS

There is apparently one further claim on the Reserve. In January 2000, four farmers of an area south of Ankasa Gate showed a map of the southern portion of the Reserve to the Wildlife Warden. This map represented an apparent purchase of land from the Forestry Department in 1959 and covered 4 square miles of the Reserve east and west of Ankasa gate. The validity of this claim is currently being investigated.

APPENDIX C

Ankasa Regulations
(Governed by L.I.1283 of 1983 and Forestry Commission Act 1999)

Anyone contravening any of the following regulations shall be guilty of an offence and liable on summary conviction to a fine not exceeding ¢2,000,000 or to imprisonment not exceeding six months or both.

i. Killing or injuring of any animal is strictly prohibited.

ii. No object, animate or inanimate, may be removed from the PA.

iii. Three official entry points exist to the Ankasa Protected Area. These are Ankasa Gate and Elubo Gate in the Ankasa Resource Reserve; and Dadwen Gate in the Nini-Suhien National Park. No access is allowed via unofficial entry points.

iv. Entry is forbidden without payment of the appropriate fees for each 24hours or part thereof spent in the Protected Area. Receipts must be kept and may be required for checking by PA officials.

v. A 30 kph speed limit exists throughout the PA for all vehicles.

vi. Off-road driving is prohibited through the PA. Only motorbikes and bicycles may leave established roads; but these must keep strictly to specified tracks only. Animals have right of way at any time.

vii. Particular areas may be closed at certain times to all vehicles to prevent environmental damage and undue disturbance to wildlife.

viii. Any accident involving injury or death of an animal must be reported to the PA Headquarters at the first opportunity.

ix. No person may enter the PA in possession of any equipment or apparatus which may be used to hunt, capture or destroy an animal or plant without an official permit by the PA authorities.

x. Camping is only permitted in designated campsites.

xi. No fires are permitted except in designated campsites.

xii. No water body within the PA may be polluted or impounded. Water must either be brought in from outside or collected only from camps or officially designated sources within the PA. Untreated waste water may not be drained or diverted into any natural water source.

xiii. Disposal of litter is forbidden in any place other than those provided in the campsites, headquarters and other officially designated sites.

xiv. No person shall bring into the PA any wild, domestic or tame animal, or exotic plant species without the written consent of the warden.

xv. No person shall create undue noise for any reason within the PA.

xvi. No visitor shall approach any animal in the PA for any reason outside the confines of a vehicle or within 25m on the ground.

xvii. No area shall be cleared or cultivated within the PA without the written consent of the Executive Director.

xviii. Harassment of, disturbing, feeding or interference with wildlife with the PA is strictly prohibited.

Appendix D

Job Description for Staff of Protected Areas

1. WILDLIFE WARDEN

Responsible for the Protected Area and everything associated with it including implementation of the Conservation Area Management Plan
Reports to the Executive Director, Wildlife Division of the Forestry Commission.

Duties

i) Administration
ii) Supervision and training of subordinate professional and technical staff
iii) The production of an Annual Workplan for the conservation area.
iv) Representing the Conservation Area at the local, district, regional and national level.

Minimum rank

Senior Wildlife Protection Officer

Experience required

At least 5 years experience at a senior management level (Range Supervisor or above)

2. COMMUNITY WILDLIFE OFFICER

With the current re-structuring of the Wildlife Division and the changing role of the Community Liaison Officer, the CLO will now be known as the CWO. The liaison role will now be entrusted to selected field staff of the Protected Area, who show aptitude for the role and will undertake liaison work *in lieu* of maintenance tasks when they are off patrol as part of their scheduled duties.

Duties

i) Facilitate the process of establishing community-based wildlife management structures.
ii) Train all field staff in community interactions and awareness in off-reserve programmes
iii) Train selected field staff from the Protected Area tasked with the liaison role within communities.
iv) Prepare and co-ordinate a programme of Conservation Education around the Protected Area designed for peripheral communities. Liase with the Range Supervisor to release staff for Community duties. These would require the staff to:
   - Visit communities to promote the Protected Area and the role of the Wildlife Division
   - Respond to complaints from communities on Wildlife Division activities and conflicts between the protected Area and communities
   - Work closely with the any NGO running Conservation Awareness programmes and educational facilities within the environs of the Conservation Area.
v) Liase between the Wildlife Division and Traditional Authorities, District Assemblies through organised visits, workshops, durbars and other representations.

Minimum rank

Assistant Wildlife Officer

Experience required

At least 2 years experience working alongside established CWOs

3. TOURISM OFFICER

Responsible for all tourism services within the Protected Area

Duties

i) Promotion and administration of tourism concessions within the Protected Area
ii) accountability for all tourism fees to the accountant
iii) accountability and maintenance of all tourism equipment including consumables (leaflets, receipt books and visitor books)

iv) maintain directional and promotional road signage.
v) preparation and implementation of a tourism facility maintenance schedule in liaison with the Range Supervisor and Ranger (Construction and Maintenance)
vi) supervise and train tourism staff.
vii) supervise, train and license tourism guides drawn from the local communities
viii) represent the protected area on all matters concerning tourism
ix) actively promote tourism within the district, region and elsewhere as required

Minimum rank
Assistant Wildlife Officer

Experience required
At least 2 years experience working in the tourism sector

4. SENIOR RANGE SUPERVISOR
In-charge of all field activities in the Protected Area

Duties
i) To supervise the execution of the Protected Area Management Plan
ii) Carry out routine administration.
iii) Supervise the administration Staff including drivers, secretaries and storekeepers.
iv) Train technical and sub-technical staff.
v) Collate and enter all field records into the PAMIS database and make appropriate recommendations as approved by the Wildlife Warden.
vi) Serve as technical advisor to the Wildlife Warden and represent the Wildlife Warden as required.
vii) Assist in the preparation and implementation of the Annual Workplan and Cost Estimate for the Protected Area.

Minimum rank
Wildlife Protection Officer

Experience required
At least 2 years experience working as a Senior Ranger

5. ASSISTANT RANGE SUPERVISOR
Entrusted with the care and protection of a Range and in-charge of all field activities within it.

Duties
i) Train technical and sub-technical staff under him.
ii) Supervise the administration Staff including drivers, secretaries and storekeepers attached to the Range.
iii) Collate and analyse all field records and make appropriate recommendations as approved by Senior Range Supervisor.
iv) Serve as technical advisor to Senior Range Supervisor.
v) Direct the activities of Rangers assigned to the Range.
vi) Oversee the administration of the Range, including the Range stores
vii) Liaison with CWOs and Tourism Officer

Minimum rank
Wildlife Ranger

Experience required
At least 2 years experience as a Ranger

6 RANGER – Law Enforcement
Responsible for the day to day implementation of the Protected Area management Plan within a specific range, and duties assigned.

Duties

i) General supervision of junior staff and activities in the Range by
- organising anti-poaching and control operations
- organise staff deployment including relief staff for patrol teams.
- compiling and analysing records on animals and plants, weapons and stores.
- ensuring proper care and use of arms and ammunition in his range

ii) Survey and demarcate/maintain range boundaries, trails and research transects/nature trails, camps and roads.

iii) Assist in the conduction of scientific investigations and tourism operations in range.

iv) Cultivate and maintain a positive collaboration between the field staff and local communities round the Range. Must ensure a sense of strict discipline and professionalism among field staff.

v) Collaborate with Range Supervisor to prepare the annual workplan and budget estimate for the Range.

Minimum rank

Wildlife Ranger

Experience required

Wildlife Division Induction Course

7 RANGER – Construction and Maintenance

Organise and supervise all construction and maintenance tasks within the Protected Area. Responsible for the artisanal staff, local labourers and contractors.

Duties:

i) Supervise and co-ordinate the construction and maintenance of visitor facilities.

ii) Maintain staff and patrol camps, trails and roads.

iii) Train appropriate staff in specific skills

iv) Oversee the field performance of contractors and advise the Range Supervisor on satisfactory compliance with the terms and conditions of the contracts.

