

THE NATIONAL PARK CONCEPT
AND ITS APPLICATION IN AFRICA

PATRICK E. SEKYI
M.Sc. (L.Arch.) Warsaw

Ph.D.
Doctor of Philosophy
Department of Architecture
University of Edinburgh
1986



DECLARATION

I certify that this thesis has been composed by myself and that all the work herein, without direct references, is my own original work.

Patrick E. Sekyi

ACKNOWLEDGEMENTS

This thesis has been supervised by Dr. J.B. Byrom, Director of Landscape Studies, Department of Architecture, University of Edinburgh. His criticisms and suggestions have been invaluable; I am profoundly indebted to him for his guidance, and I sincerely do express my deepest gratitude to him.

My profound thanks are also due to Professor C.B. Wilson, Professor of Architectural Science, University of Edinburgh, who in various ways has been a great source of help and encouragement.

I express my sincere thanks to Mr Donald Fox, Landscape Architect, and to Mr Herbie Sansum, Concession Officer, both of Yosemite National Park, California, U.S.A., and also to Mr Jack V. Houston, Crater Lake National Park, Oregon, U.S.A. They provided me with some valuable information on my research when I visited both National Parks in Summer, 1983.

My thanks are also due to my colleagues, the Postgraduate Research Students in the Department, who through direct and indirect discussions contributed to the thesis.

A study-leave was granted me by the University of Science and Technology, Kumasi, and the Government of Ghana provided me with an award to start and complete my research studies. These dispositions have been greatly appreciated.

I am greatly indebted to my wife and children who shared with me critical moments. I sincerely thank them for their support, patience, encouragement and understanding.

Finally, I dedicate this thesis posthumously to my parents, to whom it may suffice to say I owe so much.

ABSTRACT

This thesis proposes a conceptual approach to the designation of national parks in Africa and more specifically in Ghana; and which integrates the results of a comparative study of American and British National Parks.

The study considers the history of the evolution of the concept of the national park from 1872 to 1969 in the United States and Britain and shows how each produced a different concept of park in response to its individual needs. These two concepts are separately identified as the American and the British; the former being given international recognition by the international body responsible for national parks, that is, the International Union for the Conservation of Nature and Natural Resources (IUCN); but the latter not.

In the face of this official lack of recognition the study reassesses the significance of the British concept and proposes it as valid and useful outside Britain in a modified form as a tier-two category park in saving other areas of outstanding natural beauty and in a way which permits human habitation within them. The study proposes that the two concepts can coexist with each pursuing the basic objectives of conservation and recreation for the enjoyment by the public.

A hypothetical case study is then developed to test the wider validity of a tier-two designation applied to an area in Ghana, namely, Lake Bosomtwe, in the Ashanti Kingdom. The thesis examines the possible planning, development and management of Lake Bosomtwe as a tier-two National Park. It concludes that such a designation would be viable in Ghana if not in Africa at a second level within a tier-two system of designation.

<u>CONTENTS</u>	<u>page no</u>
ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
GENERAL INTRODUCTION	1.
PART I	
CHAPTER I	<u>EARLY HISTORY OF THE NATIONAL PARK</u> <u>ESTABLISHING THE CONCEPT OF THE</u> <u>NATIONAL PARK</u>
1.1	Introduction 10
1.2	Early History of National Park in the United States 11
1.3	The First National Park 12
1.4	United States National Park Service (USNPS) 13
1.5	United States National Park Values 15
1.6	Strategies and Institutional Arrangements 17
1.7	Conflicts of Interests and Dilution of Mission in a Changing Socio-Economic Climate 17
1.8	Early History of National Park in Britain 19
	1.8.1 The Addison Report 26
	1.8.2 The Dower Report 32
1.9	Summary and Conclusions 36
CHAPTER II	<u>THE IUCN'S CONCEPT OF THE NATIONAL PARK</u>
2.1	Introduction 38
2.2	The Formation of the IUCN 39
2.3	The IUCN Definiton of a National Park 40
2.4	Summary and Conclusions 47

		<u>page no</u>
CHAPTER III	<u>CONCEPTUAL DIVERSIFICATION</u>	
3.1	Introduction	49
3.2	Modern Trends and the Need for a Conceptual Diversification of the National Park Philosophy	50
3.3	The Relationships to Primitive Society	51
3.4	Changing Times	53
3.5	World Conservation Strategy	55
3.6	New Directions	56
3.7	The Approach	57
3.8	The New Concept and the Term 'National Park'	60
3.9	The Attributes of the New Concept	61
3.10	The Indigenous People	64
3.11	Summary and Conclusions	64
 PART II		
CHAPTER IV	<u>THE UNITED STATES NATIONAL PARK SERVICE</u>	
4.1	Introduction	68
4.2	The US National Parks : The Land Use System	69
	4.2.1 Natural Resources Management	73
	4.2.2 Cultural Resources Management	76
	4.2.3 Visitor Use	76
	4.2.4 Park Operations	77
	4.2.5 Development	79
	4.2.5.1 Access and Support Facilities	79
	4.2.5.2 Major Destinations	79
	4.2.5.3 The Backcountry	81
4.3	Redevelopment of Yosemite Valley	87
	4.3.1 Reclaim Areas of Outstanding Natural Beauty	91
	4.3.2 Marked Reduce Traffic Congestion	95
	4.3.3 Allow Natural Processes to Prevail	98
	4.3.4 Reduce Crowding	98
	4.3.5 Promote Visitor Understanding and Enjoyment	99

	<u>page no</u>
4.4	Yosemite Valley and Yosemite Village 100
4.5	Costs of Implementation 104
4.6	Concessions Management 105
4.7	The Management Set-Up of Yosemite National Park 106
4.8	Commitment to the Implementation of the General Management Plan 110
4.9	Summary and Conclusions 111
CHAPTER V	<u>THE BRITISH NATIONAL PARK SYSTEM</u>
5.1	Introduction 114
5.2	The Organisation of National Parks From 1951 115
5.3	The Reorganisation of the National Parks From 1974 117
5.4	The National Park Boards 120
5.5	The National Park Committee 122
5.6	The Difference Between National Park Boards and Committees 123
5.7	Development Plan System: New Form of Development Plan 124
5.8	Report of Survey 126
5.9	Survey Criteria 126
5.10	The Structure Plan 126
5.11	Relationship Between Structure and Local Plans 127
5.12	Preparation of Structure Plan 128
5.13	Public Participation of the Structure Plan 130
5.14	Approval of Structure Plan 130
5.15	The National Park Plan 131
5.16	Planning and Management 131
5.17	The Development Plan and the National Park Plan 132
5.18	The Need for Close Liaison 133
5.19	Purposes of the National Park Plan 135
5.20	Consultation During Preparation of the National Park Plan 136

	<u>page no</u>	
5.21	Review	136
5.22	The Submission of Structure Plan and National Park Plan	137
5.23	Summary and Conclusions	145
 PART III		
 CHAPTER VI <u>AFRICA'S NATIONAL PARKS</u>		
6.1	Introduction	148
6.2	The Structure of East Africa and the Great Rift Valley	149
6.3	The Climate	152
6.4	Vegetation	153
6.5	East Africa's National Parks	154
6.6	West Africa's National Parks	156
6.7	Summary and Conclusions	166
 CHAPTER VII <u>GHANA'S EXISTING TIER-ONE NATIONAL PARKS: THE CHOICE OF A TIER-TWO NATIONAL PARK CASE STUDY</u>		
7.1	Introduction	168
7.2	Ghana's National Parks	169
7.3	Description of the Six Test Areas	174
7.4	The Criteria Used to Select the Most Outstanding Area	184
7.5	Summary and Conclusions	189
 CHAPTER VIII <u>LAKE BOSUMTWE TIER-TWO NATIONAL PARK CASE STUDY: AN APPROACH TO ITS DELIMITATION</u>		
8.1	Introduction	190
8.2	The Demarcation of Lake Bosumtwe National Park Boundaries	192
	8.2.1 Options and Criteria for Selecting Lake Bosumtwe National Park Boundaries	197
8.3	Summary and Conclusions	201

		<u>page no</u>
CHAPTER IX	<u>LAKE BOSUMTWE TIER-TWO NATIONAL PARK CASE STUDY: AN APPROACH TO ITS DESIGNATION AND MANAGEMENT</u>	
9.1	Introduction	202
9.2	The Designation of Lake Bosumtwe National Park	204
9.3	An Advisory Management Committee of Lake Bosumtwe National Park	205
9.4	The Management of the Lake District National Park is Discussed in Relation to the Lake Bosumtwe National Park	206
9.5	The Lake District National Park Plan: As Discussed in Relation to the Lake Bosumtwe National Park	210
9.6	The Management of the Lake Bosumtwe National Park	220
9.7	Natural Living Resources	222
	9.7.1 Vegetation	222
	9.7.1.1 Rain Forest	224
	9.7.1.2 Mixed Communities	226
9.8	Fauna	227
9.9	Summary and Conclusions	235
CHAPTER X	<u>MAN AND MAN-MADE RESOURCES OF LAKE BOSUMTWE NATIONAL PARK</u>	
10.1	Introduction	237
10.2	Population	238
10.3	Settlement Pattern	241
10.4	The Communication System	246
	10.5.1 Perennial Plantation Farming	254
	10.5.2 Semi-Perennial Plantation Farming	258
	10.5.3 Arable Crops	259
10.6	Fishing	261
10.7	Forestry	264

		<u>page no</u>
10.8	Employment	268
10.9	Housing and Building Generally	270
10.10	Summary and Conclusions	272
CHAPTER XI	<u>BOSUMTWE CASE STUDY: HUMAN RESOURCES RELATED TO VISITORS</u>	
11.1	Introduction	276
11.2	Existing Situation	277
11.3	Visitor Pressure	278
11.4	Accommodation Facilities: Existing Situation in Lake Bosumtwe National Park and Management Plans For The Future	285
11.5	Tourism	300
11.6	Tourism From Overseas: Overseas Visitors	300
11.7	Summary and Conclusions	305
CHAPTER XII	<u>BOSUMTWE CASE STUDY: THE NATIONAL PARK'S ADMINISTRATIVE PROCESSES</u>	
12.1	Introduction	308
12.2	Staff Structure	309
12.3	Planning and Management Division	309
	12.3.1 Lake Bosumtwe	311
	12.3.2 Agriculture	311
	12.3.3 Wildlife	314
	12.3.4 Forestry	314
12.4	Information Service	316
12.5	Warden Service	318
12.6	Administration and Finance	321
12.7	The Financial Systems of Ghana, Britain and American National Parks	321
12.8	Summary and Conclusions	326

	<u>page no</u>
PART IV	
CHAPTER XIII <u>SUMMARY OF OVERALL ARGUMENTS, DISCUSSIONS</u> <u>AND CONCLUSIONS</u>	328
APPENDICES	
APPENDIX I	
THE DELIMITATION OF REGULAR AND IRREGULAR PARKS' BOUNDARIES	334
APPENDIX II	
SYNOPTIC INVENTORY OF THE PHYSICAL NATURAL RESOURCES OF THE LAKE BOSUMTWE NATIONAL PARK	371
BIBLIOGRAPHY	388

GENERAL INTRODUCTION

Recorded history does not extend back very much further than 5000 years. Shelter, subsistence and the meaning of production to man's survival, are among the most reported concepts of recorded history. These and other concepts affecting nature have had profound effect on man's present-day attitude towards nature and the ultimate goal of a worldwide system of approach to the modern development of the national park concept. The meanings we give our environment, the places we save and those we dispense with, are vital parts of the dialogue by which we search for a philosophy that will help us understand the relationship of mankind to its environment. Our relationship with the environment, like those of many other cultures, has been dialectical; and in the long history of human exploitation of Earth's resources, wild lands have rarely been adequately protected except as game reserves for the privileged.

But in spite of the plundering, we have occasionally paused to set aside places that, for one reason or another, appealed to our sense of purpose. These have been acts which transcended the purely economic needs of the moment and they began in the U.S.A., when Congress created in 1872, in the Wyoming territory, Yellowstone National Park, acclaimed as the world's first national park.

Early conservation efforts were motivated to a great extent by aesthetic considerations and a romantic conception of nature. Certainly, there is now a far more practically urgent, scientific basis for protecting natural areas, and a broadening comprehension that they are essential both to a liveable environment and to man's very survival. Conservation is more widely seen as a global requirement in which every nation has a contribution to make in its own, general and world interest.

By the turn of the present century the United States had six national parks, Canada two and New Zealand one. Africa's first national park, the Kruger National Park, in South Africa, was designated in 1926 to replace the Sabie Game Reserve established in 1898. Today Africa has 180 national parks.

After 1945, the tempo of world land conservation quickened and the management of protected areas became increasingly more professional. Particularly, in recent years as the damage being done to the environment has become evident as the concept of man's stewardship of the Earth has replaced the concept of his conquest, the protection of natural areas has become attractive politically. It is not surprising, therefore, that as wilderness has become increasingly scarce, a greater effort should have been made to preserve what remains, and that nations should have increasingly wished to preserve what helps to make them unique.

Much is owed to the few nations which foresaw the importance of the natural environment as a national heritage and thus developed the national park concept to preserve it for posterity. Today, there are at least 1,500 national parks or equivalent protected areas in some 140 listed countries, but there remain many further areas in urgent need of protection. This thesis addresses itself to the need to develop a broader concept of the national park to meet the urgent challenge of population increase upon future park designations in Africa.

The new or tier-two concept proposes that where there is an area of outstanding natural beauty considered to be suitable for the development of national park, then indigenous human habitation within it should not necessarily be seen to inhibit its designation as a national park. However, a National Park Authority should supervise the land use by the indigenous community.

By the application of this new concept it is hoped that more areas of natural beauty will be saved. It is also hoped particularly that this broader concept will operate successfully in Africa where there is urgent need for better conservation practice to save the environment, and equally urgent need to provide more land for its surging populations.

The main text of this thesis is divided into four parts.

Part I (Chapters 1, 2, and 3) moves towards defining a new approach to the national park concept intended to be used to preserve other natural areas of beauty, particularly in Africa, that fall outside the scope of the approved national park concept. That is developed as follows: Chapter 1 traces the history of the United States and British concepts of the national park, and examines the process of development of national parks in both countries, from 1872 in the United States and from 1951 in Britain.

Chapter 2 studies the International Union for Conservation of Nature and Natural Resources* (IUCN) concept of the national park promulgated in 1969 and which has become the internationally accepted concept. In further examination, the IUCN concept identifies itself with the American concept but rejects the British concept on the grounds of human habitation within its national parks.

Chapter 3 uses the evidence in Chapters 1 and 2 to justify the need for an additional concept, similar to the British concept, as an alternative measure to meet the challenges of social and economic trends within areas of outstanding natural beauty and which stand the chance of being protected as national parks. It, therefore, proposes the need for a change in the meaning of the national park concept, a change it describes as 'conceptual diversification'.

An argument is also developed in an attempt to justify the official recognition of this new concept and by the use of the term 'national park'. The argument concludes by proposing that the adoption and application of this new concept seems possibly the best solution to the present conservation programme, particularly

in Africa, of areas of outstanding natural beauty which fall outside the scope of the IUCN concept.

Part II (Chapters 4 and 5) examines the national park systems of the United States and Britain relating to park planning, development and management in order to clarify which aspects of their study are most suitable for application in Africa. Chapter 4 is a case study of Yosemite National Park and is particularly directed to the Yosemite General Management Plan 1980, which is intended to guide the overall operations of Yosemite National Park for 10 to 15 years. Yosemite's experience has developed from increasing visitor use and pressure on the Park's resources. The study draws from Yosemite's experience in handling similar problems which may arise in future in national parks in Africa, from excessive visitor use, pressure from outside on park boundaries, encroachments on parkland, poaching and so on. Chapter 5 presents a study of the British National Park system and examines the general aspects of its 'Structure Plan' and 'National Park Plan'. This study is particularly important as British National Parks have been designated on a tier-two system, and which will have an essentially greater part to play in this thesis.