Minimum rank

Wildlife Ranger

Experience required

Wildlife Division Induction Course and some experience of work of a practical nature

8. PATROL TEAM LEADER

In charge of a four man Patrol team within a specific Range and Beat.

Duties

i) To lead the patrol team in anti-poaching and control operations
- ensuring proper care and use of arms and ammunition in his Patrol Team
- recording the condition of Beat boundaries, trails and research transects/nature trails, camps and roads.
- maintain the above as required as part of the scheduled off-patrol duties
- assist in the conduction of scientific investigations and tourism operations in the Beat as required and instructed by the Ranger.
- ensure a sense of strict discipline and professionalism in the Patrol Team.
- ensure that the Patrol Team handles poachers in accordance with the law and in a professional manner.
- Cultivate and maintain a positive collaboration between the Patrol Team and local communities round the Range.

ii) To compile all records/reports from patrols and give the Report to the Ranger.

iii) Reports to the supervising Ranger

Minimum rank

Senior Technical Assistant

Experience required
At least 3 years experience working as a Patrol Guard

9. PATROL GUARD

Responsible for apprehending and/or preventing law breakers and carrying out all fieldwork ordered by the Patrol Leader.

Duties

i) carry out anti-poaching control duties within and outside the Protected Area.
ii) maintain camps, trails, road and boundary lines.
iii) collect field data on biological, technical and human activity for the PAMIS.
iv) Provide security for persons and property within the Protected Area.

Minimum rank
Labourer/Technical Assistant

Experience required
Completion of the Wildlife Division's Induction Training Course

10 TOURISM GUARD

To ensure that tourists have a safe, enjoyable and educative visit to the protected Area, without harm to the environment.

Duties

i) present a professional demeanour at all times to tourists visiting the Protected Area
ii) ensure that all tourists are aware of the rules of the Protected Area and the potential dangers they may encounter and to enforce them where necessary.
iii) accountability for all tourism fees to the Tourism Officer
iv) accountability and maintenance of all tourism equipment including consumables (leaflets, receipt books and visitor books) notifying the Tourism Officer of replenishment requirements
v) implementation of the tourism facility maintenance schedule as instructed by the Tourism Officer
vi) organise Tourism guides as required by visitors

Minimum rank
Technical Assistant

Experience required
At least 3 years experience as a Patrol Guard, or within the tourism sector

11. ARTISANS

Implement construction and maintenance tasks within the Protected Area as specified by the Ranger (Construction and Maintenance).

Duties:

i) the construction and maintenance of visitor facilities.
ii) maintenance of staff and patrol camps, trails and roads.
iii) supervise local labourers staff on specified tasks.
iv) maintain their equipment in good order and notify the Ranger of repair and replacement requirements

Minimum rank
Technical Assistant

Experience required
At least 3 years experience after completing an apprenticeship or formal training

NB Non-Wildlife Division staff attached to the Protected Area, such as the Stores Officer and Accountant, are not outlined here as their job descriptions are devised by their respective departments.

Appendix E

SPECIES LIST FOR *ANKASA*

MAMMALS

Classification and nomenclature follows that of Kingdon (1997), subspecies are also listed.
(*) indicates animals confined to the Nkwanta clearing and power line.

PRIMATES	***PRIMATES***
Apes	***Hominidae***
Western Chimpanzee	*Pan troglodytes verus*
Monkeys	***Cercopithecoidea***
Olive Colobus	*Procolobus verus*
Geoffroy's Pied Colobus	*Colobus vellerosus*
White-naped (Sooty) Mangabey	*Cercocebus atys lunulatus*
Roloway's Diana Monkey	*Cercopithecus diana roloway*
Lowe's (Mona) Monkey	*Cercopithecus (mona) lowei*
Lesser Spot-nosed Monkey	*Cercopithecus petaurista petaurista*
Prosimians	***Strepsirhini***
Potto	*Perodicticus potto*
Demidoff's Galago	*Galagoides demidoff*
BATS	***CHIROPTERA***
Fruit Bats	***Pteropodidae***
Hammer Bat	*Hypsignathus monstrosus*
Gambian Fruit Bat	*Epomophorus gambianus*
Little Collared Fruit Bat	*Myonycteris torquata*
Flying Calf	*Nanonycteris veldkampi*
Zenker's Fruit Bat	*Scotonycteris zenkeri*
Dwarf Epauletted Bat	*Micropteropus pusillus*
Nectar Bats	***Macroglossinae***
Nectar Bat	*Megaloglossus woermanni*
Insect Bats	***Microchiroptera***
Vespertine bat sp.	*Vespertilionidae sp.*
White-winged Serotine	*Eptesicus tenuipinnis*
INSECTIVORES	***INSECTIVORA***
Shrews	***Soricidae***
Lesser Musk Shrew	*Crocidura poensis*
Common Musk Shrew	*Crocidura flavescens*
RODENTS	***RODENTIA***
Squirrels	***Sciuridae***
*Striped Ground Squirrel	*Euxerus erythropus*
Fire-footed Rope Squirrel	*Funisciurus pyrropus*
Green Squirrel	*Paraxerus poensis*
Small Forest Squirrel	*Heliosciurus gambianus punctatus*
Red-legged Sun Squirrel	*Heliosciurus rufobrachium*
African Giant Squirrel	*Protoxerus stangeri stangeri*
Anumalures	***Anumaluridae***
Pel's Anomalure	*Anumalurus peli*

Lord Derby's Anumalure	*Anumalus derbianus*
Dormice	***Gliridae***
Common African Dormouse	*Graphiurus murinus*
Large Dormouse	*Graphiurus hueti*
Porcupines	***Hystricidae***
Brush-tailed Porcupine	*Antherurus africanus*
Cane-rats	***Thryonomyidae***
*Marsh Cane Rat	*Thryonomys swinderianus*
Pouched Rats	***Cricetomyinae***
Emin's Giant Rat	*Cricetomys emini*
Murid Rats and Mice	***Muridae***
Edward's Long-footed Rat	*Malacomys edwardsi*
*Pygmy Mouse	*Mus minutoides*
Multi-mammate Rat	*Mastomys natalensis*
Tullberg's Soft-furred Rat	*Praomys tullbergi*
Climbing Wood Mouse	*Hylomyscus alleni*
Rufous-bellied Rat	*Lophuromys sikapusi*
*Striped Grass Mouse	*Lemniscomys striatus*
CARNIVORES	***CARNIVORA***
Mustelids	***Mustelidae***
Ratel or Honey Badger	*Mellivora capensis*
Otters	***Lutrinae***
African Clawless Otter	*Aonyx capensis*
Spot-necked Otter	*Lutra maclicollis*
Mongooses	***Herpestidae***
Slender Mongoose	*Herpestes sanguinea*
Cusimanse	*Crossarchus obscurus*
Marsh Mongoose	*Atilax paludinosus*
Genets and Civets	***Viverridae***
Blotched (Pardine) Genet	*Genetta tigrina pardina*
African Civet	*Civettictis civetta*
African Palm Civets	***Nandininae***
African Palm Civet	*Nandinia binotata*
Cats	***Felidae***
Golden Cat	*Felis aurata*
Leopard	*Panthera pardus*
SCALY ANT-EATERS	***PHOLIDOTA***
Long-tailed Pangolin	*Uromanis tetradactyla*
Tree Pangolin	*Phataginus tricuspis*
Giant Pangolin	*Smutsia gigantea*
UNGULATES	***UNGULATA***
Hyraxes	***Hyracoidea***
Western Tree Hyrax	*Dendrohyrax dorsalis*
Proboscids	***Proboscidea***

African Forest Elephant	*Loxodonta africana cyclotis*
EVEN-TOED UNGULATES	***ARTIODACTYLA***
Pigs	***Suidae***
Red River Hog	*Potamochoerus porcus*
Giant Hog	*Hylochoerus meinertzhageni*
Chevrotains	***Tragulidae***
Water Chevrotain	*Hyemoscus aquaticus*
Bovids	***Bovidae***
African Forest Buffalo	*Syncerus caffer nanus*
Bushbuck	*Tragelaphus scriptus*
Bongo	*Tragelaphus euryceros*
Antelopes	***Antelopinae***
Maxwell's Duiker	*Cephalophus maxwelli*
Black Duiker	*Cephalophus niger*
Yellow-backed Duiker	*Cephalophus silvicultor*
Ogilby's Duiker	*Cephalophus ogilbyi*
Bay Duiker	*Cephalophus dorsalis*
Royal Antelope	*Neotragus pygmaeus*
TOTAL SPECIES NUMBER	**68**

BIRDS

Classification and nomenclature follows that of Birds of Africa (Volume I-V) and Serle & Morel (1992) for groups not yet comprised by BoA. (*) indicates birds confined to the Nkwanta clearing and power line.

HERONS AND EGRETS	*ARDEIDAE*
White-crested Tiger Heron	*Tigriornis leucolophus*
Green-backed Heron	*Butorides striatus*
Great White Egret	*Egretta alba*
Ducks	***Anatidae***
Hartlaub's Duck	*Pteronetta hartlaubi*
BIRDS OF PREY	***ACCIPITRIDAE***
*Black Kite	*Milvus migrans*
African Cuckoo Hawk	*Aviceda cuculoides*
Palm-nut Vulture	*Gypohierax angolensis*
Congo Serpent Eagle	*Dryotriorchis spectabilis*
Harrier Hawk	*Polyboroides typus*
African Goshawk	*Accipiter tachiro*
Western Little Sparrowhawk	*Accipiter erythropus*
Black Sparrowhawk	*Accipiter melanoleucus*
Long-tailed Hawk	*Urotriorchis macrourus*
Cassin's Hawk Eagle	*Spizaetus africanus*
Crowned Eagle	*Stephanoaetus coronatus*
GUINEA-FOWLS AND FRANCOLINS	***PHASIANIDAE***
White-breasted Guineafowl	*Agelastes meleagrides*
Crested Guineafowl	*Guttera pucherani*
Latham's Forest Francolin	*Francolinus lathami*
Ahanta Francolin	*Francolinus ahantensis*
RAILS AND CRAKES	***RALLIDAE***
Nkulengu Rail	*Himantornis haematopus*
White-spotted Crake	*Sarothura pulchra*
LILY-TROTTERS	***JACANIDAE***
African Jacana	*Actophilornis africana*
FINFOOTS	***HELIORNITHIDAE***
African Finfoot	*Podica senegalensis*
PIGEONS AND DOVES	***COLUMBIDAE***
Green Fruit Pigeon	*Treron calva*
Blue-headed Wood Dove	*Turtur brehmeri*
Tambourine Dove	*Turtur tympanistria*
*Red-billed Wood Dove	*Turtur afer*
Western Bronze-naped Pigeon	*Columba iriditorques*
Afep Pigeon	*Columba unicincta*
PARROTS	***PSITTACIDAE***
African Grey Parrot	*Psittacus erithacus*
Red-crowned Parrot	*Poicephalus gulielmi*
TURACOS AND PLANTAIN-EATERS	***MUSOPHAGIDAE***
Blue Plantain-eater	*Corythaeola cristata*
*Violet Plantain-eater	*Musophaga violacea*

Green Turaco	*Tauraco persa*
Yellow-billed Turaco	*Tauraco macrorhynchus*
CUCKOOS AND COUCALS	***CUCULIDAE***
Red-chested Cuckoo	*Cuculus solitarius*
Black Cuckoo	*Cuculus clamosus*
Dusky Long-tailed Cuckoo	*Cercococcyx mechowi*
Olive Long-tailed Cuckoo	*Cercococcyx olivinus*
Emerald Cuckoo	*Chrysococcyx cupreus*
Klaas Cuckoo	*Chrysococcyx klaas*
Yellowbill	*Ceuthmochares aereus*
Black-throated Coucal	*Centropus leucogaster*
*Blue-headed Coucal	*Centropus monachus*
*Senegal Coucal	Centropus senegalensis
OWLS	***STRIGIDAE***
Fraser's Eagle Owl	*Bubo poensis*
Shelley's Eagle Owl	*Bubo shelleyi*
African Wood Owl	*Strix woodfordii*
NIGHTJARS	***CAPRIMULGIDAE***
Brown Nightjar	*Caprimulgus binotatus*
SWIFTS	***APODIDAE***
Mottled-throated Spinetail	*Telecanthura ussheri*
Black Spinetail	*Telacanthura mealnopygia*
Cassin's Spinetail	*Neafrapus cassini*
African Palm Swift	*Cypsiurus parvus*
European Swift	*Apus apus*
Bates' Swift	*Apus batesi*
TROGONS	***TROGONIDAE***
Narina Trogon	*Apaloderma narina*
KINGFISHERS	***ALCEDINIDAE***
Chocolate-backed Kingfisher	*Halcyon badia*
Blue-breasted Kingfisher	*Halcyon malimbica*
*Woodland Kingfisher	*Halcyon senegalensis*
African Dwarf Kingfisher	*Ceyx lecontei*
Pied Kingfisher	*Ceryle rudis*
Giant Kingfisher	*Megaceryle maxima*
White-bellied Kingfisher	*Corythornis leucogaster*
Shining Blue Kingfisher	*Alcedo quadribrachys*
BEE-EATERS	***MEROPIDAE***
Blue-headed Bee-eater	*Merops muelleri*
Black Bee-eater	*Merops gularis*
White-throated Bee-eater	*Merops albicollis*
ROLLERS	***CORACIIDAE***
Blue-throated Roller	*Eurystomus gularis*
WOOD-HOOPOES	***PHOENICULIDAE***
Forest Wood-hoopoe	*Phoeniculus castaneiceps*
White-headed Wood-hoopoe	*Phoeniculus bollei*

HORNBILLS	***BUCEROTIDAE***
White-crested Hornbill	*Tockus albocristatus*
Black Dwarf Hornbill	*Tockus hartlaubi*
Red-billed Dwarf Hornbill	*Tockus camurus*
Allied Hornbill	*Tockus fasciatus*
Piping Hornbill	*Ceratogymna fistulator*
Black-and-white-casqued Hornbill	*Ceratogymna subcylindricus*
Brown-cheeked Hornbill	*Ceratogymna cylindricus*
Black-casqued Hornbill	*Ceratogymna atrata*
Yellow-casqued Hornbill	*Ceratogymna elata*
BARBETS AND TINKERBIRDS	***CAPITONIDAE***
Naked-faced Barbet	*Gymnobucco calvus*
Speckled Tinkerbird	*Pogoniulus scolopaceus*
Red-rumped Tinkerbird	*Pogoniulus atroflavus*
Yellow-throated Tinkerbird	*Pogoniulus subsulphureus*
Lemon-rumped Tinkerbird	*Pogoniulus bilineatus*
Yellow-spotted Barbet	*Buccanodon duchaillui*
Hairy-breasted Barbet	*Tricholaema hirsutus*
Yellow-billed Barbet	*Trachyphonus purpuratus*
HONEYGUIDES	***INDICATORIDAE***
Spotted Honeyguide	*Indicator maculatus*
Lesser Honeyguide	*Indicator minor*
Least Honeyguide	*Indicator exilis*
Willcock's Honeyguide	*Indicator willcocksi*
Lyre-tailed Honeyguide	*Melichneutes robustus*
WOODPECKERS	***PICIDAE***
Buff-spotted Woodpecker	*Campethera nivosa*
Brown-eared Woodpecker	*Campethera caroli*
Golden-backed Woodpecker	*Campethera maculosa*
Cardinal Woodpecker	*Dendropicos fuscescens*
Gabon Woodpecker	*Dendropicos gabonensis*
Fire-bellied Woodpecker	*Dendropicos pyrrhogaster*
BROADBILLS	***EURYLAEMIDAE***
Rufous-sided Broadbill	*Smithornis rufolateralis*
PITTAS	***PITTIDAE***
African Pitta	*Pitta angolensis*
SWALLOWS	***HIRUNDINIDAE***
Square-tailed Saw-wing	*Psalidoprocne nitens*
White-throated Blue Swallow	*Hirundo nigrita*
WAGTAILS AND PIPITS	***MOTACILLIDAE***
*Plain-backed Pipit	*Anthus leucophrys*
CUCKOO-SHRIKES	***CAMPEPHAGIDAE***
Blue Cuckoo-shrike	*Coracina azurea*
BULBULS AND GREENBULS	***PYCNONOTIDAE***
Little Greenbul	*Andropadus virens*
Little Grey Greenbul	*Andropadus gracilis*
Yellow-whiskered Greenbul	*Andropadus latirostris*
Plain Greenbul	*Andropadus curvirostris*