Part III (Chapters 6, 7, 8, 9, 10, 11 and 12) examines Africa's contribution to the national park concept by comparing East and West Africa and shows that West Africa particularly has a great many potential areas of designation still to offer. It discusses the sort of contribution which West African countries like Ghana might provide by the application of the new concept of the national park. Chapter 6 deals with the physiographical characteristics of East and West Africa. It examines their landscape qualities related to areas of outstanding natural beauty. It observes that East Africa is far more committed to the national park programme and consequently has more and better managed national parks than West Africa. On the other hand, it shows that West Africa with its massive land area resources and enormous potential of natural areas of beauty could still designate even more national parks than East Africa, given the will by the necessary individual governments.

Chapter 7 takes up the author's own country Ghana. It lists Ghana's five existing National Parks which were designated from 1971 to 1976 under the IUCN concept and categorises them as a tier-one system of national parks. It then shows that Ghana has considerable additional areas of outstanding beauty which could be designated as national parks but with the limiting factor of human habitation in them contrary to the IUCN concept of the national park. The study evaluates six such areas from which Lake Bosomtwe is selected for test designation as a tier-two national park and as a concluding discussion case study for the purpose of this thesis.

Chapter 8 deals with the demarcation of Bosomtwe Park boundaries. A set of criteria is used upon which suitable boundaries are determined, and in the end producing a truncated triangular park shape likely to best suit its natural resources. Chapter 9 proposes a suitable draft 'management plan' referred to as 'Lake Bosomtwe National Park Plan'. It proposes Bosomtwe's designation as a tier-two park for discussion purposes. It draws upon relevant management experience of physically comparable National Parks in Britain and the United States. The proposed 'National Draft Park Plan' is divided into five sections: Section 1 which deals with the 'Natural Physical Resources is treated largely in Appendix II in order to allow the thesis to concentrate on problems of human habitation. Section 2 treats the Park's 'Natural Living Resources' and that concludes Chapter 9. Chapter 10 (Section 3 of the National Draft Park Plan) considers the resident human population and its characteristics and resources. Chapter 11 (Section 4 of the National Draft Park Plan) considers visitor and visitor access. Chapter 12 concludes the Draft Park Plan by outlining and discussing administrative processes, including staffing and finance. Part IV (Chapter 13) of the thesis concludes with a discussion of the test designation of Lake Bosomtwe and proposes it valid as a National Park within a tier-two system applicable not only in Ghana but also of likely use throughout Africa and possibly in other parts of the world.

PART I

**CHAPTER I Early History of the National Park Establishing the
Concept of the National Park**

CHAPTER II The IUCN's Concept of the National Park.

CHAPTER III Conceptual Diversification.

CHAPTER IEARLY HISTORY OF THE NATIONAL PARK ESTABLISHING
THE CONCEPT OF THE NATIONAL PARKContents :

- 1.1 Introduction
- 1.2 Early History of National Park in the United States
- 1.3 The First National Park
- 1.4 United States National Park Service (USNPS)
- 1.5 United States National Park Values
- 1.6 Strategies and Institutional Arrangements
- 1.7 Conflicts of Interests and Dilution of Mission in a Changing Socio-Economic Climate
- 1.8 Early History of National Park in Britain
 - 1.8.1 The Addison Report
 - 1.8.2 The Dower Report
- 1.9 Summary and Conclusions

CHAPTER ONE : EARLY HISTORY OF THE NATIONAL PARK ESTABLISHING
THE CONCEPT OF THE NATIONAL PARK

1.1 Introduction

It was by the isolated efforts of a few farsighted individuals and organisations that areas of wilderness and natural beauty started to be recognised and designated and protected as an essential part of man's life, experience and future destiny.

The beginning of this awareness started in Britain and in the United States almost about the same time in the 1830s. But while in the United States the value of wilderness received official recognition very much earlier in the Act of Congress of 1872 which designated Yellowstone National Park; in Britain it was longer delayed and the first British National Park, the Peak District National Park, was not designated until 1951 following the passage of the necessary legislation, the National Parks and Access to the Countryside Act, in 1949.

Chapter 1 examines the history of national parks in both countries in order to establish the significance of the national park concept. It also studies the history of the establishment of the United States National Park Service as the official body responsible for all national parks in the United States, and its early efforts to maintain both park and recreational values for the enjoyment by the public.

1.2 Early History of National Park in the United States

In the United States the idea of preserving natural areas for the enjoyment by the public started when Congress by an Act in 1832 authorised the Governor of the Territory of Arkansas, "To lease the salt springs in the said territory and for other purposes, reserving about 1,000 acres of Hot Springs for future disposal of the United States and which shall not be liable to be entered, located or appropriated for any purpose whatever" (Abrahams, 1959, p.9). And in 1865, Frederick Law Olmsted, the world's first Landscape Architect and first Superintendent of New York City Central Park, wrote a report for the Governor of California's Commission relating to the management of Yosemite Valley. This report was a classic treatise of public park philosophy and laid the groundwork for the national park concept. In it Olmsted stated:

"Thus, unless means are taken by government to withhold them from the grasp of individuals, all places favourable in scenery to the recreation of the mind and body, will be closed against the great body of the people to simply reserve them from monopoly by individuals; it will be obvious that is not all that is necessary. It is necessary that they should be laid open to the use of the body of the people. The establishment by government of great public grounds for the free enjoyment of the people under certain circumstances is thus justified and endorsed as political duty" (Fabos et al., 1968, p.43).

A few years later, these thoughts were supported by a group of men (the Washburn Expedition) exploring the natural wonders of the Yellowstone country, including the great geysers, which added that, "the region should be held in public ownership for the benefit of the many and now exploited for the benefit of a few individuals" (Coolidge, 1972, p.32). This philosophy underlies the establishment of each of the national parks added in subsequent years to the United States National Park Service (Ibid., p.32).

1.3 The First National Park

It is generally accepted that the Yellowstone Park which covers an area of nearly two and quarter million acres was the first National Park in the world. It was on 1st March, 1872, that the concept of 'national park' was first established firmly when Congress passed an Act¹ 'to set apart a certain tract of land lying near the headwaters of the Yellowstone River as a Public Park':

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled that: The tract of land in the Territories of Montana and Wyoming, lying near the headwaters of the Yellowstone river and described as follows (there follows a description of the area to which the statute applies) is hereby reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States, and dedicated and set apart as a public park or pleasuring-ground, for the benefit and enjoyment of the people: and all persons who shall locate or settle upon or occupy the same, or any part thereof, shall be considered trespassers and removed therefrom.

2. The said public park shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be the construction of roads and bridle-paths therein. He shall provide against the wanton destruction of all fish and game found within the park, and their capture and destruction for the purposes of merchandise or profit. He shall also cause all persons trespassing upon the same after the passage of this Act to be removed therefrom and generally shall be authorised to take all such measures as shall be necessary or proper to fully carry out the objects and purposes of this Act.

¹ Act to establish Yellowstone National Park, March 1, 1872 (P.L. 46-24, 17 Stat. 32).

1.4 United States National Park Service (USNPS)

By 1915 national parks in the United States of America were many and needed a single body to administer them. In January, 1915, Stephen T. Nather was appointed Assistant to the Secretary of the Interior and immediately launched a vigorous public relations campaign to persuade politicians, businessmen, writers and other influential citizens of the need for a single, adequately funded body to administer the national parks and monuments. On 25th August, 1916, Congress created in the Department of interior, a service to be called the 'National Park Service'. The Service so established, the Act¹ provides:

'shall promote and regulate the use of the Federal areas known as National Parks, monuments and reservations hereinafter specified, by such means and measures as conform to the fundamental purpose of the said Parks, monuments and reservations; which purpose is to conserve the scenery and the enjoyment of the same in such manner and such means as will leave them unimpaired for the enjoyment of future generations'.

¹ Act to establish a National Park Service, August 25, 1916 (39 Stat. 535).

The National Park Service, therefore, is thus the official body directly responsible for the US National Parks and Monuments, but is governed by or otherwise serves under the United States Department of the Interior. Today the United States has 39 National Parks (Frome, 1980) administered by the Service.

The Acts of Congress in establishing the Yellowstone National Park in 1872 and the National Park Service (NPS) in 1916 defined a purpose that gave form and substance to a specific type of land use which, in turn decreed the management philosophy for park lands and their resources.

1.5 United States National Park Values

The motivation for setting aside national parks and the forces behind the national park movement in America embrace the love of nature, the desire for scenic grandeur, the recognition of landscape uniqueness, the need for recreation, and the notion of wilderness refuge. In his epilogue to "Wilderness and the American Mind", Roderick Nash takes a line from Wallace Stegner to state the importance of natural landscape:

"Something will have gone out of us as a people if we ever let the remaining wilderness be destroyed we simply need that wild country available to us, even if we never do more than drive to its edge and look in (as) part of the geography of hope" (Nash, 1967, p. 226).

In the decade from 1916, the popularity of the national parks grew remarkably as economic growth accelerated and the mass-produced automobile made its dramatic arrival on the American scene. Then, World War II ushered in a period of fiscal decline for the national parks as the National Park Service's budget was slashed from \$21 million to \$5 million. After the war, park visitation increased rapidly but the NPS budget rose to only two-thirds of the pre-war level and was then reduced again during the Korean War (1950-53). Appropriations for maintenance and administration were so inadequate during this period of austerity that there were calls to close the parks in order to prevent their slow degradation (De Voto, 1953).

Rejuvenation began finally when the National Park Service Director, Conrad Wirth proposed "Mission 66", a ten year

programme to bring the parks up to standard by 1966, the fiftieth anniversary of the founding of the National Park Service.

President Eisenhower and Congress were receptive and funds were provided for development and improvement in management. The accomplishments of Mission 66, though have been obscured by unprecedented growth in responsibilities of the National Park Service.

Everhart summarizes the history of the national park in the United States by noting that in early days the major problem was 'how to provide sufficient facilities to encourage people to visit parks', while today the major problem is 'how, or perhaps whether, in the face of such an overwhelming tide of visitors the national parks can survive" (Everhart, 1972, p.39).

1.6 Strategies and Institutional Arrangements

Institutional behaviour adjusts to, and at the same time reflects, the prevailing socio-economic climate. Reeling from overwhelming visitor pressure and a confusion of purpose in the late 1960s, the National Park Service found itself on the brink of the national parks centennial (1972) with an opportunity to get some advice on how they should plan for the coming years. Under the auspices of the President's Centennial Commission of the National Parks, the Department of Interior asked an independent organisation, the Conservation Foundation, to conduct an inquiry into planning and management issues facing the park system, which reflect some of the perceptions, attitudes and values prevailing at the end of a decade of social reforms.

1.7 Conflicts of Interests and Dilution of Mission in a Changing Socio-Economic Climate

The Conservation Foundation Report (Conservation Foundation, 1972) incorporates these areas of concern facing the national park system after 100 years of experience as follows:

1. Preservation of national values.
2. The outdoor recreation role of the National Park Service.
3. The national park system as an educational and cultural institution.
4. The national park system and urban America.
5. The national park system ways and means.

The Report was written with the optimism of the 1960s and with, perhaps, some degree of institutional naivety, for the

simple conclusion was that the National Park Service should protect the environmental attributes of the parks, serve the increasing need for outdoor recreation, and make the national park system accessible to the millions of urban Americans who have previously been deprived of this opportunity. Since 1972 when the Report was released many people still feel that the conflict between encouraging use and trying to preserve original park environments has not been fully resolved. However, attempts have been made to control and eventually eliminate this conflict. One important contributing factor is that the number of visitors to the parks increase each year and bringing with it new environmental problems. But the park authorities have been coping with the situation by improving the quality of services and facilities without sacrificing the natural beauty of the parks, or compromising their wilderness status. Some examples of the improvement of services and facilities offered within national parks have been treated in Chapter 4, with special reference to Yosemite Valley.

1.8 Early History of National Park in Britain

The concept and early history of National Parks in Britain evolved in part through the inspiration people drew from nature and its romantic beauty. Poets, writers, artists and parliamentarians were some of the few early disciples who were dedicated to the preservation of the natural heritage of the country.

Wordsworth (1835), in confirming this awareness, recognised the inevitability of further change to the native beauty of the Lake District and asserted that the Lake District should be deemed:

'a sort of national property, in which every man has a right, and interest who has an eye to perceive and heart to enjoy'.

In his Report, on 'National Parks in England and Wales', Dower (1945) referring to Wordsworth's claim noted:

'This may justly be counted the first shot in the campaign for British National Parks', a shot which, alas, took over a century to reach its mark. In the same Report, Dower defined a National Park in application to Britain as:

'An extensive area of beautiful and relatively wild country in which, for the nation's benefit and by appropriate national decision and action,

- (a) the characteristic landscape beauty is strictly preserved,
- (b) access and facilities for public open-air enjoyment are amply provided,
- (c) wild life and buildings and places of architectural and historic interest are suitably protected, while
- (d) established farming use is effectively maintained.

The several requirements and qualifications of this definition are all important, and may suitably form the framework for more extended comment'.

The Scottish National Parks Survey Committee (1945), having considered the ideas underlying the universal urge towards the formation of National Parks agreed to be guided by their own definition as follows:

'A National Park is an extensive tract of country of outstanding natural beauty, preferably also of scientific, cultural and historic interest, owned or controlled by the Nation, accessible to all as a matter of right under suitable regulations, and administered by or on behalf of the Nation to the end that its distinctive value may be preserved unimpaired for the enjoyment and recreation of this and future generations'.

As a personal contribution to the Report, Peter Thomsen, a member of the Committee added that:

'A National Park is a place where intelligent forethought has thrown the protecting arm round some still untouched remnant of the beauty of the world, leaving it to exercise its elevating and refining influence on all who come into contact with it'.

Although Scotland today has no national park there were earlier attempts to prepare the way for the establishment of, at least, five national parks as recommended by the Scottish National Park Committee (1945), but unfortunately their designation was not pursued.

Whatever the effect of the establishment of national parks in the United States, Canada, Africa and other countries may have been, in Britain the public interest in them as such did not materialise until after the First World War (Cherry, 1975). But the drive towards opportunities for the public to enjoy unrestricted outdoor recreation began very much earlier (Bell, 1975) and (Hill, 1980). During the years that passed between Wordsworth's claim and eventual legislation, interested public figures and voluntary societies developed the ideas which have led to modern concept of a national park, 'landscape preservation for aesthetic and recreational values, and nature conservation for scientific ones'.

It was in the late eighteenth century that the British began travelling to more distant parts of their country for holidays, as improvements to turnpike roads and bridges made long journeys by horsedrawn coach possible. They went to view the mountains from the valleys and to discover for themselves the qualities of the landscape so vividly portrayed for them by artists, writers and poets. Mountains were no longer awful but part of man's natural home and appreciation of the responsibilities that attend his relationship with nature was beginning to be accepted.

The coming of the railway age enabled the ordinary citizen to travel to the hills and the seaside for peace and pleasure, and for welcome relief from the dirt, the noise and tension of crowded factories, mills and back-to-back houses. In 1851, half the population of England already lived in towns; wakes weeks of factory closure in the North and Midlands and, from 1871, Bank Holidays gave millions some days of leisure (Bell, 1975, p.5). But if spent in the countryside they were not always welcomed. Visitors from the towns were often unpopular for fear they would cause damage through ignorance of country ways or they were turned away to protect farms, valuable sporting rights or less tangibly sometimes even the purity of water supplies.

Townsmen formed groups to further their interest in the country and the earliest national societies, established in the 1830s, were mainly concerned with the study of plants and animals. The oldest of the amenity pressure groups, 'The Commons, Open Space and Footpaths Preservation Society' was founded in 1865 and concentrated on maintaining and extending public rights of access to open country.