Slender-billed Greenbul	*Andropadus gracilirostris*
*Simple Leaf-love	*Chlorocichla simplex*
Serine Greenbul	*Calyptocichla serina*
Honeyguide Greenbul	*Baeopogon indicator*
Spotted Greenbul	*Ixonotus guttatus*
Swamp Palm Bulbul	*Thescelocichla leucopleura*
Icterine Greenbul	*Phyllastrephus icterinus*
White-throated Greenbul	*Phyllastrephus albigularis*
Red-tailed Bristlebill	*Bleda syndactyla*
Green-tailed Bristlebill	*Bleda eximia*
Grey-headed Bristlebill	*Bleda canicapilla*
Western Bearded Greenbul	*Criniger barbatus*
White-bearded Greenbul	*Criniger calurus*
Yellow-throated Olive Greenbul	*Criniger olivaceus*
*Common Bulbul	*Pycnonotus barbatus*
HELMET-SHRIKES	***PRIONOPIDAE***
Red-billed Helmet-shrike	*Prionops caniceps*
BUSH-SHRIKES	***MALACONOTIDAE***
Sabine's Puffback	*Dryoscopus sabini*
Nicator	*Nicator chloris*
THRUSHES, CHATS AND ROBINS	***TURDIDAE***
Forest Robin	*Stiphrornis erythrothorax*
Fire-crested Alethe	*Alethe diademata*
Brown-chested Alethe	*Alethe poliocephala*
White-tailed Ant-thrush	*Neocossyphus poensis*
Finsch's Flycatcher-thrush	*Neocossyphus finschii*
Forest Scrub-robin	*Cercotrichas leucosticta*
Grey Ground Thrush	*Zoothera princei*
BABBLERS	***TIMALIIDAE***
Blackcap Illadopsis	*Illadopsis cleaveri*
Pale-breasted Illadopsis	*Illadopsis rufipennis*
Brown Illadopsis	*Illadopsis fulvescens*
Rufous-winged Illadopsis	*Illadopsis rufescens*
WARBLERS	***SYLVIIDAE***
Black-capped Apalis	*Apalis nigriceps*
Sharpe's Apalis	*Apalis sharpii*
Yellow-browed Camaroptera	*Camaroptera superciliaris*
Olive-green Camaroptera	*Camaroptera chloronota*
*Kemp's Longbill	*Macrosphenus kempi*
Grey Longbill	*Macrosphenus concolor*
Rufous-crowned Eremomela	*Eremomela badiceps*
Green Crombec	*Sylvietta virens*
Green Hylia	*Hylia prasina*
FLYCATCHERS	***MUSCICAPIDAE***
Forest Flycatcher	*Fraseria ocreata*
White-browed Forest Flycatcher	*Fraseria cinerascens*
Cassin's Flycatcher	*Muscicapa cassini*
*Ashy Flycatcher	*Muscicapa caerulescens*
Little Grey Flycatcher	*Muscicapa epulata*
Dusky-blue Flycatcher	*Muscicapa comitata*

Tessman's Flycatcher	*Muscicapa tessmanni*
Ussher's Flycatcher	*Muscicapa ussheri*
Grey-throated Tit-flycatcher	*Myioparus griseogularis*
White-spotted Batis	*Batis occultus*
Chestnut-capped Flycatcher	*Erythrocercus mccallii*
Dusky Crested Flycatcher	*Elminia nigromitrata*
Blue-headed Crested Flycatcher	*Trochocercus nitens*
Red-bellied Paradise Flycatcher	*Terpsiphone rufiventer*
Chestnut Wattle-eye	*Diaphorophyia castanea*
SUNBIRDS	***NECTARINIIDAE***
Scarlet-tufted Sunbird	*Anthreptes fraseri*
Green Sunbird	*Anthreptes rectirostris*
Collared Sunbird	*Anthreptes collaris*
Little Green Sunbird	*Nectarinia seimundi*
Olive Sunbird	*Nectarinia olivacea*
Blue-throated Sunbird	*Nectarinia cyanolaema*
Buff-throated Sunbird	*Nectarinia adelberti*
*Olive-bellied Sunbird	*Nectarinia chloropygia*
Johanna's Sunbird	*Nectarinia johannae*
Superb Sunbird	*Nectarinia superba*
WAXBILLS AND WEAVER-FINCHES	***ESTRILDIDAE***
Green Twinspot	*Mandingoa nitidula*
Crimson Seed-cracker	*Pirenestes ostrinus*
Grey-crowned Negro-finch	*Nigrita canicapilla*
White-breasted Negro-finch	*Nigrita bicolor*
Chestnut-breasted Negro-finch	*Nigrita fusconota*
Flower-pecker Weaver-finch	*Parmoptila woodhousei*
Blue-billed Weaver-finch	*Spermophaga haematina*
WEAVERS AND MALIMBES	***PLOCEIDAE***
Yellow-mantled Weaver	*Ploceus tricolor*
White-naped Weaver	*Ploceus albinucha*
Red-vented Malimbe	*Malimbus scutatus*
Gray's Malimbe	*Malimbus nitens*
Black-throated Malimbe	*Malimbus cassini*
Crested Malimbe	*Malimbus malimbicus*
STARLINGS	***STURNIDAE***
Copper-tailed Glossy Starling	*Lamprotornis cupreocauda*
Splendid Glossy Starling	*Lamprotornis splendidus*
ORIOLES	***ORIOLIDAE***
Western Black-headed Oriole	Oriolus brachyrhynchus
Black-winged Oriole	Oriolus nigripennis
DRONGOS	***DICRURIDAE***
Fork-tailed Drongo	*Dicrurus adsimilis*
Shining Drongo	*Dicrurus atripennis*
TOTAL SPECIES NUMBER	**190**

Appendix F

PROTECTED AREAS MANAGEMENT ADVISORY BOARD

Previous Perspective
The WD drew up the original aims of a Management Advisory Board (MAB) in the mid nineties as a means of enabling the 1994 Forestry and Wildlife Policy. The aims have been amended here to fit with the current institutional nomenclature. They state:

> Membership may be drawn from local government, Traditional Council(s), local Resource Management Committees, Wildlife Division, Forest Services Division, Ministry of Agriculture (Unified Extension Service). Other resource persons who may be identified as useful will be co-opted to advise on specific issues.

Objectives
- To integrate local people's concerns into protected area management in a cohesive manner
- To assist integrate the development of the protected area into the district planning system
- To win local support for practical effective and harmonious management of the protected area
- Conflict resolution

Functions
- Assist in the implementation of the management plans
- Oversee the development and protection of sacred and cultural sites
- Determine resource allocation levels and mechanisms for the harvestable resources of the protected area
- Establishment of communication channels with the view to properly educating the local communities about the protected area and conservation in general
- Assist in the formation of the local Resource Management Committees
- Draw terms of reference of the local Resource Management Committees
- Mobilisation of labour when necessary for some activities in the protected area as and when necessary

The ultimate goal of the MAB is to portray to the local people the intrinsic linkage between people and sustainable development on one hand and sound environmental practices that seek to provide natural resources in perpetuity on the other.