Other groups were gradually formed to take direct action for the conservation of wildlife, historical buildings and landscape by acquiring and managing land. Prominent among them were the Royal Society for the Protection of Birds formed in 1891; the National Trust, 1895, for places of historic interest or natural beauty in England and Wales; the Society for the Promotion of Nature Reserve, in 1912; the National Trust for Scotland, in 1931; the County Naturalist's Trust in England and Wales, of which Norfolk was the first in 1926; and the Scottish Wildlife Trust formed in 1965 (Bell, 1975).

In spite of overlapping membership the groups tended to follow their own interests and not to promote a common cause, which would have strengthened their effectiveness politically. By the 1920s a demand for some form of country planning was emerging and it was the need to organise concerted action for the preservation of rural scenery and amenities that led to the formation of the Council for the Preservation of Rural England (C.P.R.E.) in 1925; the Association for the Preservation of Rural Scotland in 1927; and the Council for the Preservation of Wales (C.P.R.W.) in 1928 (Bell, 1975).

While the various societies were trying on their own to secure parliamentary backing on access to the countryside, a few dedicated Parliamentarians decided to champion the cause through Act of Parliament to ensure perpetual recognition. Historically, James Bryce (later Lord Bryce) might be counted the leading advocate of the National Park concept.

Bryce introduced, in the House of Commons, his first 'Access to Mountains (Scotland) Bill' in February, 1884. It was a short Bill and simply proposed that, subject to certain provisions:

'No owner or occupier of uncultivated mountain and moor lands in Scotland shall be entitled to exclude any person from walking or being on such land for the purposes of recreation or scientific or artistic study, or molest him in so walking or being'.

In October, 1884, Bryce presented his second and during the ensuing years he introduced similar Bills in 1886, 1887, 1888, and twice in 1890; he continued in 1892, 1897 and 1898. From 1884 to 1898 Bryce had in all ten such Bills to his credit which sought to secure to the public 'Access to Mountains and Moorlands in Scotland'.

Lord Bryce's first Bill of 1884 did not become law. But during almost hundred years, however, the Bill has gradually acquired symbolic significance as a landmark and it is customary to regard it as the beginning of the evolution of the concept of National Park in Britain.

Bryce himself, however, drew his inspiration from the past, and was primarily concerned to secure the restoration of ancient rights. The preamble to his 1884 Bill (HMSO, 1950) states that:

'large tracts of uncultivated mountain and moor land in Scotland, formerly depastured by sheep and cattle, have of late years been stocked with deer, and attempts have been made to deprive Her Majesty's subjects of the rights which they have heretofore enjoyed of walking upon these and other tracts of uncultivated mountain and moor land for purposes of recreation and scientific or artistic study'.

Bryce was not alone in his parliamentary campaign to secure access to mountains and moorlands; some parliamentarians shared and supported his views. However, there was a second Bill in 1888, introduced on February 17th, by Thomas Ellis as 'Mountains, Rivers and Pathways (Wales)' which was the first Welsh 'Access to Mountains Bill'. On 3rd February, 1908 Charles (later Sir Charles) Trevelyan introduced the 'Access to Mountains Bill', and even though it was thought to be the first English 'Access to Mountains Bill' the nature of it made it necessary as a unified Bill for Britain. In March, 1892 a Debate took place on the motion:

'That in the opinion of this House legislation is needed for the purpose of securing the right of the public to enjoy the free access to uncultivated mountains and moorlands, especially in Scotland, subject to proper provision for preventing any abuse of such right'.

During the course of two and a half hours' discussion, Bryce referred to the:

'exclusion of people from the right to enjoy the scenery of their own country, and to seek healthy recreation and exercise on their own mountains and moors', and to people being 'confronted with interdict if they strayed off the roads'.

Bryce later became Under-Secretary of State for Foreign Affairs, Chancellor of the Duchy of Lancaster (with a seat in the Cabinet) and President of the Board of Trade. During the time he was a Member of Parliament, a period of twenty-seven years, a dozen Bills were introduced by him and others, one or two while he was Minister of the Crown. But nothing was accomplished, each Bill was withdrawn, sometimes because of opposition, more often owing to lack of sufficient support even when Bryce was a member

of the Government. In 1907, Bryce was appointed Ambassador to the United States but others continued from where he had left off and from 1908 to 1931 'Access to Mountains Bills' were introduced by J. Annan Bryce (a brother of Lord Bryce), Sir Charles Trevelyan and Miss Ellen Wilkinson. Further Bills were introduced in 1937 and 1938 by Price and Creech Jones respectively. Finally on July 13th, 1939, Royal Assent was given (along with fifty-one other Acts) to 'The Access to Mountains Act, 1939'. This Statute was repealed by the 'National Parks and Access to the Countryside Act of 1949.

Through all the years the emphasis had been exclusively on access; there is no entry on 'National Parks' in the indexes to Hansard until July 24th, 1929. As it is of some historical interest, the reference is given in full.

MR MACPHERSON asked the First Commissioner of Works if his attention has been called to the project of securing for the nation in perpetuity some areas of the Cairngorm range or elsewhere in Scotland for the free and unfettered use of the public and as a sanctuary for birds and animals; if he is aware of the public interest evinced towards such a proposal by all classes of the community and particularly by town dwellers; and will the Government take steps similar to those taken by the Dominions to secure National Parks in their territories to ensure the success of the project?

MR LANSBURY: My attention has been drawn to the project to which the hon. member refers. I am aware of the public interest taken in this and other similar projects. I understand that the Forestry Commission, who own a tract of land in the Cairngorms area are prepared to co-operate and the matter is now under consideration by the Association for the Preservation of Rural Scotland. More than this I cannot at the moment say.

1.8.1 The Addison Report

Another event of the utmost significance occurred in July, 1929, when the Council for the Preservation of Rural England, which had been founded on December 7th, 1926 submitted a memorandum to the Prime Minister, Ramsay MacDonald, relating to proposals to establish National Parks. The memorandum produced immediate results in that the Prime Minister, on 26th September, 1929 appointed a Committee, the National Park Committee, under the Chairmanship of Christopher Addison (later Lord Addison), then Parliamentary Secretary to the Ministry of Agriculture, with the following terms of reference:

'To consider and report if it is desirable and feasible to establish one or more National Parks in Great Britain with a view to the preservation of the natural characteristics, including flora and fauna, and to the improvement of recreational facilities for the people; and to advise generally and in particular as to the areas, if any, that are most suitable for the purpose'.

The Committee met on twenty-eight occasions, received evidence from thirty-four groups of witnesses and ultimately reported to the Minister of Health in April, 1931. The Report noted that there was nothing new in a proposal to schedule special areas in order to preserve their beauty and they referred in particular to the Act of Congress of 1916.

The principal conclusion of the Addison Report may be summarised as follows:

1. There have been special measures in the Dominions and the U.S.A. with a view to preserving natural scenery and the wild life of special areas, and to regulating the use of them in such ways as to leave them unimpaired for the use of future generations.

By comparison with many of these countries, Great Britain is small, densely populated and highly developed, and it would be impossible to copy closely the methods employed elsewhere.

2. The objects to be achieved by a system of National Reserves would be (a) to safeguard areas of exceptional natural interest against disorderly development and spoliation, and (b) to improve the means of access of pedestrians to areas of natural beauty.

3. The machinery to be set up to achieve these objects must depend upon the amount of money available from public and private sources. Two schemes were suggested, one assuming the availability of £100,000 per annum for a period of five years, the other a sum of £10,000 per annum for a similar period.

4. Should £100,000 be available, the recommendation was the appointment of an executive authority with powers to select National Reserve Areas, to stimulate local authorities and land-owners to co-operate, to determine what monetary aid could be given from the public funds towards the cost of schemes, and carry out various other functions.

5. If £10,000 only were available, they recommended that grants should be distributed through the Ministry of Health and that it should be considered whether it would be advantageous to appoint an Advisory Committee, who would inquire into and advise upon such questions of rural amenity as might be referred to them from time to time by the Government Department, and give advice on similar questions when so requested by public and quasi-public bodies.

6. An Act would be necessary to set up the National Authority and the complementary machinery which is recommended, and to equip the authorities with necessary funds and powers.

The Report concludes: 'The task of the National Authority will not be an easy one. It will be attacked by those who think that any expenditure of the preservation of natural beauties of the country is unjustified; assailed by enthusiasts who wish to press their own fancies or look for action on some heroic lines; importuned by private individuals who see in the proposals an

opportunity of private gain, and opposed by others who resent any interference with private interests. In many cases the Authority will be called upon to hold an even balance between conflicting interest and at all times they must be prepared to take the long view and to leave it to time and a later generation to vindicate their actions. But if the task is likely to be difficult, it should also provide an enviable opportunity of conserving for all time some of the most glorious examples of the works of nature in this country'.

No Government action was taken on the Addison Report, but a considerably influential lobby had been encouraged. On November 30th, 1935 a Meeting organised by C.P.R.E. and C.P.R.W. was held at the Central Hall, Westminster, and the two Councils set up a Standing Committee on National Parks under the Chairmanship of Mr Norman Birkett, K.G. (later Lord Birkett). On the Committee were representatives of the Association for the Preservation of Rural Scotland and representatives of many voluntary organisations including the National Trust and the Common, Open Spaces and Footpaths Preservation Society. The Standing Committee's policy was essentially that put forward in the Addison Report, but the views were to be expressed more forcefully, with a single-mindedness of purpose, and in a way designed to secure popular support.

In the Committee's 'Brief Statement of Policy', the General Objective of the National Parks Movement was set out as:

'(a) that a sufficient number of extensive areas, carefully selected from the unspoilt wilder country of Great Britain, should be strictly preserved and specifically run as National Parks;

(b) that the remainder of the unspoilt wilder country should be regarded as a reserve for further National Parks in the future, any developments therein being permitted only if shown to be essential in the public interest'.

Many persons and bodies have made their contribution towards the achievement of National Parks, but there can be no doubt that the members of the Standing Committee of C.P.R.E. and C.P.R.W. have played an outstanding part. The campaign continued. At the C.P.R.E. National Conference at Leamington in October 1937, Professor G.M. Trevelyan, O.M., in the course of his address, said:

'The condition of any real value in modern city life is holidays spent in the country. How our people long for them and save up to get them yet we are daily permitting, and by our laws encouraging, the destruction of the regions destroying natural beauty space in ordinary course of business and economy. Therefore, unless he now will be set at pains to make rules for the preservation of natural beauty, unless he consciously protects it at the partial expense of some of his greedy activities, he will cut off his own spiritual supplies, and leave his descendents a helpless prey for ever to the base materialism of mean and vulgar sights'.

The Standing Committee in their pamphlet, 'The Case for National Parks in Great Britain (July 1938)', presented the arguments. Professor G.M. Trevelyan's foreward began:

'The Government is at present engaged on a Health Campaign. It undertakes to assist the health of the nation and to find playing fields for the dweller in the vast cities to play cricket and football. But it is no less essential, for any national health scheme, to preserve for the nation walking grounds and regions where young and old can enjoy the sight of unspoilt nature. And it is not a question of physical exercise only, it is also a question of spiritual exercise and enjoyment. It is a question of spiritual values. Without vision the people perish and without sight of beauty of nature the spiritual power of the British people will be atrophied'.

"But Government still remained quite apathetic. Asked in November, 1937 about the various resolutions and the prospect of setting up a National Parks Commission, the reply was that 'the matter was in mind' and that 'Local Authorities have powers for the protection of areas of natural interest and beauty; and that schemes (i.e. under the 1932 Town and Country Planning Act) are being considered'" (Abrahams, 1959, p.20). "In June, 1938, the Minister of Health was 'not in a position to make any statement about the 1931 Addison Report'; while five months later there was 'no indication when there would be any action'" (Ibid. p. 20).

The last entry in Hansard before the outbreak of the Second World War was on May 11th, 1939, when Mr (later Sir Walter) Elliot, on behalf of the Government said that the Town and Country Planning Act, 1932 enabled many of the objects aimed in the Addison Committee Report to be accomplished; and that he did not agree with the suggestion that the Act had totally failed.

During the course of the 1939-45 War, legislation was passed which had a great bearing on National Parks. A Minister of Town and Country Planning was appointed. The idea of the Scott Committee originated with Lord Reith. As Minister of Works and Buildings, he was entrusted with responsibility for the guidance and supervision of the preparatory work of formulating the methods and machinery required for the physical reconstruction of town and country after the war. With this brief, Reith began a number of investigations; a study of rural industries was included to obtain information

on what industries were suitable for location in country areas. In consultation with the Minister of Agriculture, R.S. Hudson, he appointed a Committee in October, 1941, with Lord Justice Scott as Chairman. The terms of reference were as follows:

'To consider the conditions which govern building and other constructional development in country areas consistently with the maintenance of agriculture, and in particular the factors affecting the location of industry, having regard to economic operation, part-time and seasonal employment, the well-being of rural communities and the preservation of rural amenities'.

(The terms of reference applied to England and Wales, but did not include Scotland which was a matter of another enquiry).

The Scott Committee on 'Land Utilization in Rural Areas' reporting in 1942, said that:

'the establishment of National Parks in Britain is long overdue and recommended that within the first year of peace the demarcation of National Parks and nature reserves be completed, and the National Parks Authority be set up'.

In April, 1942, Lord Portal, Minister of Works and Planning, said in the House of Lords that:

'It is clear that no national planning of the use of land would satisfy the country if it did not provide for the preservation of extensive areas of great natural beauty and coastline. The question of National Parks and the protection of our coast from ill-considered building development will be carefully examined and we fully realise the importance of this'.

In 1944 the Government published a White Paper on 'The Control of Land Use', and referred to the establishment of National Parks as part of the programme of post-war reconstruction. In the course of a Debate in the House of Commons on March 20th, 1945,

the Minister of Town and Country Planning, Mr Morrison, said:

'There is no difference of opinion on any side of the House about the desirability of the project. It is our desire that those areas of special beauty in the country should be preserved for ever as a heritage of our people, as a place to which townfolk can go and enjoy the unspoiled beauties of nature'.

He concluded by saying that preliminary steps had been taken and that Mr John Dower had carried out a survey which was being considered.

1.8.2 The Dower Report

During August and September 1942 John Dower surveyed possible National Park areas for the Ministry of Works and Planning. These included the Lake District, Snowdonia, the Peak District, Pembrokeshire and Dartmoor-Exmoor. His reports for the Department, programmed for the autumn of that year and the spring of 1943, described the characteristics of the areas, their boundaries, problems and requirements. His work built up into a comprehensive study on 'National Parks in England and Wales' and his Report, surely for all time one of the most important documents ever written in connection with National Parks, was published on May 16th, 1945. Political sensitivity at the time made it a personal Report to Mr W.S. Morrison, Minister of Town and Country Planning, for information and as a basis for discussion, rather than a Ministerial pronouncement. None the less, it was a timely publication because during the previous three years, since the Scott Report in August, 1942 there had been continued pressure for lobbies, replied to by cautious but

increasingly positive Government statements. But while National Parks in principle could easily be accepted politically, the necessary machinery of Government was not yet in being to implement them and there was great need for rigorous and practical thinking about the implications involved. The history of National Parks during these years is intimately bound up with the steps taken to set up new planning machinery for post-war Britain. Caution on the latter implied delay on the former.

With change of Government, Mr (later Lord) Lewis Silkin became Minister of Town and Country Planning in July 1945, and in the same month immediately set up a Committee under the Chairmanship of Sir Arthur Hobhouse, with the following terms of reference:

- (a) To consider the proposals in the Dower Report as to the areas which should be selected as National Parks; and to make recommendations in regard to the special requirements and appropriate boundaries of those areas, which, in the view of the Committee, should be first selected.
- (b) To consider and report on the proposals made in that Report as to the measures necessary to secure the objects of National Parks, and on any additional measures which in the view of the Committee, are necessary to secure those objects; and
- (c) To consider and make recommendations on such other matters affecting the establishment of National Parks and the Conservation of Wild Life as may be referred by the Minister to the Committee.

The Committee first met on 1st August, 1945, and they held in all eighty meetings and received written or oral evidence from sixty bodies or persons. They also carried out seventeen survey tours considering areas as National Parks and occupying 85 days. The Report was published on 18 July, 1947.

After the Hobhouse Report, legislation was the next step, and in the next two years slow progress on a National Parks Bill showed how difficult it was to translate these high hopes into effective provision. Early in 1948, Mr Silkin, Minister of Town and Country Planning, in answer to a question, stated that in the Government's view the 1947 Town and Country Planning Act gave adequate protection to National Parks without additional legislation, but in the King's Speech at the opening of the next Session on October 26th, 1948, sandwiched in between prospective legislation for the nationalisation of steel and the provision of legal aid, appeared these words:

'Legislation will be introduced to establish National Parks in England and Wales, to improve the law relating to footpaths and access to the countryside and to secure better conservation of wildlife'.

On 17th March, 1949, 'The National Parks and Access to the Countryside' Bill was read a first time and ordered to be printed. It consisted of 94 Clauses and 2 Schedules—72 pages of print. On 31st March, 1949, Mr Silkin opened his speech on the Second Reading of the Bill with these words:

'This long-awaited Bill will be received with great pleasure by a large number of people all over the country who have witnessed with considerable concern disturbing trends in the development of these islands'.

After two days' debate, the Bill was read a second time without a division and committed to a Standing Committee. Standing Committee A met for the first time on 24th April, 1949, and held thirteen sittings, completing its work by 1st June, 1949. The Bill left the Commons after the Report and Third Reading Stages on 21st July, and had its First Reading in the House Lords the next day.

The Second Reading in the Lords took place on 18th and 19th October, 1949, the Committee Stages on 8th, 10th and 15th November, 1949. The Report Stage in the Lords was on November 22nd, and the Third Reading two days later. The House of Commons considered the Lord's Amendments on 9th December, 1949, thirteen years to the very day after the House had first agreed to a motion urging the Government:

"To stimulate and develop action for the preservation of the countryside and its amenities and to take whatever steps may seem most appropriate in the light of the recommendations of the National Park Committee, 1931".

On 13th December, 1949, the Bill was returned from the Commons with the Amendments agreed to, and passed to the Upper House. Royal Assent was signified on 16th December, 1949, almost exactly nine months after the First Reading. Mr Silkin appointed the Chairman, Deputy Chairman and the first members of the National Parks Commission immediately.

Britain has designated ten National Parks from 1951 to 1957, and the first, the Peak District National Park, was designated in 1951. The ten existing national parks are extensive areas of great scenic beauty. Designation establishes their national significance. It does not alter the ownership of any land (private, public and Crown land included). Designation brings into force special arrangements for giving effect to the twin statutory purposes of preserving the natural beauty of the National Parks and promoting their enjoyment.

1.9 Summary and Conclusions

The early history of the American and British national park concepts reflects both countries' growing awareness of the importance of the natural environment. The US concept which had its first practical and official application in 1872, and the British in 1951 also translated that awareness into official reality but in a different way.

The major difference between these two concepts was and is the unacceptability of human habitation in American national parks, but which is countenanced by the British concept; the latter seems to have much more practicability and application in Africa. The other difference was the availability, in America, of tracts of unoccupied land which coincidentally contained areas of outstanding natural beauty and were designated within national parks.

But in Britain that sort of conversion was impracticable as the country is notably small, highly industrialised and densely populated, but subject to increasing pressure on available land.

In Africa, except for the central Sahara there are very few such uninhabited areas left and which might usefully be designated; surrounding populations with their increasing food needs make this increasingly undesirable and politically unattractive.

Whatever their differences both the British and the American two concepts of national parks have served in the past to save many areas of outstanding natural beauty in both countries which otherwise would have been lost by despoliation. These two concepts are further investigated in the following Chapters regarding their suitability for use in African conditions and towards their possible use in a tier-two system of future designation.

CHAPTER II

THE IUCN'S CONCEPT OF THE NATIONAL PARK

Contents :

- 2.1 Introduction
- 2.2 The Formation of the IUCN
- 2.3 The IUCN Definition of a National Park
- 2.4 Summary and Conclusions

CHAPTER TWO : THE IUCN'S CONCEPT OF THE NATIONAL PARK

2.1 Introduction

This Chapter examines the history of the International Union for Conservation of Nature and Natural Resources (IUCN), its definition and explanation of the 'concept of the national park', and explores the extent to which the IUCN's concept identifies itself with that of America but differs from that of Britain; and also the part IUCN itself has played in encouraging the designation of national parks in Africa.

2.2 The Formation of the IUCN

The effort by an international body to organise effective conservation programme world-wide was a post-war event. A new United Nations emerged after World War II and there soon followed the creation of its specialised agencies. Of these UN agencies, UNESCO early became a spearhead for conservation, owing to the fact that the conservation-minded biologist, Sir Julian Huxley, became its first Director General. He succeeded, in 1948, on behalf of UNESCO and in co-operation with the governments of the Netherlands, Belgium and Luxemburg, in creating the International Union for the Protection of Nature which eight years later became the International Union for Conservation of Nature and Natural Resources (IUCN) (Curry-Lindahl, 1978, p.164), which is also responsible for national parks throughout the world.

IUCN has evolved and expanded by increasing its membership among governments, governmental agencies, international and national conservation organisations, and scientific institutions as well as by organising itself into permanent commissions, such as, the Survival Service Commission and the Commission on National Parks and Protected Areas.

The IUCN, in particular, has played a leading role by instituting the national park philosophy that today forms the basis for positive conservation policies throughout the world.

2.3 The IUCN Definition of a National Park

The United Nations List of National Parks was first proposed by the IUCN at its Sixth General Assembly in 1958 held in Delphi, Greece. At the Economic and Social Council (ECOSOC) Meeting of the United Nations, in Mexico City in 1959, a resolution was adopted calling for the establishment of an United Nations List of National Parks and Equivalent Reserves. The IUCN was therefore entrusted by the United Nations with the preparation of the list with the appropriate assistance from UNESCO, FAO and other conservation organisations. The preamble to this Resolution states that:

'National Parks contribute to the inspiration, culture and welfare of mankind and are available for economic and scientific reasons as areas for the future preservation of fauna and flora, and geological structures in their natural states' (IUCN, 1971, p. 13).

The culmination of these decades of thinking crystallised the need for clear understanding of the terms of reference, particularly the definition of what is meant by 'National Park', and how to identify other categories of lands set aside to preserve natural and other reserves. The full texts of IUCN Resolutions 1 and 2 adopted in New Delhi in November, 1969, defined the classic concept of National Park and certified and sanctioned the UN List of National Parks as an official document by the United Nations.

Resolution 1 stated that a National Park is a relatively large area:

1. where one or several ecosystems are not materially altered by human exploitation and occupation, where plant and animal species, geomorphological sites and habitats are of special scientific, educative and recreative interest or which contains a natural landscape of great beauty and

2. where the highest competent authority of the country has taken steps to prevent or to eliminate as soon as possible exploitation or occupation in the whole area and to enforce effectively the respect of ecological, geomorphological or aesthetical features which have led to its establishment and

3. where visitors are allowed to enter, under special conditions, for inspirational, educative, cultural and recreative purposes.

Governments were accordingly requested not to designate as "National Park"

1. a scientific reserve which can be entered only by special permission (strict nature reserve),
2. a natural reserve managed by a private institution or a lower authority without some type of recognition and control by the highest competent authority of the country,
3. a "special reserve" as defined in the African Convention of 1968 (fauna and flora reserve, game reserve, bird sanctuary, geological or forest reserve, etc),
4. an inhabited and exploited area where landscape planning and measures taken for the development of tourism have led to the setting up of "recreation areas" where industrialization and urbanization are controlled and where public outdoor recreation takes priority over the conservation of ecosystem (parc naturel regional, nature park, Naturpark, etc). Areas of this description which may have been established as "National Parks" should be redesignated in due course.

Resolution 2 refers to the United Nations List of National Parks and Equivalent Reserves called for in 1959 by the Economic and Social Council (ECOSOC) of the United Nations (Resolution 810 XXXI). In November, 1969 the 10th General Assembly of IUCN meeting in New Delhi requested ECOSOC to approve the text of the revised and evaluated edition of this List as prepared and published by the International Commission on National Parks in 1967 in French and in 1969 in English and to certify it as an official document sanctioned by the United Nations.

The criteria by which an area was to be judged acceptable for the UN List reflected the IUCN Resolutions 1 and 2 and the following three basic values:

1. A legal basis for sufficiently strict protection;
2. a reasonable minimum size; and
3. adequate staff and budget to provide effective management.

The application of these criteria is subjective and a matter of judgement. In approving the New Delhi definition, there was no intent to belittle recognition of other reserves which fully deserve safeguarding. It was designed simply to protect the purity of the national park concept, so areas substantially altered by human activity or otherwise not conforming to the criteria would not carry the title. The intention was to discourage the inclination by some countries to designate as national parks any park or reserve (even city parks) simply because the national authority administered them.

Although the New Delhi definition did not specify what constitute 'relatively large', the editors of the "United Nations List of National Parks and Equivalent Reserves" arbitrarily decided that: for large countries the minimum size of a national park should be 1,000 hectares; with exceptions made for islands of smaller size; and conceding that some additional flexibility was desirable, especially as size was by no means the only criterion (IUCN, 1971, p. 30).

The purpose of the UN List was to invoke the UN's prestige to encourage nations to safeguard their wilderness and wildlife reserves; and to review the designation and management of their existing parks and reserves, and to prompt those who had yet to act in that direction to do so urgently in defence of their national pride and international credibility.

Acceptable standards had to be devised which would uphold the quality of the areas included in the List and their proper administration and management. This was to avoid designating and listing parks of minor importance or mere lines on a map without real validity merely in order to have a nation's name included (Packard, 1972, p. 63). At the same time, the criteria had to be reasonable. Not every nation had the same geographical or other capability to develop a national park and reserve programme, but they were not to be discouraged from putting forth their best effort to do so.

In 1960-63, the IUCN initiated and organised the African Special Project (ASP) which constituted a crusade for conservation in Africa during a politically critical period when the wind of independence swept over the continent and enormous nature conservation issues were at stake (Curry-Lindahl, 1978, p. 164). The IUCN in particular has played a leading role by instituting the national park philosophy that today forms the basis for positive conservation policies throughout the world.

Therefore, the basic principle (IUCN, 1971) is as follows:

To qualify as a national park or equivalent reserve an area should enjoy general legal protection against all human exploitation of its natural resources and against all other derogations of its integrity resulting from human activity.

The fact that the legal status of an area satisfies the basic principle would not necessarily qualify it as a national park or equivalent reserve, if, for example, its size is too small or the status is not adequately enforced; and what would also rule it out of consideration would be if its status does not confer general protection; exceptions to this condition should only be admitted on very specific grounds.

The kind of exploitation of natural resources which should, as a rule, be prohibited in national parks and equivalent reserves would be: agricultural and pastoral activities, hunting, fishing, lumbering and mining, and dam construction for the purpose of irrigation or hydro-electric power. The human activities which can be considered as impairing the integrity of an area include residential, commercial or industrial occupation, and the building of roads, railroads, aerodromes, ports, power lines, telephone lines etc.

On the other hand, tourism is not to be included in the economic activities calling for prohibition in national parks and equivalent reserves; quite the reverse, so far as national parks are concerned.

Among the exceptions which may therefore be admitted to the rule of general protection are those activities which have to be allowed in the promotion of outdoor recreation, since it is one of the main reasons for the existence of national parks. These include construction and maintenance of a road network; the setting aside of more or less extensive areas for hotels or other accommodation, and all other activities which for outdoor recreational purposes cause within the area where it is sited (power lines, telephone lines, recreational facilities, for example, pleasure-boat facilities etc.).

A second broad category of exceptions of a comparable type must also be mentioned, namely the public works necessary for the actual administration of the park. They include staff housing, offices, workshops, garages, access roads etc.

A rather more difficult question is whether an exception may be made of sport fishing, without regarding an area in which it is allowed as debarred from classification as a national park or equivalent reserve. The answer seems to be that it should be treated as a borderline case and only accepted if the sport is authoritatively regulated by fully competent staff.

There is no doubt that an area in which the general public is allowed to hunt or shoot should automatically be disqualified as a national park or equivalent reserve, except in extremely rare instances where the hunting zone is very restricted and special reasons can be given to justify an exception.

Commercial lumbering is incompatible with the status of a national park.

One human activity which may seem but is not, in fact, necessarily incompatible with the status of 'general protection', is 'management', that is to say control carried out by those responsible for a park with a view to maintaining the natural equilibrium which they consider desirable. This may take place, for instance, when the number of wild animals is considered excessive, when an early burning policy is applied to a national park in the tropics, or when an artificial water is provided for animals. It is essential, however, that such measures should be undertaken by authorised staff and that, similarly, where control of wild animal populations becomes necessary, it should never be left to hunters unfamiliar with the area. Special situations may justify exceptions, but only under strict administrative supervision.

Practically all the comments made in the preceding paragraphs imply that it may be desirable to sub-divide a protected area into 'zones'. Most national parks do in fact naturally fall into a series of distinct zones¹. Some zones are seldom visited and can be kept in an almost pristine state of 'wild nature'. Others are greatly influenced by human activities and all the pressure arising from buildings, roads, heavy traffic and visitations, which may affect the landscape, the natural vegetation or behavior of wild

¹ Refer to Chapter 4, paragraph 4.2.5 and Fig. 4.3, where the zoning of Yosemite National Park has been described.

animals (some becoming shy and others abnormally tame). In circumstances such as those described it would be necessary to invoke the 'zoning principle' and to give as full details as possible of the particular situation.

2.4 Summary and Conclusions

All the United States national parks enjoy a status which satisfies the IUCN concept and criteria internationally adopted of the national park. Hence, United States national parks have all been listed in the United Nations List of National Parks and Equivalent Reserves; although the American concept was developed as far back as 1872 and had been the basis for the designation of national parks, in subsequent years, in that country. The IUCN in establishing its own concept of the national park, for the world at large, took careful account of this long American experience and was perhaps too much influenced by it.

On the other hand, the IUCN has not recognised the British concept, nor has it approved any of the ten British national parks because of what the IUCN sees as conflict of definition and application of that concept resulting from the acceptability of human existence in those parks.

All the parks so far designated in Africa have been seen to comply with the IUCN concept, and consequently they have all been listed in the United Nations List of National Parks and Equivalent Reserves.

CHAPTER IIICONCEPTUAL DIVERSIFICATIONContents :

- 3.1 Introduction
- 3.2 Modern Trends and the need for a Conceptual
Diversification of the National Park Philosophy
- 3.3 The Relationships to Primitive Societies
- 3.4 Changing Times
- 3.5 World Conservation Strategy
- 3.6 New Directions
- 3.7 The Approach
- 3.8 The New Concept and the Term 'National Park'
- 3.9 The attributes of the New Concept
- 3.10 The Indigenous People
- 3.11 Summary and Conclusions

CHAPTER THREE : CONCEPTUAL DIVERSIFICATION

3.1 Introduction

Since 1969, it has become increasingly clear that the basic concept of the national park as first defined by the IUCN is unlikely to survive the test of time. And some conservationists like Sarasin (1913), Clawson (1969), Lusigi (1974), Olindo (1974) and Eidsvik (1980) have all advocated a change in conservation strategies to save other areas of outstanding natural beauty. They contend that national parks must be seen as part of the social structure and within the context of human welfare and as mutually evolving with time.

This Chapter examines the views of these conservationists and others as individually but collectively demanding a change of concept which will more closely integrate human existence in national parks designated in the future.