Current Perspective
With time and experience the aims and objectives of the Protected Areas Management Advisory Board have changed though they still encompass the spirit of the original intention.

The objectives remain the same. However, the functions change to accommodate the sharing of financial benefits with the major stakeholders. This important task has twofold purpose. Firstly, it will ensure that those who have a long-standing legal claim against the State for compensation can be reasonably recompensed through the sharing of future income from the protected area. Secondly, it will ensure that the protected area contributes to the social development of the District through the sharing of income generated by the protected area with the District Assembly. In effect this will achieve as much as is possible with a protected area the integration of the protected area into the district planning system and win local support.

However, if the authority and management of each given area (on-reserve and off-reserve) is rationalised then it becomes apparent that the community-based wildlife management takes place under a devolved authority system and a clearly delineated authority and management for the on-reserve. There is now no place for the Protected Areas Management Advisory Board in the establishment of the off-reserve Resource Management Committees. Furthermore, the mobilisation of labour should not enter into the arrangement because there is little if any incentive for people.

From this we can begin to build a picture of the type of advisory board that must be put in place and some of the issues that may arise which need to be overcome. In order to achieve these objectives:

- The Board will be convened by the Executive Director of the Wildlife Division
- The following stakeholders will have representation on the Board
  - Wildlife Division
  - District Assembly
  - Traditional Authority
- Existing forms of Administrated Funds will not be part of the financial sharing
- Other income will be regarded as Royalties and divided under the existing Royalty system
  - 40% to the Stool Lands Administration of which they take 10% (equivalent to 4% of total). The remaining 30% is then divided according to the following
    - 55% to the District Assembly (equivalent to 16.5% of total)
    - 20% to the Traditional Authority (equivalent to 6% of total)
    - 25% to the Stools (equivalent to 7.5% of total)
    - this is then distributed according to the area of alienated land formerly under each Stool
  - 60% to the Wildlife Division for use in Ankasa
- The Senior Wildlife Officer will be answerable to the Executive Director of the Wildlife Division
- The Board will be able to decide on areas of policy and management that are not the statutory duties of the Wildlife Division
- The Executive Director will have authority over the Boards decisions only insofar as they are outside the existing laws
- The Executive of the Board will be the Wildlife Division in Charge of the protected area. The Senior Wildlife Officer will be answerable to the Board for all areas within their authority
- The Executive will produce an annual Cost Estimate and Workplan that will be submitted to the Board for discussion and approval
- The Financial Encumbrance and the 60% committed funds from Royalties will fund the WP/CE
- Any funds remaining can be spent as the Board sees fit within the constraints of the existing laws
- The board will through a process of negotiation and with due consideration to the Executive, arrange for conditional access to registered CREMAs to extract agreed resources from the protected area
- Review and award concessions
- Submit audited accounts as required under the constitution of the Protected Areas Management Advisory Board

The role of the Protected Areas Management Advisory Board now becomes one which allows:

- Representation
- Transparency
- Guidance
- Conditional access

The Board should meet biannually in:

- June to review and accept the WP/CE
- December to review the work mid-term, modify any works and allocate funds

The Wildlife Division should draw up a constitution for the Board and submit it to the State Attorney's Office for review by the Legal Department. The constitution of the Board will be binding and be governed by the existing law and include rules particular to any given protected area.

CREMA	Negotiation	Protected Areas Management Advisory Board
Organises resource users into Associations on demand	Wildlife Division is Executive & provides supervision	Sets conditions for extraction of resources
Negotiates access for resources		Supervises access
Collects fee from Association		Collects fee from CREMA
Identifies areas of conflict		Identifies areas of conflict

Resource Extraction

Application
Role of the CREMA

1. Can only be made through a registered CREMA.

2. Resource users within that CREMA will have had to register themselves with the CREMA.

3. Licences will only be issued for resource extraction if the user group association has adequately demonstrated that steps have been taken to conserve/promote the resource off-reserve. These will be carried out on a case by case basis. – See "case study".

4. A fee will be set by the Protected Areas Management Advisory Board to be charged to the CREMA. The fee will include:

cost of supervision	)	
cost of conservation/protection	)	Fee
profit for re-investment/dividend	)	
cost of monitoring/survey	)	

Role of the Protected Areas Management Advisory Board
The Protected Areas Management Advisory Board will provide the technical back-up, both through its Executive and through related institutions (i.e. Forestry Commission), to:

1. adequately survey the resource
2. designate extraction zones
3. set extraction quotas
4. designate means of extraction/harvest
5. supervise extraction
6. monitor extraction

e.g.: Rattan Extraction

Step

i. Genuine demand for resource e.g. rattan is identified by farmers in Amokwa CREMA.
ii. Farmers with land suitable for rattan production approach RMC.
iii. Resource Management Committee discuss at CREMA level the demand for rattan seedlings.
iv. CREMA approaches Protected Areas Management Advisory Board for permission to extract rattan seeds/seedlings/root stock.
v. Protected Areas Management Advisory Board:
   - assesses rattan stocks on-reserve.
   - designates zones for extraction
   - sets quotas
   - sets tariff/price
vi. Farmers form an association of rattan producers that can extract rattan rootstock under the supervision of the Wildlife Division.
vii. CREMA identifies individuals who are interested in nurseries. These individuals apply for a licence to extract (under supervision by the Wildlife Division). They then sell and distribute to the other farmers.
viii. PAMAB sets method of payment i.e.
   - licence fee
   - extraction permit fee etc.
ix. Executive monitors the extraction

Appendix G

INCOME GENERATING MICRO-PROJECTS

The established thinking on Integrated Conservation and Development Programmes emphasises the role of income generating micro-projects within the communities neighbouring the protected area as an alternative to wildlife poaching and to relieve pressure on the protected area. The Protected Areas Development Programme responsible for developing this plan was no exception. During the planning phase various options to assist the local communities to develop income-generating enterprises were explored in the off-reserve areas.

This need for a programme of income-generating micro-enterprises has never been fully established as a pre-requisite for the conservation of wildlife. It is in effect a preconceived need of the local communities and rural development policy. There is no doubt that a small number of local people might benefit from such a programme but is hard to see how this will satisfy the Wildlife Division conservation aims. After careful consideration of the results of these studies it is recommended that the Wildlife Division should avoid becoming directly involved in such general programmes, as it has neither the capacity nor the experience to implement them

Furthermore, it is questionable that a programme that is designed to conserve the biodiversity of a protected area should be funding development which could well draw more people to the area to take advantage of the better income-generating opportunities. While it is morally wrong to deny people their development aspirations it is not the role of the Wildlife Division to fund developments that could potentially damage the protected area. However, there is still an argument for a programme of support to income generating micro-enterprises that are directed at the utilisation of natural resources.

This plan therefore recommends that any programme for income-generating micro-enterprises should be process rather than project orientated. It should be kept small, focused and follows these guidelines:

- Identify an agency or non governmental organisation to assist the communities
- Keep institutional control to the minimum
- Respond to demand
- Identify a funding mechanism which reduces the participants dependency on the institution or project (micro-finance or existing rural credit delivery systems)
- Clearly define the Wildlife Divisions role as a service provider or innovator
- Encourage private enterprise to become involved

Income generating micro-projects will only have a limited effect. The presence of the protected area means that the target communities are extremely dispersed. Logistically this would be very hard to implement such a programme.

Funding for any such programme should be through credit or micro-finance or through commercial investment[42]. Any direct granting of money to the community will only serve to reinforce the culture of dependency. The distribution of rural credit and any other financing should be handled by an agency that is familiar with credit systems and complies with national guidelines.