3.2 Modern Trends and the Need for a Conceptual Diversification of the National Park Philosophy

If one considers the basis for setting aside national parks, one cannot find a great deal of concern for the interaction between Man and Nature in them; and yet, in essence, it is implied in the criteria for their establishment (IUCN, 1971, p. 13).

In an introduction to the 1913 'International Conference for the Protection of Nature', Paul Sarasin stresses the need and sees man as a part of Nature as being of fundamental importance to conservation. His concern was as fundamental as that for the preservation of genetic material about which so much is being said today (Sarasin, 1913).

Eidsvik (1980) states that, 'By the turn of the present century, twenty national parks and similar reserves had been established in various countries. At that time the principal objective was the protection of Nature; human populations were not a major concern, neither was the landscape nor the fauna and flora within the parks managed with a view to sustaining production for Man. Yet it is the growing acceptance of these considerations which will have the greatest impact on conservation in the closing decades of this century' (Eidsvik, 1980). Eidsvik adds that, 'It is highly unlikely that the 'North American' model of national parks will survive in many countries where a large popular movement does not exist for their protection' (Eidsvik, 1980).

Dr. Marion Clawson (1969) refers to national parks as 'social institutions'; and adds that, 'The precise concept of the park, its role and particularly its management, must be modified, changed, and evolved over a period of time as the economy and the society evolved'. She continues that, 'National Parks have always got to be viewed against the background of the broad social structure, the functioning of the economy and of life generally and as best can be foreseen for, say, a generation ahead' (Clawson, 1969).

At the Second World Conference on National Parks (held in Yellowstone and Grand Teton National Parks, US, in 1972) Perez Olindo, then Director of the Kenya National Parks Service, said: 'It must be accepted that if conservation of wildlife or any other resource in developing or developed countries is not seen to be within the context of human welfare, and the well-being of the total environment, then the future for such a resource cannot be bright' (Olindo, 1974). Eidsvik commented that: 'The pursuit of Olindo's objective becomes more and more critical as populations increase and energy and other resources come under ever-greater pressures. There is little doubt that 'green areas' - seen as empty open spaces by many people - will come under increasing pressure to satisfy growing demands for the resources of space and energy' (Eidsvik, 1980).

3.3 The Relationships to Primitive Societies

In 'Planning Human Activities on Protected Natural Ecosystems', Lusigi states that: 'There was a scant regard or respect for the role which tribesmen had played over the centuries in the formation of the spectacular game habitats' (Lusigi, 1978).



The role of tribespeople as manipulators of habitats must be provided for in contemporary park management or, alternatively, other methods must be developed as a substitute. In either event, a sound scientific basis is essential for effective management. Indeed the destruction of the primitive way of life in the name of progress seemed a devastating indictment of industrial society's attitude for Nature, for the environment, and for the phenomenal diversity of human culture (Bunyard & Hildyard, 1979, pp. 168-70). It is in view of this background that better prescriptions for ensuring that conservation programmes go forward in harmony with primitive peoples and for the benefit of people in general.

Fundamentally, the establishment and management of national parks and protected areas must give consideration to people as a part of the Biosphere in which we all live, and of which people form an integral part. Some of these people may be 'indigenous' and live in protected areas, some may be 'local' and live adjacent to protected areas, and some may be 'tourists' who come to share the benefits of a protected area. Eidsvik (1980) indicates that: 'In order to attain the objectives of genetic protection and sustained use, provision must be made for an array of users. There is an evident need for more research into natural systems in which we live'.

In 1972 when Norman Myers suggested that, 'Ecological requirements of parks must be balanced against socio-economic constraints in their environs', he was looked upon as some kind of a pariah by many conservationists. The dangers of alienating conservation objectives from broader social objectives have since become more evident.

3.4 Changing Times

A significant break in traditional thought occurred at IUCN'S General Assembly in Kinshasa, Zaire, in 1975.

A resolution was passed that called on governments to 'devise means by which indigenous people may bring their lands into conservation areas without relinquishing their ownership use or tenure rights' (IUCN, 1976).

One of the first examples of the application of this resolutions is found in the Kakadu National Park in Australia's Northern Territory (Gardner & Nelson, 1980). The lands for the park are leased to the Government by the aboriginal people of the area. A management council has been created which provides for major control by the aboriginal people, who are also being trained to manage the area. The Biosphere Reserves of Mapimi and Michilia, in Mexico, are other recent examples of how conservation objectives can be attained by integrating research, education, and protection, into local social and economic systems (UNESCO, 1979).

Historically, one cannot overlook the value of the relatively standardized definition of 'National Park' (IUCN, 1971, p.13) in communicating conservation concepts on a global basis. In the world there are today more than 3,000,000 square kilometres protected in national parks and equivalent reserves - approximately two per cent of the continental land-mass (IUCN, 1980).

The 1980 UN List of National Parks and Equivalent Reserves indicates that during the past three decades new National Parks and Equivalent Reserves have been created at an accelerating rate. In the 1950s 100 new areas were designated, in the 1960s 200, and in the 1970s 330 (IUCN, 1980b).

But the question at the moment is that will this positive trend have a continuity in the future?

3.5 World Conservation Strategy

An indicator of change as well as a guide to change that must come if we are to sustain our population and natural resources, is the World Conservation Strategy (WCS, 1980). The complexity of the conservation problem can be summed up as follows: 'Living resource conservation is just one of a number of conditions necessary to assure human survival and well-being, and a world conservation strategy is but one of a number of strategies needed: a strategy for peace; a strategy for a new international economic order; a strategy for overcoming poverty; a world food-supply strategy; a strategy for human rights; a population strategy. Several of these issues are properly the subject of the International Development Strategy for the Third United Nations Development Decade. All such strategies should be mutually reinforcing' (IUCN, 1980a).

The WCS (1980) stresses that, 'The integration of conservation and development is particularly important, because unless patterns of development that also conserve living resources are widely adopted, it will become impossible to meet the needs of today without foreclosing the achievement of tomorrow'.

The Strategy goes on to say, 'Conservation and development have so seldom been combined that they often appear - and are sometimes represented as being - incompatible. Conservationists themselves have helped - quite unwittingly - to foster this misconception. Too often they have allowed themselves to be seen

as resisting all development - although often they have been forced into that posture because they have not been invited to participate in the development process early enough. The result has been not to stop development, but to persuade many development practitioners, especially in developing countries, that conservation is not merely irrelevant, it is harmful and anti-social. Consequently, development has continued unimpeded by conservationists, yet with the seeds of its eventual failure lying in the ecological damage that conservation could have helped to prevent'.

There is a great need for recognition of the fact that conservation can be achieved along with development. This is the philosophy expounded in the Strategy, which is, in itself, evidence of the considerable change that has taken place in conservationists' thinking in the past few years. It is also clear that many other approaches must be utilized to attain conservation objectives - for example, conventions such as the Convention on International Trade in Endangered Species of Fauna and Flora of 1973, and the Migratory Species Convention of 1979.

3.6 New Directions

What changes in past practices are indicated if we wish to reach a closer accord between national parks as isolated islands and national parks as a powerful contributor to Man's social and economic welfare - in the short term as well as the long term, for local people as well as visitors, and for plants as well as animals? What can be done to resolve conflicts and reduce

tensions between the park authority and its neighbours living on periphery of a protected area from which they have been excluded - and of which they may have only a limited perception of the value of the area to society or to the world community.

A first prescription involves recognition of the fact that the traditional concept of a national park is not the only mechanism available. This means that park managers who have been applying one tool, namely 'the national park', must carefully reassess the objectives of future conservation action against a range of alternative means for achieving such actions. It is unlikely that change will occur unless it is encouraged by the individuals who are most closely involved. Park managers must reach beyond their boundaries in both a physical and an administrative sense, to implement these new conservation techniques.

A second prescription requires detailed objectives for each category of protected area to be established. According to Lusigi (1978), this could provide for Conservation Unit Objectives which attain the goal of conservation-with-development as follows:

1. Conservation of the wildlife populations.
2. Enhancement of the lives of the people of the area through coordinated development of both wildlife and livestock in the surrounding area.
3. Development of tourism in the area for both national and local economic development.
4. Provision of a suitable environment for education of the younger generation and the public at large.
5. Provision of a suitable environment where the dynamics of the ecosystem can be observed and studied scientifically.
6. Provision of an ecologically healthy environment, free from deterioration, where all these activities can be realized.

It is evident that, for the achievement of Lusigi's objectives, it must be added those of the WCS namely, the maintenance of ecological processes and life-support systems, the protection of the habitat of utilized species, and the on-site protection of genetic resources.

In addition to the conservation unit, Lusigi recommends a surrounding buffer or multiple-use management unit with the following cultural, touristic, and wildlife, management benefits or objectives:

1. Unique wildlife populations, habitat types, or scenic features, would be preserved.
2. The portions designated as parks would retain a wilderness atmosphere without being isolated.
3. Migratory wildlife populations would be maintained as their ranges inside and outside the park would be controlled.
4. Wildlife populations would be managed to prevent one species from dominating the park or the rest of the ecosystem. Wildlife populations could be harvested outside the park with little or no cropping taking place in the park. It may be necessary to cull surplus animals to protect the habitat from destruction.
5. Cultural harmony would be restored between the people and wildlife, as the former would be involved in the management of the latter and their life-style would not be disturbed through unnecessary prohibition. Only the livestock numbers would be controlled, but no difficulty is foreseen in this as populations would be controlled.
6. Economic benefits would be provided to the local residents through:
 - (a) Tourism - wages to tour-bus drivers and tour guides, hotel personnel, game guards, administrative staff, etc.
 - (b) Game cropping - wages to skimmers, field staff, tanners, meat processors, etc., income from sales of meat and raw hides or live animals.
 - (c) Income from sale of souvenirs made from animal products and sale of live animals for restocking.

7. Safari hunting would be controlled by the community, and income from concession fees, trophy fees, and meat sales, would accrue to the community. Wages for operators would reduce unemployment for the communities.

3.7 The Approach

The approach suggested by Lusigi would undoubtedly cause concern among more traditionally-minded preservationists, but it is suggested here as an illustration of the type of consideration which must be given if future conservation is to meet Olindo's goal of placing conservation 'within the context of human welfare and well-being of the total environment'.

In many countries that may consider bringing such changes, the approach suggested by Lusigi would require a major review of legislation and national conservation policies, as areas protected 'social invention' cannot exist outside appropriate political systems, and conservationists cannot achieve their goals without working through political mechanisms. There is ample evidence that dedicated public servants, working in harmony with non-governmental organisations and in concert with political mechanisms, can bring about dramatic changes in national policies.

The World Conservation Strategy, which was launched in thirty four countries in March 1980, provides a philosophical base and a guideline for the development of national and regional action plans. It is evident that, with only 2% of the Earth's surface 'protected', much effort must be concentrated on expanding

the protection element integrating it with development as recommended in the Strategy.

In the British concept, there is an element of retaining the ideal of inhabited landscape and there is also the element of managing the landscape for the purpose of preservation and recreation in areas where the land remained in diverse ownerships and sustained a population through a diversity of uses.

The regional parks (parc naturels et regionaux) of France or the 'greenline' parks of the USA are adaptations or developments of the same idea, which IUCN itself formally recognised in creating a new category of protected 'landscape' (MacEwen & MacEwen, 1982, p. 5).

3.3 The New Concept and the Term 'National Park'

Olindo's experience and foresight, Lusigi's prescriptions, WCS philosophies, and IUCN list of new conservation ideas, all predict and accept a change. But broadening the conservation outlook with other substitutes, excluding the new national park philosophy, leaves unanswered the question of the integration of indigenous people into the new national park concept.

The question then is, should national parks created under the traditional concept be allowed to stay or evolve? And should new national parks be created under the presently advocated concept which permits the integration with the indigenous people, without a change in the 'national park' terminology?

Although to permit human settlement in the traditionally uninhabited national parks would be a great set-back, the new concept would provide an alternative avenue for the fulfilment of the modern concept such that the old and the new concepts would operate side by side but at different levels; and the application of either would be left entirely to individual countries to decide depending on its merits and the particular circumstances; and the term 'national park' made applicable to the new as well. The conflict here is the acceptance of the application of the term 'national park' as regards the new concept.

3.9 The Attributes of the New Concept

The traditional concept of national park has not been able to save new areas of outstanding natural beauty which afford conservation and other opportunities for outdoor recreation, and which have been neglected and are being ruined because their designation will involve the integration of the indigenous people and therefore does not conform to the old concept.

These questions are pertinent enough and one could ask; Have conservationists unwittingly in several ways inhibited conservation? And for how long should the traditional concept of national park continue inhibiting further designation of national parks on the modern concept?

Since 1872, when Yellowstone the world's first National Park was created, a period of 114 years, it has become evidently clear that the traditional national park concept, although defined in 1969 (10th General Assembly of IUCN at New Delhi) which surprisingly corresponded with the Yellowstone concept, has gone through a period of evolution.

The advancement in technology which provides less working hours but more time for leisure and outdoor recreation; people becoming affluent and providing their personal means of transport and being able to travel easily, for example, to national parks; world population growth which is very prominent in Africa, and people needing more land for expansion and multiple land use, including farming etc.; these have all contributed to a transition in the old national park concept, and hence the advent of the new concept.

The term 'national park' has gained such an international recognition that it has become the pride of every nation to embrace it and to maintain its international recognition, it is necessary that the terminology of 'national park' is made applicable also to the new concept to avoid over-lapping and duplication of the development strategy.

Britain is the only country in the world which between 1951 and 1957 created ten parks which permitted human dwelling within them, and were designated as national parks. The background to this concept was that the country was densely populated and highly industrialized, and that there were no vast lands available that

were uninhabited so as to make it possible to adopt the North American, Canadian or African national park system of vast stretches of uninhabited land.

There was an exception to that theory. The Scottish highlands abound in areas of outstanding natural beauty some of which were uninhabited that could have been established as national parks, but they were observed as being far remote from any conurbation apart from Clydeside; and also the Scottish land system was totally different from that of England and Wales (Cherry, 1975). The Ramsay Report of 1945 'National Parks A Scottish Survey' recommended Loch Lomond-Trossachs and four others as national parks but were not pursued any further. The British National Parks are looked upon as national assets, to have saved those areas of outstanding natural beauty which provide outdoor recreation, which otherwise would have been tragically a national loss if they had been left without any form of conservation, more so as national parks.

Similar situations have occurred in other parts of the world, especially in Africa, where there is the urgent need for further development of the national park programmes. And the suitable form of application in some areas is the new national park concept as being advocated and which Britain has taken the lead.

Kenya National Parks are the best developed in Africa and Olindo's proposition reflects the thoughts of further national park development in Africa. West Africa, particularly Ghana, shares Olindo's view which will permit the saving of other areas of outstanding natural beauty which afford outdoor recreational opportunities, by incorporating the social and economic development of the indigenous people dwelling within the parks.

3.10 The Indigenous People

Much of the discussion tends to surround the term 'indigenous people', and it would therefore be useful at this point to attempt to define, firstly, 'indigenous'. Webster's International Dictionary defines 'indigenous' as 'having originated in and being produced, growing, or living naturally in a particular region or environment'. Secondly, the word 'people' would simply refer to the natives. Hence, the term 'indigenous people' would mean the natives who were born in that particular locality or environment, otherwise referred to, as the existing national park, or the proposed national park or simply national park, and who from childhood have continued to live there to at least the age of twenty years.

I have chosen 20 years to mark the period of early manhood or womanhood where the individual would have become matured enough to be able to assess his or her contribution to the economy of the area and whether his or her involvement, as such, has given some form of impact on the natural environment; and if it has, whether that has been beneficial or detrimental to the designated area as regards conservation.

The next point which again offers an interesting discussion is the way these natives would have lived in the national park, the proposed national park or in that particular environment. The definition of 'indigenous' goes on to say 'living naturally'. This is seen as an attribute which gives continuity to the natural environment, the national park etc.