During the planning phase a company interested in developing an export market for ornamental plants began funding a programme which added to donor funds. This programme used a suitable non-governmental organisation to provide technical assistance to farmers who were to grow the plants for export. The protected area benefits from the arrangement through a marketing deal that recognises the importance of the protected area as a genetic storehouse.

This programme is outlined here as an example:

[42] Proceedings of the Round Table Meeting on Rural Credit and Micro-Financing in the Ankasa and Bia Conservation Areas, PADP April 1999 Annex Q

Masterfoods GmbH Ornamental Plant Export Programme

Objective:

- To identify species likely to be marketable in Europe in the ornamental plant trade.
- To remove small quantities of parent material from the reserve and cultivate them off-reserve to ensure future supplies and prevent over-exploitation of the parent stock on-reserve.
- The plants transferred to the off-reserve areas will be used to multiply the stock held by individual farmers. These will be cultivated in small plots in secondary and primary forest remaining off reserve.
- The farmers would produce cuttings of the plants for export.

Sustainability:
The initial parent plants will be removed from the reserve under carefully controlled conditions and the supervision of the Wildlife Division and Forestry Planning Branch (FPB). These parent plants will then be established in off reserve plots and used as multipliers to increase the off reserve stock. No further plants will be extracted from the reserve. No plants will be removed from the present National Park.

The method of cultivation will encourage farmers to maintain primary and secondary forest off reserve in order to create a microclimate for the cultivation of the plants. The process of cultivation will mimic the natural conditions as closely as possible. Essentially, the production of cuttings for export will provide the farmers with a cash crop other than cocoa that does not require the clearance of forest.

Economic viability:
Masterfoods GmbH will bear the development costs. The market for ornamental plants in Europe is enormous. The added value of a brand name "Ankasa" in terms of accessing the "green" environmentally friendly market will add value to the plants. Furthermore, they can be marketed as "fair trade" ensuring that the farmers are not exploited but receive a fair price.

After the initial development phase the individual farmers will grow the plants themselves. A Ghanaian based exporter will ship the plants and Masterfoods will buy the cuttings once on board the plane at Kotoka Airport.

- Masterfoods will pay an agreed concession fee for the use of the name "Ankasa" to the Wildlife Division.
- The farmers will sell to the exporter who will guarantee "fair trade" with them as part of the marketing and labelling.

Marketing:
Masterfoods GmbH will do the marketing in Europe. Masterfoods is a large company and is confident of the marketing possibilities of rainforest plants grown in this manner. As mentioned above use can be made of the "green labelling" and of the "fair trade" labelling. The local farmers will be able to access an export market with a crop that is environmentally sustainable.

Who does what?
Masterfoods GmbH will provide the initial funding for the research and development of the plants. This includes:

- funding the extraction from the reserve
- paying for a technician to oversee the development of the trial plots
- any technical equipment required for the development phase
- transportation of the cuttings to Europe

The Wildlife Division will:

- protect the source of the parent material
- ensure that the exclusivity of the plants collected in Ankasa is maintained
- work to ensure that their are suitable areas off reserve to act as nursery areas for the plants

Technoserve will provide:

- a technician to oversee the development phase
- provide technical and business advice to participating farmers
- assist by identifying exporters who are prepared to arrange shipping etc. long term

How will it be financed?
The development costs will be borne by Masterfoods, PADP and Technoserve. New farmers may then buy plants from the farmers who have participated in the trials and whose plants, either those grown in the trials or those bought additionally from the WD, will be used as multipliers for the future cultivation.

The shipping costs will initially be borne by Masterfoods. In the long term it is expected that the exporter who will sell to Masterfoods in Europe will carry these. Any incidental costs incurred by participating farmers will have to be covered by the individual farmers accessing credit or some such financial assistance from local financial institutions.

Who will benefit?
The establishment of a small-scale export market for ornamental plants will benefit the local farmers and contribute towards poverty alleviation. This can be further enhanced if the trade can be covered by a "Fair Trade" agreement. The Wildlife Division will benefit through fees paid by Masterfoods to maintain exclusivity and as part of their plant extraction concession. This can then be used to fund conservation of the protected area and also in part be paid to the major stakeholders through the PAMAB. Therefore income can be generated for the Government of Ghana, the Protected Area, the District Assembly and the local communities.

Masterfoods will also benefit in terms of plant sales. If it is marketed under a "Fair Trade" agreement (i.e. ensuring that local farmers are paid a fair price for the cuttings) then the local communities can share in the development and expansion of this market in Europe.

Appendix H

GUIDELINES FOR RUNNING ANKASA EXPLORATION BASE

1 Background

The conservation of the biodiversity in protected areas such as *Ankasa* depends upon a combination of effectively enforced legal protection and - more crucially in the long term - the development of a positive attitude towards the ecology of *Ankasa* among those who utilise and manage it.

The Ankasa Exploration Base is designed to provide a significant component of the Conservation Education Programme that addresses the issue of attitude change among neighbouring communities. The resource use patterns of local people and their proximity to *Ankasa* confer on them the role of *de facto* forest managers.

These guidelines have been prepared in the light of experience gained of developing a similar forest-based facility in Uganda and are based upon proven principles of *affective* education (i.e. education aimed specifically at attitudinal change).

The Ankasa Exploration Base has been constructed as part of the Protected Areas Development Programme with funding from the European Union. Additional funding for its construction and for the first four years operational cost has been donated by Masterfoods GmbH, through its subsidiary Seramis of Mogendorf, Germany and the Friends of Ankasa.

2 Aim

To provide an example of an effective residential Environmental Education Programme for the people and Government of Ghana.

3 Broad Objectives

- To inspire a positive attitude towards the ecology of *Ankasa* among young people living around *Ankasa* (at least one thousand young people during the first full year of operation*)
- To train a cadre of enthusiastic environmental educators from among teachers and volunteers who live and/or work around *Ankasa* (at least seventy teachers or voluntary leaders during the first full year of operation)
- To deepen understanding of and motivation for the effective execution of duties among Wildlife Division staff working in and around *Ankasa* (at least forty staff members during the first full year of operation)
- To deepen understanding of and motivation for the effective management of *Ankasa* among local political and traditional leaders (at least eighty leaders during the first full year of operation)

*The first full year of operation is deemed to begin from the time that all site work, establishment of forest trails and initial staff training have been completed.

4 Staff

4.1 Positions Required

Two Environmental Education Leaders (EELs) are required to manage the AEB and conduct its educational programmes. Approximately seven assistant staff, whose duties will include the preparation of food, general maintenance and site security, will be required support the EELs.

4.2 Recruitment and Training

The two EELs should be recruited nationally. It is essential that their combined language skills cover all of the languages likely to be encountered when working among communities living within ten kilometres of *Ankasa*.

Approximately four weeks of training and coaching will be required during their first year. The suggested training schedule would be a one week intensive course (including trail identification and some work with local children) followed by one week coaching during the first headteachers' course. The initial training

should focus on the principles outlined in section 7.1 below. The AEB should be run for approximately two months before providing a follow up training session to build upon that experience and to tackle any issues which might have arisen over this period.

The assistant staff should be recruited locally. The presence of men and women from a neighbouring village (rather then semi-professional English-speaking staff) will assist in building a comfortable atmosphere for visiting children, some of whom will be experiencing their first nights away from home.

5 Facilities

5.1 The Site

The site has already been identified. A clearly identified space should be set aside for playing games. It is important that the site remains open and in full view of the road – again, this is important for the peace of mind of children who will not have experienced a night in such an environment before. An open, light-filled site will provide an important relief from the trails and certain activities that will include ample opportunity for experiences of wilderness and solitude.

5.2 Buildings

Ideally built of local materials, the base should provide accommodation for up to 36 pupils and four teachers (normal groups comprise 30 pupils and two teachers) as well as stores and living quarters for two Environmental Education Leaders. The kitchen should be fitted with fuel-efficient stoves of local construction. The bathrooms and latrines could be built with durable bamboo from the forest. The main building is a large thatched room where the groups can meet, eat and shelter from rain or sun. There is no classroom other than the surrounding forest.