3.11 Summary and Conclusions

Professional conservationists like Sarasin, Clawson, Lusigi, Olindo and Eidsvik have all perceived the inadequacies of the traditional national park concept and have wished for a change, very much a new concept which would accept and integrate human existence in a national park.

Being professional conservationists, their views lend profound support to the theme of this thesis which attempts to propound and validate a new concept of the national park as an adjunct to the traditional one, and which will recognise human habitation (initially indigenous people) within a national park.

PART II

CHAPTER IV The United States National Park Service

CHAPTER V The British National Park System

CHAPTER IVTHE UNITED STATES NATIONAL PARK SERVICEContents :

- 4.1 Introduction
- 4.2 The US National Parks : The Land Use System
 - 4.2.1 Natural Resources Management
 - 4.2.2 Cultural Resources Management
 - 4.2.3 Visitor Use
 - 4.2.4 Park Operations
 - 4.2.5 Development
 - 4.2.5.1 Access and Support Facilities
 - 4.2.5.2 Major Destinations
 - 4.2.5.3 The Backcountry
- 4.3 Redevelopment of Yosemite Valley
 - 4.3.1 Reclaim Areas of Outstanding Natural Beauty
 - 4.3.2 Marked Reduce Traffic Congestion
 - 4.3.3 Allow Natural Processes to Prevail
 - 4.3.4 Reduce Crowding
 - 4.3.5 Promote Visitor Understanding and Enjoyment
- 4.4 Yosemite Valley and Yosemite Village
- 4.5 Costs of Implementation
- 4.6 Concessions Management
- 4.7 The Management Set-Up of Yosemite National Park
- 4.8 Commitment to the Implementation of the General Management Plan
- 4.9 Summary and Conclusions

CHAPTER FOUR : THE UNITED STATES NATIONAL PARK SYSTEM

4.1 Introduction

In this Chapter the planning, development and management of United States National Parks are examined in more detail, and that of Yosemite National Park in particular in order to sharpen an understanding of the need for conceptual change in the IUCN definition.

In the study of National Park planning, development and management in the United States, Yosemite National Park system has been used as a case study.

The National Park Service's mandate to administer Yosemite National Park is a Congressional requirement; and inherent in this mandate are obligations regarding resources, planning, development and management of the Park. Hence, there are two objectives for Yosemite National Park. The first is the preservation of the resources that contribute to Yosemite's natural beauty; and the second is to make the varied resources available to the public for its use and enjoyment, education and recreation now and in the future.

In order to fulfil these objectives Yosemite National Park has produced a General Management Plan in 1980, and it is to guide the overall operations of the Park for approximately 10 to 15 years. The General Management Plan is the document that provides for the realisation of the Park's purposes in consonance with applicable legislation, management policies and Park objectives.

4.2 The US National Parks : The Land Use System

Each of the United States 39 National Parks is headed by a Park Superintendent, and it is under the authority of the National Park Service of the Department of the Interior. For administrative purposes the National Park Service has divided the country into ten regions, and each region has a Regional Head Office headed by a director of the National Park Service, but with the National Head Office itself established in Washington D.C. For example, Yosemite National Park comes under Western Regional Office in San Francisco, California; and Crater Lake National Park is under Pacific Northwest Regional Office in Seattle, Washington.

In the study of National Park planning, development and management in the United States, Yosemite National Park system has been used as a case study. Yosemite was chosen, firstly, because it is the second oldest National Park, established in 1890; and secondly because it has a wealth of experience, and although it has many enviable achievements the problems facing Yosemite are almost the same, if not on a higher scale, as in most National Parks in other parts of the world. And thirdly because the author visited Yosemite in summer 1983 as part of the research programme.

"The Yosemite region is dominated by the Sierra Nevada, an immense mountain chain, about 430 miles long and stretching about one-third the length of California. Its crestline varies from 10,000 to 14,500 feet in elevation. Within its vast expanse lie three National Parks: Yosemite, Sequoia and Kings Canyon" (Fig. 4.1); (National Park Service, 1974, p. 6).

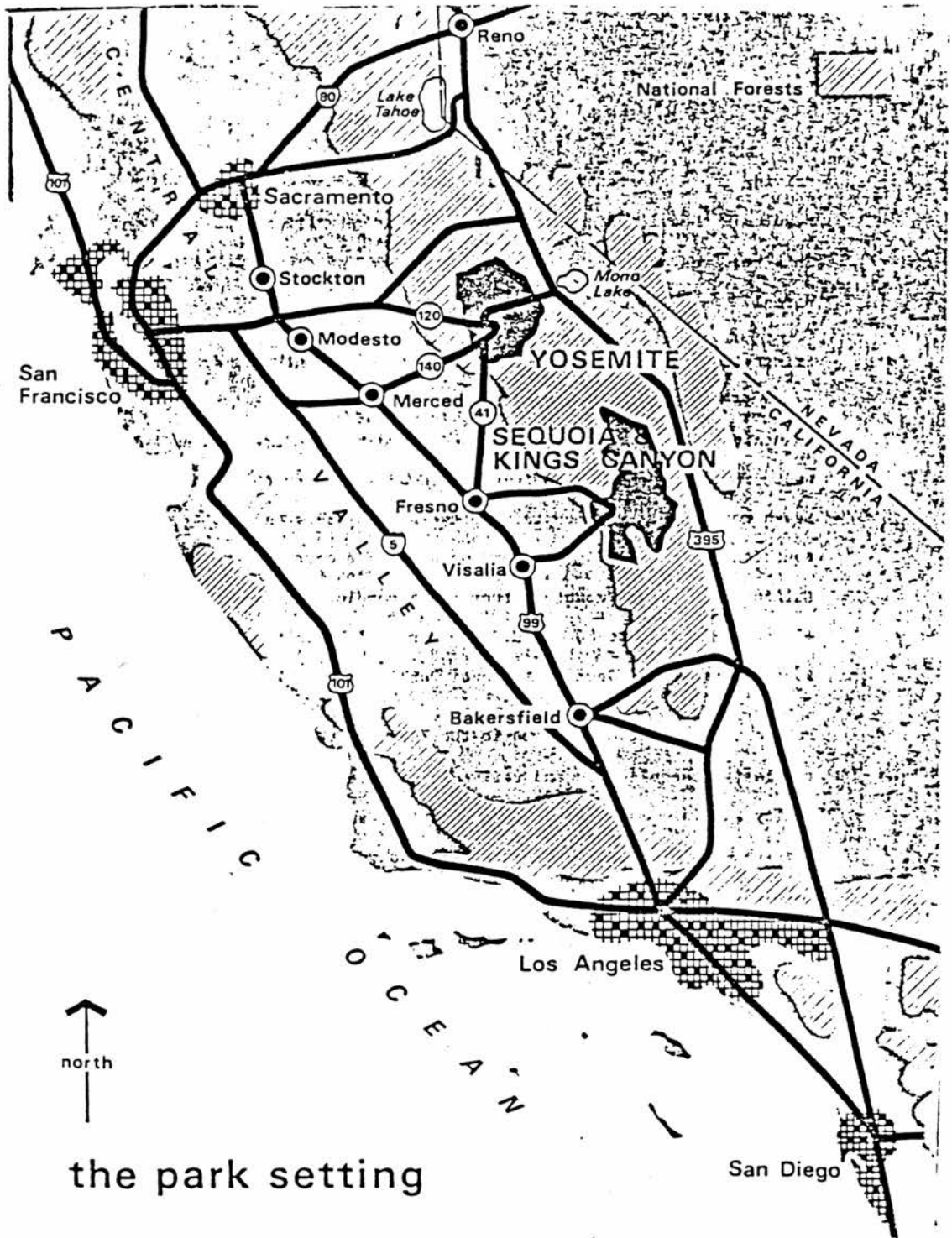


Fig. 4.1 The Setting of Yosemite National Park
(From National Park Service, 1974)

There are two parts of what is now Yosemite National Park: the Valley which was ceded to the State of California by Congress in 1864 and the high Sierra country surrounding the Valley, which was set aside as 'forest park' in 1890, a doughnut-shaped Park to which the Central Valley was added in 1906 (Fig. 4.2).

Yosemite National Park contains 304,380 ha (760,917 acres) of land in Tuolumne, Mariposa and Madera Counties, California (Fig. 4.2). The Park is within four to six hours' drive from San Francisco and Los Angeles respectively (Fig. 4.1); and residents of these urban areas make up a large percentage of the Park's visitors. More than 70% of all Park visitors come from California (Yosemite, 1979, p. 3). It has been recorded that between 2.5 and 3 million people visit the Park annually (NPS, 1978, p. 49).

The National Park Service's mandate to administer Yosemite comes from Congress. Inherent in this mandate are obligations regarding resources management, planning and development in the Park. Hence, there are two objectives for Yosemite National Park. The first is the preservation of the resources that contribute to Yosemite's uniqueness and attractiveness - its exquisite scenic beauty; outstanding wilderness values; a nearly full diversity of Sierra Nevada environments, including the very special sequoia groves; the awesome domes, valleys, polished granites, and other evidences of the geological processes that formed the Sierra Nevada; historic resources, especially those relating to the beginnings of national conservation ethics; and evidences of the Indians that lived on the land. The second objective is to make the varied resources of Yosemite available to people for their individual enjoyment, education and recreation, now and in the future.

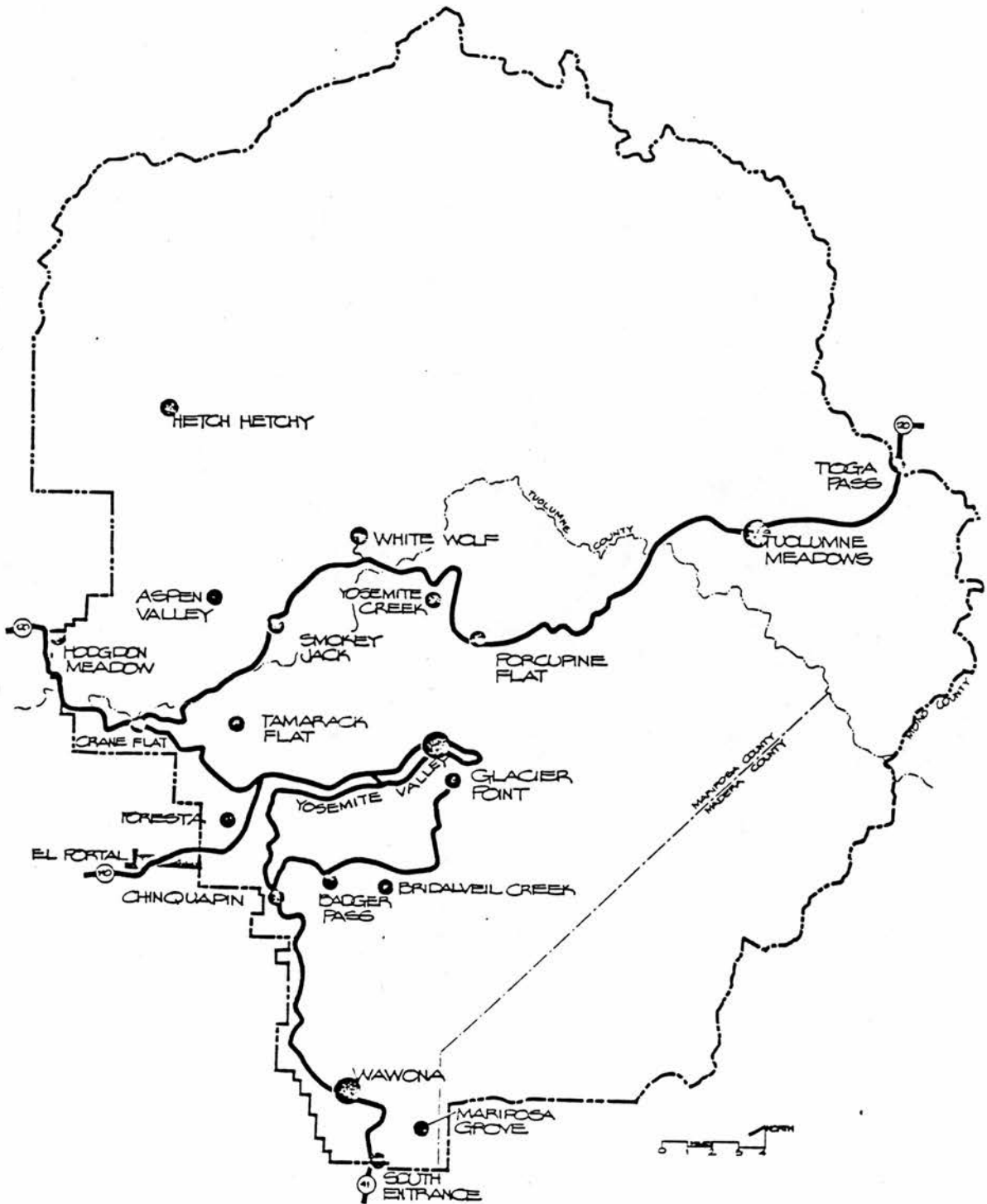


Fig. 4.2 Yosemite National Park showing specific areas and counties which constitute the Park (From National Park Service, 1978)

In order to fulfil these objectives Yosemite National Park has produced a General Management Plan (GMP) which was published by the National Park Service in 1980 and approved by the Department of the Interior; and it is to guide the overall operations of the Park for approximately 10 to 15 years from 1980.

The General Management Plan is the document that provides for the realisation of the Park's purposes in consonance with applicable legislation, management policies and park management objectives. It objectively considers natural, cultural, social and economic values in defining management strategies, and represents a commitment to the public and the Congress on the National Park's management, protection, use and development.

The General Management Plan for Yosemite is to direct management, planning and development of the Park's resources and shape the kinds of experiences visitors will enjoy in the Park. It, therefore, consists of the following parts:

1. Natural Resources Management.
2. Cultural Resources Management.
3. Visitor Use.
4. Park Operations.
5. Development Plan.

4.2.1 Natural Resources Management

1. In the management of Natural Resources the General Management Plan endeavours to restore and maintain natural, terrestrial, aquatic and atmospheric ecosystems so that they may operate essentially unimpaired. And in so doing to:

- i. Conduct continuing research to gather and analyse information necessary for managing natural resources.

- ii. Restore altered ecosystems as nearly as possible to conditions they would be in today had natural ecological processes not been disturbed.
- iii. Protect threatened and endangered plant and animal species and reintroduce, where practical, those species eliminated from the natural ecosystems.
- iv. Identify and perpetuate natural processes in the Park's ecosystems.
- v. Permit only those types and levels of use or development that do not significantly impair the Park's natural resources, and direct development and use to environments least vulnerable to deterioration.
- vi. Limit unnatural sources of air, noise, visual and water pollution to the greatest degree possible.

2. The Natural Resources Management intends to preserve, protect and restore scenic resources and therefore urges to:

- i. Identify the major scenic resources and the places from which they are viewed.
- ii. Provide for the preservation or protection of existing scenic resources and viewing stations.
- iii. Provide for historic views through vista clearing.
- iv. Permit only those levels and types of use that are compatible with the preservation or protection of the scenic resources and with the quality of the viewing experience.

In the application of these considerations of resource management concepts Yosemite National Park considers the long-term effects of visitor use, fire suppression, insect control, construction of facilities and the varied management practices in the Park and on adjacent lands that have brought about gradual changes in the total Park environment that have altered the ecological balance in certain areas, specifically, Yosemite Valley, the Sequoia Groves, the mixed-conifer forests and some of the high elevation meadows.

It should be recognised that each human use and development creates some adverse impact on the natural environment that underscores the fact that the Yosemite National Park has a greater human use impact.