The arrangement of the children's sleeping quarters (six rooms with two triple-bunks per room), is planned to accommodate a group of thirty, giving boys and girls separate rooms whatever the girl/boy ratio. Teachers are accommodated at one end of each dormitory block with the EELs' quarters at the other. All accommodation faces into an open quadrangle that doubles as a secure stockade (with fire exits) during the night.

A clean water source should be available either close to the site or piped directly to the buildings.

5.3 Equipment

The most expensive (and essential) items will be two motorcycles, suitable for off-road conditions, for the EELs. Other essential items are:

- Cooking utensils and canteen equipment.
- Mattresses and bedding
- Rainproof coats, water-bottles and boots (fifty sets of various sizes)
- Small generator and computer – PC for word processing of reports and record-keeping.
- A large book of ruled paper (possibly specially bound) for recording children's pledges)
- Miscellaneous equipment for activities: e.g. buckets, plates, cans, cups, string, card (white and coloured), material for blindfolds, clear sticky-backed plastic, marker pens, hoes.

In the longer term the AEB could acquire solar panels, batteries, an inverter and lights – additional funding will be required to furnish this facility.

6 Steering Committee

A Steering Committee should have overall responsibility for the AEB - the NGO that has executive responsibilities for day-to-day management of the AEB will be answerable to the Steering Committee.

Membership of the Committee should include a senior member of the Wildlife Division (Accra), a senior member of the Ministry of Education Curriculum Development Department, one representative from each District Assembly and traditional authority (Ahenkro level) and District Education Officers.

The first task of the Committee will be draft the AEB constitution according to guidelines outlined in this manual. It is vital that the AEB's clientele and principles of operation are clarified and agreed at this stage as the constitution will be a guiding document to new members of the Steering Committee.

The Steering Committee's subsequent task will be to ensure that the constitution is observed and that the AEB is managed in an efficient and professional manner. A two-thirds majority will be required to change any element of the constitution.

Additional funding will be required to cover expenses of the Management Committee.

7 Principles of Operation and their Rationale

7.1 Guiding Principles

The following principles underpin the program of the Exploration Base:

- ***learning is experiential - using all the senses - there is no reading or writing at any point during the four day program (only the children's pledges are recorded for them in a large book)*** **-** reading and writing places a barrier between the learner and the environment which they are hoping to experience. Contrary to expectations, children who have followed this program in Uganda, with no written record whatsoever, have been able to recount their experiences in minute detail two years later. The things which we commit to paper are rarely the important things in terms of formative experiences - hence writing notes which then become the focus of what we remember can actually undermine the effect of the whole program.
- ***the program is run using the vernacular of the visiting group*** **–** there should be no need to use English except where a concept only has an English name; even so it is described in the local language: Again, English provides another barrier to learning. There will be pressure from some educationalists to use English where this is the normal medium of instruction; the answer in this case is suggested that teachers de-brief the children in English when they return to the school.
- ***the only souvenir the children take away with them is from the forest*** **-** In most cases this should simply be the experience itself although a leaf, twig, seed or stone would also be appropriate. The key here is not to provide some material evidence that inadequately expresses what the individual has really gained from the four-day program. A souvenir such as a T-shirt or cap would immediately become the focus of interest among peers back home or at school rather than focusing on the stories that the child would otherwise have to tell.
- ***the only 'classroom' is the forest*** **-** It is hard to conceive of a less 'natural' environment for a young human being than a schoolroom. Children spend far too much time in their formative years crammed into these unnatural spaces. The AEB requires a meeting space where children can share experiences in comfort, hence the need for a large room. This is a place for reflection - for completing the experiential learning cycle - but the initial stimulus is always provided by the experience in the forest or around the site.
- ***time and space is given during the program for children to reflect alone and in their own small groups*** *(children are also encouraged to reflect as a whole group through feedback sessions – this can be on anything that has struck the children, not just experiences related to the forest)* **-** Again, this allows the children to complete their experiential learning cycles in groups and individually, thus aiding knowledge building. Without this 'space' they would soon become overloaded with experiences and information.
- ***Simply implementing the program does not signify learning-*** Learning is monitored by the discussions outlined above. Care should be taken to allow and encourage the children to talk, to discuss their thoughts, feelings and reflections at the end of each day. This will indicate what the children have actually learned from the day - it will not be the same thing as what they were 'taught'.
- ***every 'lesson' the children learn is connected to their lives back home on their farms*** **-** There is little point in learning about ecology and it's inter-connections if this cannot be related to our own lives and daily experiences. Growing up in a rural economy means that these connections should be more obvious for the children around *Ankasa*, however the formal curriculum tends to separate agriculture from ecology from outdoor education, etc. Environmental education makes connections between people and their social and physical environment - a specific role of the AEB is to make connections between people and the Earth.
- ***all concepts are visualised – usually through games*** **-** Children (and the rest of us) have difficulty in conceiving of ideas that cannot be seen; we all visualise abstract concepts in our own way. By making concepts 'visible' through games, we can provide frameworks around which

learners can build their new knowledge. While this is an aid to learning, care is required to avoid over-simplifying concepts to the extent that the lesson becomes wholly inaccurate.

- ***the only schools who attend the AEB will be those whose headteachers have attended a four-day program*** - When children and teachers return from this program, they will be fired with enthusiasm and may even be eager to challenge some of the less environmentally sound aspects of the school itself. It would be a disaster if this enthusiasm were to be met with indifference or hostility by the headteacher. The headteachers' course is essential to ensure that groups return to a supportive atmosphere and that there is a clear understanding of what has happened to the group while they were away from school.
- ***the program is pre-set but open to change*** - The lessons learned on the program will be developed based on observation of initial groups and the connections which they make with their lives in the community - Initial training can only put the EELs through the motions of running the AEB. The program will develop and become established over the first six months of operation in the light of reactions and ideas from children, teachers and the AEB staff themselves.
- ***all groups attending the AEB for the first six months (except for headteachers' courses) will comprise children who live around the protected area and should include school children and groups of children who do not attend school*** - This is a local resource - the lessons are partly of a general nature but they are also about Ankasa itself; they are geared to local residents so it is essential that the program development process is carried out with this principal client group.
- ***teachers are responsible for discipline although this may be tempered by the EELs*** - It is important for the EELs to adopt the role of 'fellow explorers' when running activities and leading trails with groups. This creates a dynamic that encourages learners to observe and to share rather than adopting a passive attitude to learning. This dynamic would be severely compromised if the EEL had to step out of role to discipline the children (although experience shows that this style of education minimises the need for any disciplinary action). Naturally the EEL will take immediate action wherever the safety of an individual or the group is at risk. The EEL may need to temper the actions of schoolteachers who take an over-zealous (violent) approach to discipline as this also undermines the creation of a positive learning atmosphere.
- ***the program should be reinforced by the WD/PADP community-based program outside*** **Ankasa** - All off-reserve activity has an educational function that may either reinforce or contradict the learning gathered at the AEB. For this reason the CLOs should attend the initial EEL training program so that they can recognise and act upon opportunities for reinforcement as well as possibilities for conflict. This will suggest adjustments for both the off-reserve work and the AEB Programme. Subsequent visits by WD staff and other off-reserve workers will be required to maintain this synergy between the AEB and other educational activities.
- ***every local group is visited by an EEL before their stay*** - Visiting groups will need to be prepared for the program before they attend the Base. This will involve some initial information gathering on the part of the EELs to understand who will be attending as well as answering questions from the group. The aim here is to heighten the level of anticipation within the group and to open their minds to the unknown. Logistically it is also important to ensure that the group has gathered appropriate and adequate provisions for their stay.
- ***any practical outcomes to be followed up by the EELs are decided upon by the children themselves*** – normally on an individual basis - A clear indicator of the program's impact will be the evidence of actions carried out by individuals after they have followed the AEB Programme. These actions cannot be pre-determined by the EELs, the teachers or anyone else other than the individual children themselves. They will know what is practicable in their own case and this can be recorded for follow-up purposes.
- ***every group must be followed up within two months of leaving the AEB*** - Follow-up visits have a powerful motivational effect if they occur reasonably soon after the group has attended the Programme, however enough time should have elapsed for individuals to have acted upon their pledges and for any unforeseen outcomes to have become apparent.

7.2 Clientele

The main users of the Exploration Base should be:

- local primary schools (50% of available Programme time)

- local out-of-school youth (20% of available Programme time)
- local secondary schools (10% of available Programme time)
- Project staff: extension agents, guards, etc. (10% of available Programme time)
- Wildlife clubs (5% of the available Programme time)
- Training venue for other projects (5% of available Programme time)

The first three client groups listed above should all follow the four-day program, adjusted to suit the particular needs of the group. Other clients may use the facilities for their own customised programs.

8 Workplan

8.1 General

The four-day program begins on a Monday and ends on the following Thursday after lunch (or after morning break if the group has to travel a long distance). Fridays are kept clear for maintenance and administrative tasks.

One EEL should lead each four-day program while the other lends support where necessary and carries out pre-Programme visits to groups and follow-up visits to those who have attended the AEB in the past.

The AEB should focus on out-of-school youth during the school holiday periods.

8.2 Research

Before any program is prepared, research should be carried out to review the needs and concerns of local schools. This should involve school visits and a widely distributed questionnaire which can gather ideas from as many schools as possible on issues such as curriculum links, unsuitable periods (e.g. examination times) and possibilities for the provision of transport. Those schools that indicate a keen interest in the AEB by their prompt return of a completed questionnaire may be invited to send a group during the first six-month period.

8.3 Preparation of Trails and Activities

This should be done with the assistance of local children and adults who visit the forest as well as children from the nearest school. As far as possible, existing trails should be used. The initial training and development of trails can be carried out during the site construction phase.

8.4 Headteachers' and Schools Rota

Twelve headteachers should be invited to attend the AEB's four-day program. During this time they will discuss practicalities for their school visit and grow to understand the way the program works – often becoming quite immersed in it themselves. This guarantees that groups who attend the Base will be supported by an understanding headteacher on their return. A rota of school visits to the Base for the following twelve weeks must be negotiated with the headteachers.
The twelve-school rota forms the bulk of the AEB's workplan for a period of three months. The EEL with the appropriate language for a given group, leads the week's activities with support provided by the other EEL along the long trail.

8.5 Monitoring and Evaluation

Feedback will be gathered through a program of regular school and village visits that will include communication with local leaders and families. The EEL will take turns to carry out this task while the other runs the program at the Base.

At the end of each six-month period, a formal feedback program should be carried out. This should include semi-structured interviews with children, teachers, pupils and pupils' families in order to help the EELs to understand the strengths and weaknesses of the AEB Programme. This will involve an evaluation team comprising both EELs and the local CLO(s).

9 Draft Programme

The Exploration Base Programme draws on ideas and principles of Earth Education albeit adapted for use in this cultural context. A number of elements are derived from ideas developed in the UK while others

may be created in the light of the situation at *Ankasa*. The trails themselves should lend themselves to certain activities, many of which may be created by the EELs as they gain confidence in the approach. It would be inappropriate to provide more details at this stage as the essential ingredients of staff, client groups and actual forest have yet to be assembled.

The outline below is based on experience from the Elgon Forest Exploration Centre, Uganda:

Day One

- introductions
- name game
- talk on expectations
- exploring the Base
- short walk away from the Base
- energy flow game
  Cows Vs fou-fou: an energy flow game in which cows never win. The sun's energy is represented by water, stored in a bright yellow oil drum. The children are split into two equal teams - the *cows* and the *fou-fou*. What follows is a relay race with one child at a time taking water from the drum and carrying it in a leaky tin to a collection vessel. The leaking water represents energy loss as the organism grows and transfers the sun's energy into food. The fou-fou team has a less leaky tin because their level of energy loss is low. The cow's team carry a similar tin (representing grass) but then have to transfer this water into another tin with bigger holes in it (representing the animal) before finally depositing their water into the cows' collection vessel. The race is over when each team member has taken a turn at carrying water. The winning team is the one with most water in its own collection vessel - this is always the plant team.

  The discussion after the game is on the energy used at different trophic levels (not in those words). In the UK this game might be used to question the over-consumption of beef-burgers. Here the discussion is on the need for a balanced diet with valuable protein).
- meal
- listening to the night
- group talk on all that they have seen today, especially on their journey from home
- bed

Day Two

- breakfast
- washing and cleaning
- *Short trail* including:
  - *webbing game* in which children are assigned roles as plants and animals and linked by a ball of string – one child is assigned the role of 'tree'. When the tree is cut down, that child falls to the ground and pulls on all the strings that she is holding. As each child feels their string being tugged this means that their link in the food web is broken and they must also fall down, pulling all their connecting strings as they go. Very quickly, the whole group is brought to the ground, demonstrating the links and inter-dependence in a food web
  - the *soil factory* (rotting tree)
  - *seeds' needs* game (a game of tag in which 'seeds' (children) gather their basic requirements for growth while trying to avoid the birds, rats, etc. which the children identify as threats to seeds
- back to the centre
- lunch
- *soil making* (an impossible task in so short a time – an important lesson to learn)
- *feel a tree* (a blindfold game which demonstrates that every tree is different)
- investigations into soil
- meal
- feedback discussions
- story telling
- bed

Day Three

- *Good morning forest* (listening to the forest wake up at sunrise)
- breakfast
- washing and cleaning
- *Long trail* including:

- a *blindfold trail* (into an enclosed environment)
- rainbow game (looking for colours in the forest minutiae)
- lunch in a clearing preferably by a river
- time for solitude (children sit alone and in silence for a while)
- *a strange encounter:*

  The *strange encounter* on Day Three of the Programme is with a mysterious figure (actually a forest guard who is dressed up and hidden among the trees). He waits for the unsuspecting group to come along the trail and then berates them for making noise and coming into the forest to steal and damage its plants and animals without care.

  The initial reaction among the group is fear and panic followed by some indignation. They explain that they care for the forest and they are here to learn more. The stranger asks them to bring him the 'ingredients of soil' to demonstrate what they know. They discuss the task and perform it accurately before being allowed to pass. The figure tells them he will be watching them…

  After the trail, the EELs may well be asked about this encounter which is always the focus of that evening's discussion. The 'creature' is always given a name by the group – perhaps a cultural spirit – the EELs should never have to name it.

  If asked if the spirit is real, the EELs should turn the question back, 'What do you think?' On occasions when a teacher reports by letter that a pupil has done a great deal of positive work on their farm since visiting the Base, the EEL should be sure to mention this when he turns up at the school for a follow-up visit. If asked how the EEL knows so much – but s/he simply says, 'Someone around here let me know…'. The children's imagination take it from there….
- *smelly soups* (plant diversity expressed through smells - a cocktail of smells made from pieces of crushed plants growing around)

- return to Base
- meal
- feedback
- stories
- bed

Day Four

- breakfast
- washing and cleaning
- a last walk and think in the forest
- making pledges (these are recorded in the *pledge ledger*)
- *a gift from the forest* (children walk off to collect a souvenir – a seed, a stick, a gulp of fresh air, the memory of a sound, etc.)
- depart

10 Terms of Tender

Tenders should be invited from NGOs wishing to run the AEB for an initial two-year period. Funds (from Effem GmbH) will be made available with an option to raise further resources only in consultation with Effem (initially through PADP).

The NGO should be able to demonstrate:

- a strong track record in environmental education
- financial sustainability
- staff who possess
  - particular strengths/experience in experiential learning
  - experience of working in an African context
  - experience of working among rural communities
  - experience of running an educational centre