Thus, the management programmes ensure that current imbalances are corrected or reduced and confined to the smallest possible intensity and scope. Management programmes seek to operate within Yosemite's complex environment, perpetuating it intact where possible,, and correcting imbalances as they are identified. Specific objectives and management techniques vary depending on the type of ecological unit, its relative stability and its use. All uses continue to be evaluated for their effects on resources and decisions and guided by the importance of the proposed use and the value of the resource that would be adversely affected.

4.2.2 Cultural Resources Management

Yosemite National Park has a general programme to preserve, restore or protect significant cultural resources (historic and prehistoric), and that therefore needs to:

- i. Identify, evaluate and determine the significance of cultural resources, encompassing buildings, structures, sites and objects.
- ii. Provide for the preservation, restoration or protection of these significant cultural resources.
- iii. Permit only those uses that are compatible with the preservation of significant cultural resources.

4.2.3 Visitor Use

It aims to assist all people in understanding, enjoying and contributing to the preservation of the natural, cultural and scenic resources and thus to:

- i. Orient visitors, provide personal assistance and inform them about opportunities the Park provides.
- ii. Provide interpretive services that relate the natural and cultural significance of Yosemite to visitors with a broad diversity of interests.
- iii. Provide only for those types and levels of programmes and activities that enhance visitor understanding and enjoyment of the Park's resources.

- iv. Permit only those levels and types of accommodations and services necessary for visitor use and enjoyment of Yosemite.
- v. Provide the opportunity for a quality wilderness experience.
- Vi. Provide transportation services that facilitate visitor circulation and enhance preservation and enjoyment of the Park's resources.

4.2.4 Park Operations

1. Yosemite National Park intends to maintain a safe, functional and orderly environment that provides compatible opportunities for resource preservation and enjoyment by visitors and employees, and that to:

- i. Classify Park lands, specifying their management and use, to ensure the achievement of all objectives.
- ii. Provide facilities for administration, maintenance and management at appropriate locations.
- iii. Locate facilities to minimize exposure to natural hazards such as rockslides, flooding, avalanche and hazard trees.
- iv. Encourage an appropriate use of structures with historic, architectural or engineering significance consistent with the preservation of their historic fabric.
- v. Provide facilities and utility systems that conserve energy and comply with all applicable standards and codes.
- vi. Protect the rights, safety and security of all visitors and employees.

- vii. Acquire lands and improvements (inholdings) or interests therein for Park purposes as expeditiously as possible.
- viii. Adjust Park boundaries as required to preserve and provide for enjoyment of nationally significant resources, to complete ecological units insofar as possible and/or to provide for more effective management.
- ix. Provide, at appropriate locations, services and amenities conducive to a community environment for employees.

2. Support an integrated system of compatible regional land uses providing opportunities for recreation, community development, preservation and economic utilization of resources.

- i. Participate with government agencies and private interests in planning for compatible management and use of scenic, natural, cultural and recreational resources.
- ii. Promote visitor services and accommodations at sites more appropriate to the preservation of park values and the public interest through coordinated regional planning and encouragement of private enterprise outside the Park.

4.2.5 Development

Yosemite National Park resources have been divided into three categories, see Fig. 4.3, and each suggesting a specific type of development and use, while at the same time remaining closely associated with the rest of the Park as follows:

- i. Access and Support Facilities.
- ii. Major Destinations.
- iii. Backcountry.

4.2.5.1 Access and Support Facilities

This zone is located along the southwestern side of the Park and provides visitors with primary access. The magnificent mixed conifer forest which typifies this zone assists in introducing the Park and its opportunities for use and enjoyment. Facilities include access routes for both buses and cars, and overnight accommodations. Additional central administration facilities for both the National Park Service and the concessioner may be moved into this zone (Fig. 4.3).

4.2.5.2 Major Destinations

These are the natural features accounting for Yosemite's immense popularity: Yosemite Valley, the Tioga Road region, Mariposa and Tuolumne Groves, Tuolumne Meadows and Glacier Point (Fig. 4.2; Fig. 4.3; Fig. 4.4A and Fig. 4.4B). They constitute the Park's heavily prime resources where to ensure continued public use and

use zones

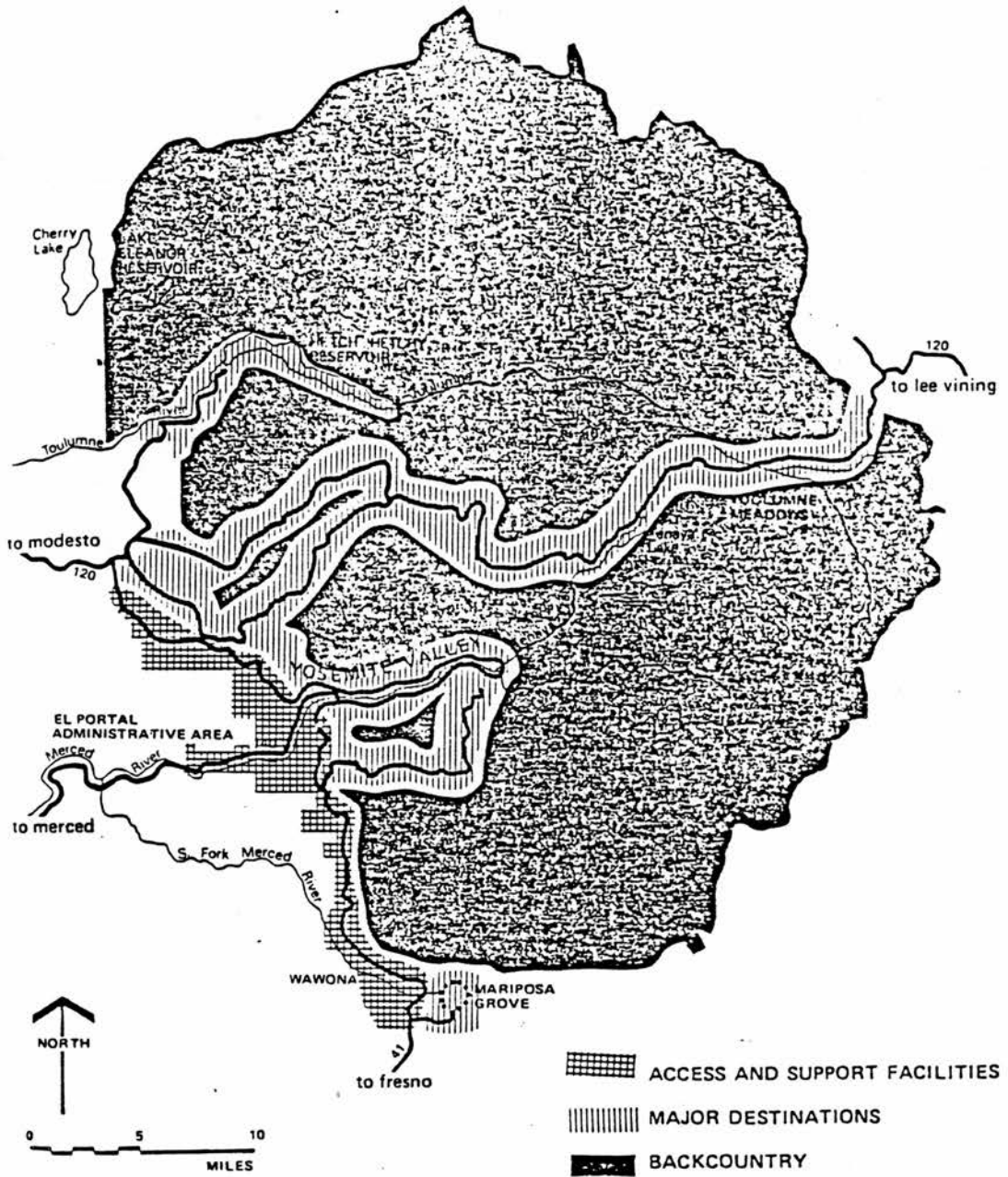


Fig. 4.3 Zones of Yosemite National Park
(From National Park Service, 1974)

enjoyment. Here the emphasis is on the interpretation and appreciation of the natural resources. Accommodations - lodge, campgrounds, supplies, groceries, fuel - petrol, and food service, all are provided where necessary, but in keeping with the basic interpretation, appreciation and purpose of the resource that immediately surrounds them, and restricted to a level that will not create more than minimal damage to the Park's resources or diminish the visitor's experience. Management facilities, both National Park Service and concessioner are restricted to those essential to on-site use, service to the visitor, and protection of the inherent resources.

4.2.5.3 The Backcountry

This zone comprises about 725,000 acres and encompasses the Park's roadless area (NPS, 1974, p. 32); see Fig. 4.3; Fig. 4.4A; and Fig. 4.4B. Within this zone it has been proposed the wilderness area comprised of about 647,000 acres (Ibid. p. 32); see Fig. 4.5. All wilderness lands and adjacent non-wilderness backcountry are preserved to maintain its ecological processes, and managed for public use and enjoyment of its aesthetic, biological and geological values.

general development

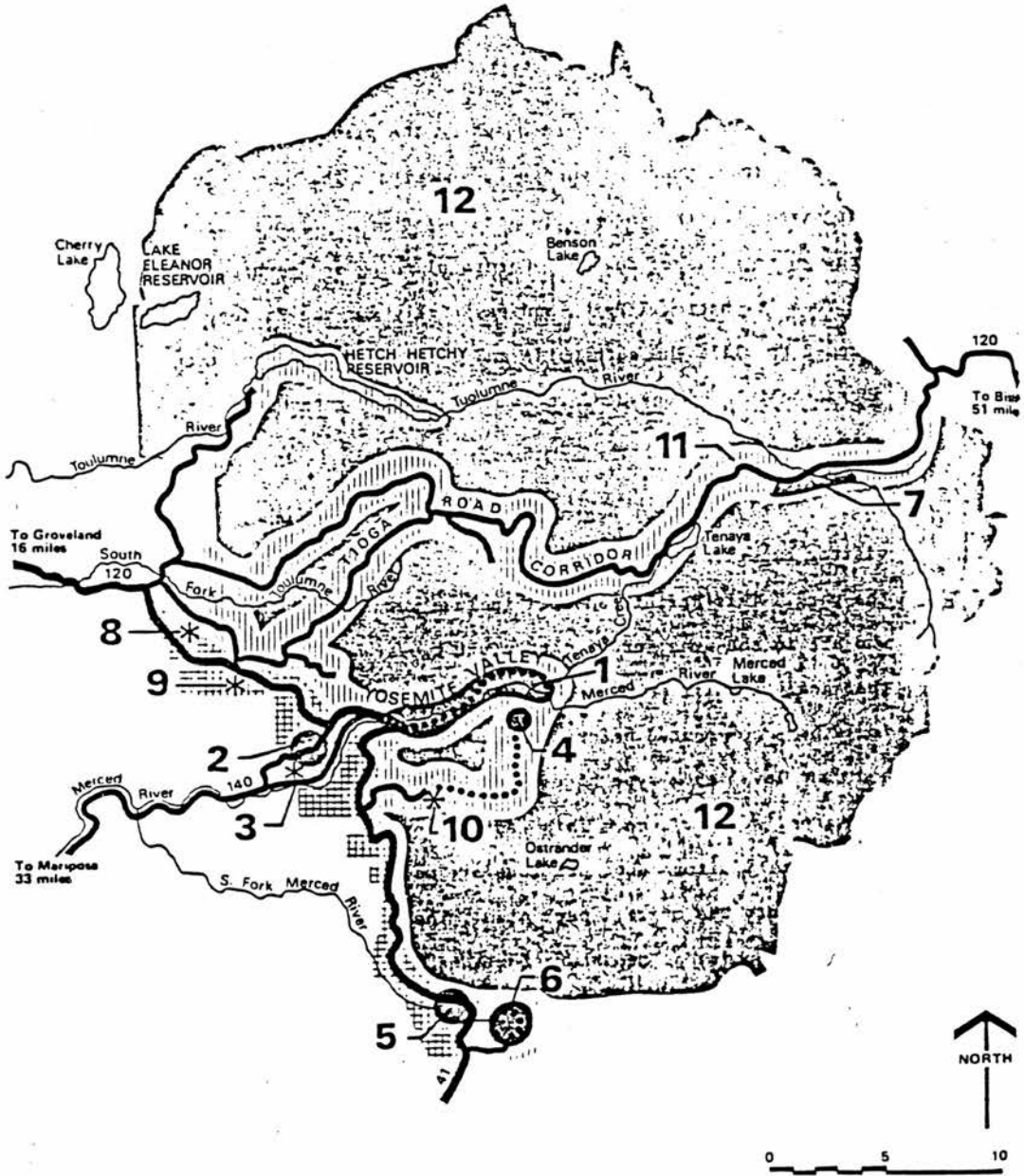


Fig. 4.4A The General Development of Yosemite showing Natural Areas of the Park (From National Park Service, 1974)








- | | | |
|---|--|--|
| <p>1 YOSEMITE VALLEY
 Interpretation
 Camping
 Picnicking
 Fishing
 Hiking
 Lodge — Food Service
 NPS and Concession Support Facilities</p> <p>2 FORESTA / BIG MEADOW
 Group Camp
 NPS Horse Stable</p> <p>3 EL PORTAL
 NPS and Concession Support Facilities</p> <p>4 GLACIER POINT
 Interpretation
 Food Service</p> <p>5 WAWONA
 Camping
 Picnicking
 Fishing
 Lodge — Food Service
 Historical Exhibits
 NPS Support Facilities</p> <p>6 MARIPOSA GROVE
 Interpretation
 Guided Tours
 Hiking</p> <p>7 TUOLUMNE MEADOWS
 Ranger Station
 Information and Interpretation
 Camping
 Store
 Lodge — Food Service
 Stables
 Picnicking, Fishing
 Backcountry Trail Hub</p> <p>8 HODGDON MEADOW
 Information
 Camping
 NPS Support Facilities</p> <p>9 CRANE FLAT
 Camping
 Store</p> <p>10 BADGER PASS
 Downhill Skiing
 Ranger Station
 Food Service</p> | <p>11 TIOGA ROAD CORRIDOR
 Interpretation
 Scenic Drives
 Camping
 Picnicking
 Fishing
 Hiking</p> <p>12 BACKCOUNTRY
 Camping, Hiking, Fishing
 High Sierra Camp</p> | <p>LEGEND</p> <p> Access, Service, Overnight Use</p> <p> Resources Accessible by Road or Mechanized Transit</p> <p> Backcountry</p> <p> * Major Development</p> <p> Park Roads</p> <p> Major Access Route — Scenic Drive</p> <p> Mechanized Transit (Existing and Potential)</p> |
|---|--|--|

Fig. 4.4B Use of Natural Areas and Legend
 to Fig. 4.4A
 (From National Park Service, 1974)

All Park lands have also been classified in accordance with the recommendations of the Outdoor Recreation Resources Review Commission. Yosemite contains all the six classes of lands (Fig. 4.6).

Class I. High-Density Recreation Areas.

Class II. General Outdoor Recreation Areas.

Class III. Natural Environment.

Class IV. Outstanding Natural Areas.

Class V. Primitive Areas.

Class VI. Historical and Cultural Areas.

land classification

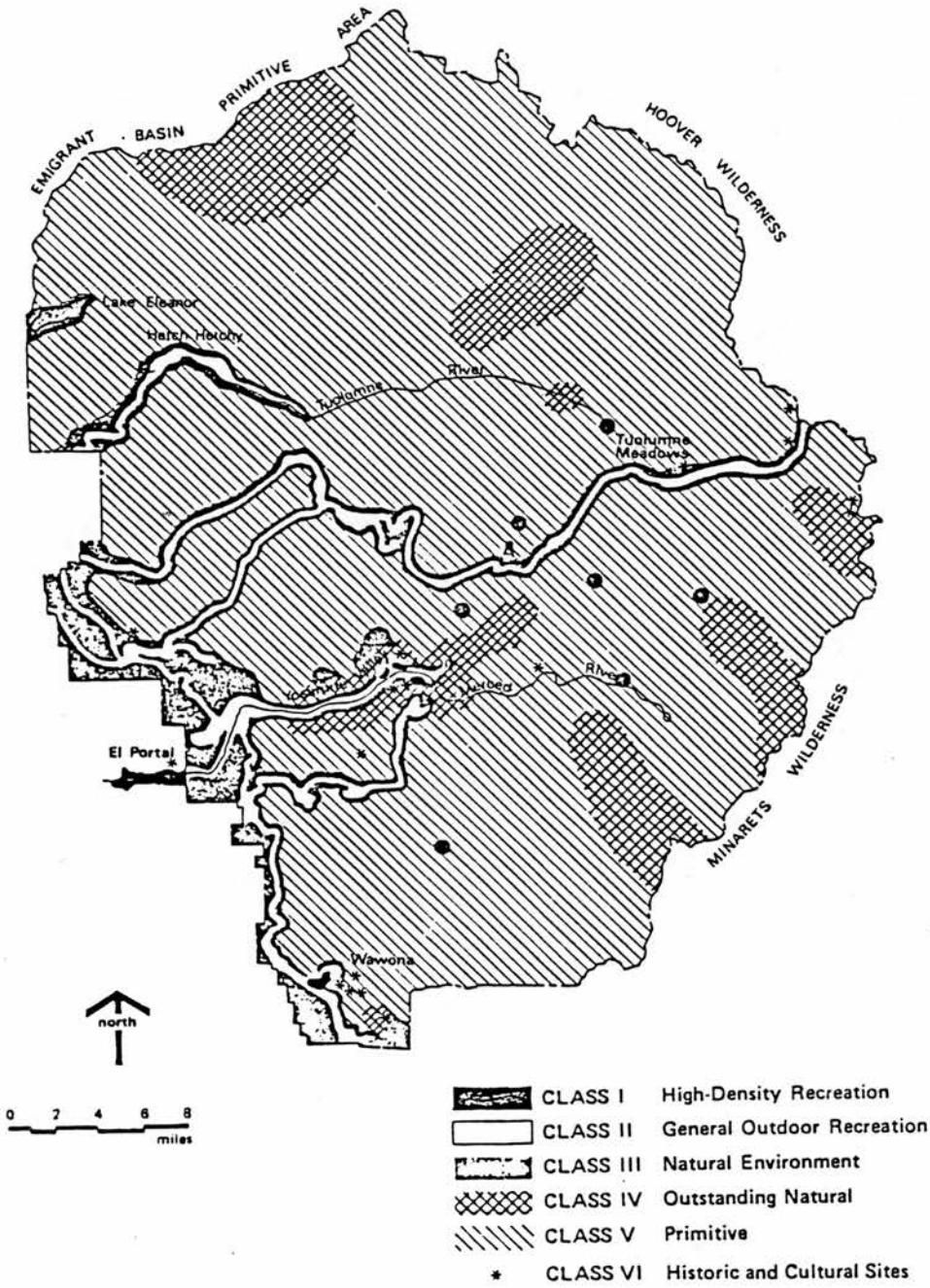


Fig. 4.6 Land Classification of Yosemite National Park
(From National Park Service, 1974)

4.3 Redevelopment of Yosemite Valley

In the application of the General Management Plan to correct the imbalances of development in Yosemite National Park, this study explores Yosemite Valley which is the core of the Park and contains most of the development which now calls for redevelopment.

Yosemite Valley is but a mile wide and seven miles long (NPS, 1980), (Fig. 4.5) and (Fig. 4.7), yet despite its small size, it is a premier masterpiece of nature's handiwork of an incalculable value and an area of outstanding natural beauty.

Yosemite Valley and the Sierra wilderness that surrounds it, which together make up the Park, possess superlative scenic grandeur which are a permanent test of the wisdom and foresight to preserve them as a National Park for the enjoyment of all people.

The Valley is the Park's most inspiring and popular attraction and will always be the heart of Yosemite; it has been visited by 20,000 to 30,000 people in a single day (NPS, 1974, p. 48), and in 1978 2,572,018 people visited the Park (NPS, 1980).

Yosemite Valley consists of the following areas: Yosemite Village, Yosemite Lodge, Sunnyside Campground, Taft Toe, Muir Tree Campground, Housekeeping Camp, Curry Village, Ahwahnee Hotel, Campgrounds, Stables, Happy Isles and Indian Cultural Centre (Fig. 4.5), (Fig. 4.7) and (Fig. 4.8).

According to National Park Service, 1980, "Yosemite is now at a crossroad. During a century of public custodianship of this great Park, many decisions have been made, all well intended which have resulted in a march of man-made development in the Valley. Today, the Valley is congested with more than a thousand buildings - stores, homes, garages, apartments, lodging facilities and restaurants - reflections of our society. The Valley floor is bisected by approximately 30 miles of roads which now accommodate a million cars, trucks and buses a year". The efforts were a huge success but now the National Park Service acknowledges that it was "an overzealous attempt to civilize the Park" (NPS, 1980). But today the intent of the National Park Service is to redirect development with an essence of wilderness which strongly complements the Valley; and with the result that visitors can step into Yosemite and find nature uncluttered by piecemeal stumbling blocks of commercialism, machines and fragments of suburbia.

The study reveals the course of action the Yosemite National Park intends to apply, that is to:

1. Reclaim priceless natural beauty.
2. Markedly reduce traffic congestion.
3. Allow natural processes to prevail.
4. Reduce crowding.
5. Promote visitor understanding and enjoyment.

4.3.1 Reclaim Areas of Outstanding Natural Beauty

Yosemite Valley is too valuable to use for administration, maintenance, parking or any commercial services that do not contribute directly to a quality park experience. Outstanding natural areas that have been developed for uses such as staff housing, office space, warehousing, a golf course and a beauty shop will be reclaimed. Facilities in the Valley that do not relate directly to enjoyment of the Park, including the headquarters of the National Park Service and the Yosemite Park and Curry Company, will be relocated to the perimeter of the Park or beyond. Visitor facilities in Tuolumne Meadows and Mariposa Grove that are intrusive or cause environmental damage will be relocated to more resilient environments. Once this development is removed from the Park's most magnificent settings, the scenery that inspires the philosophy of the Park will begin to be restored (Fig. 4.12).

Lodging, food, petrol and shopping services are provided by the Yosemite Park and Curry Company, a subsidiary of the MCA Corporation, under contract to the National Park Service. The contract extends to 1993. In Yosemite Valley, the following concession services, including a total of 1,000 overnight lodging units, will remain and be improved in quality by the concessioner:

- i. The Ahwahnee Hotel.
- ii. Yosemite Lodge.
- iii. Curry Village.
- iv. Housekeeping Camp.
- v. The Village Store.
- vi. Horse Stables.

Medical services, provided under a separate concession contract, will remain in Yosemite Valley.

The National Park Service provides camping, interpretive and visitor protection service in Yosemite Valley. These services, including 750 campsites, will continue to be provided.

Visitor services will be expanded at El Portal and Wawona (Fig. 4.2), (Fig. 4.9) and (Fig. 4.10). Specifically, a new 200-site campground will be constructed at Wawona (Fig. 4.9) by the National Park Service, and the Wawona Hotel will be expanded by the concessioner. Reservation and information services for incoming Park visitors will be provided at El Portal (Fig. 4.9) and Wawona (Fig. 4.10). Private lodging in the El Portal area (Fig. 4.9) will be expanded.

Headquarters for the National Park Service (NPS) and the concessioner will be located in Wawona (Fig. 4.10). Administrative and primary maintenance functions for the Park will be located at El Portal (Fig. 4.9).

EL PORTAL

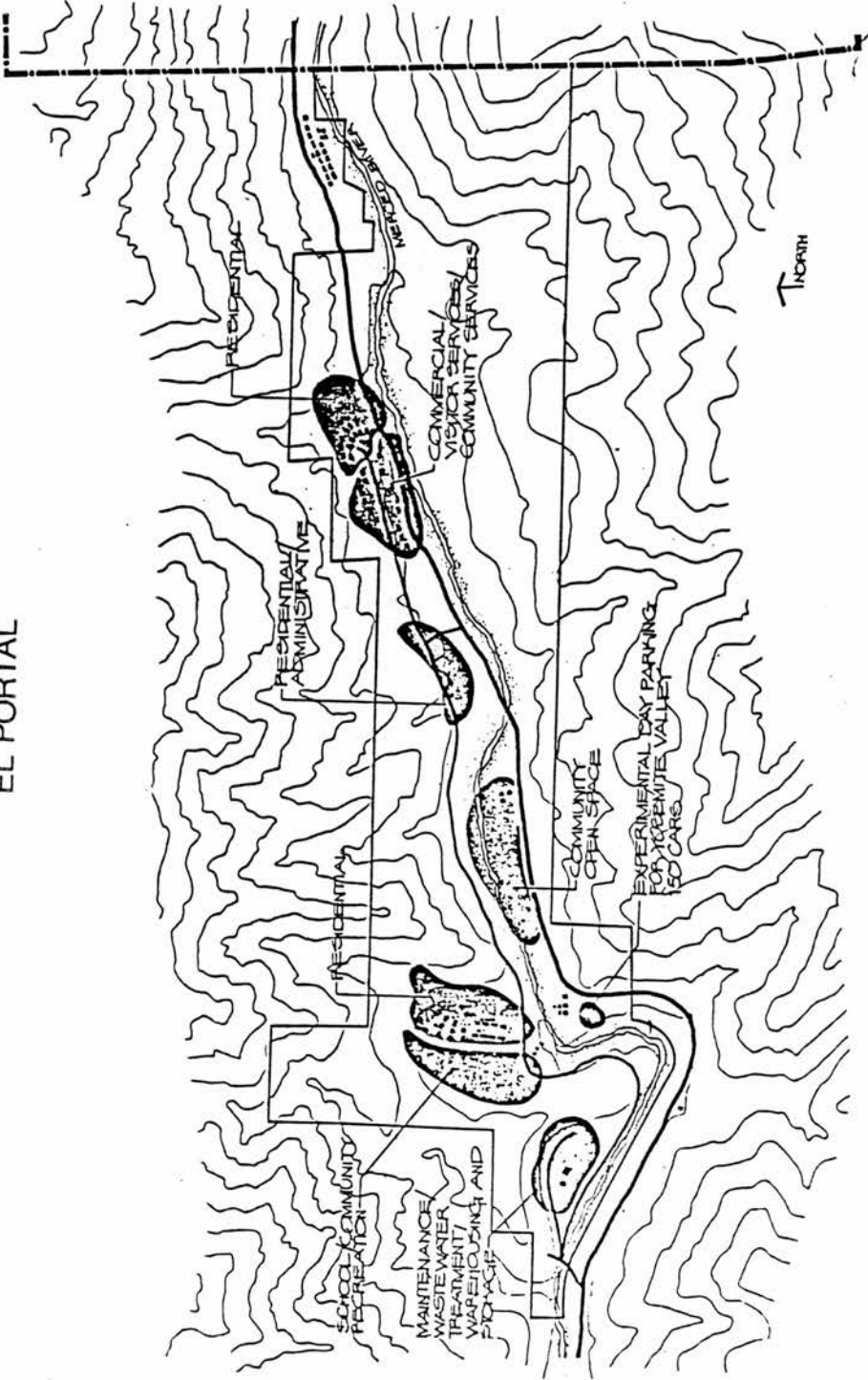
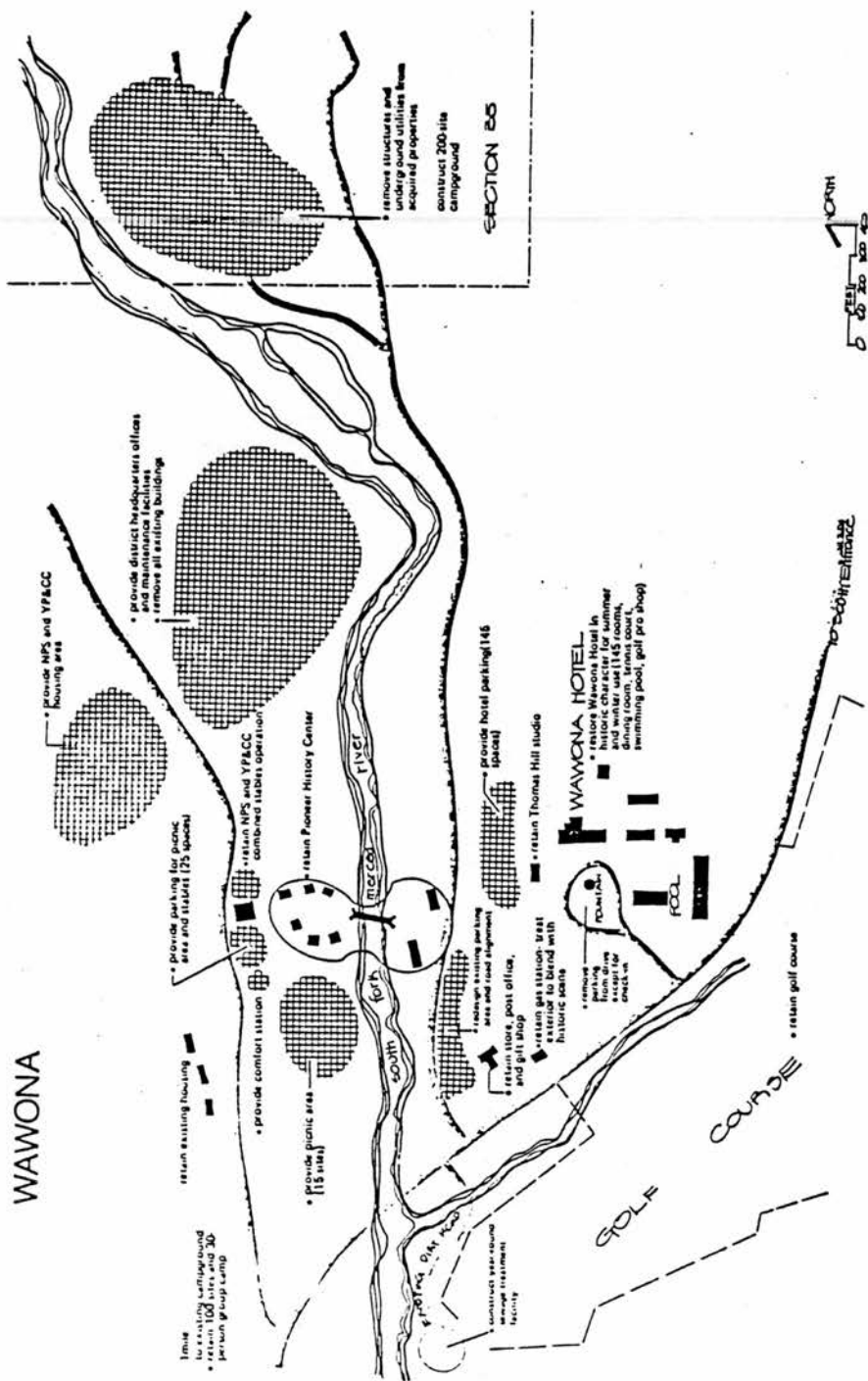


Fig. 4.9 Development Programme for El Portal
(From US NPS, 1980)



**Fig. 4.10 Development Programme for Wawona
(From US NPS, 1980)**

4.3.2 Marked Reduce Traffic Congestion

Fifty years ago the National Park Service was building roads and carving out parking lots to 'open up this scenic Sierra Nevada wonderland - Yosemite - for a new generation of mobile Americans (Richmond, 1978). Increasing automobile traffic is the single greatest threat to the enjoyment of the natural and scenic qualities of Yosemite. In the near future, it is hoped that automobile congestion will be greatly reduced by restricting people's use of their cars and increasing public transportation. And eventually, visitors will no longer drive their cars in to the most beautiful and fragile areas of the Park. The National Park Service is totally committed to finding an environmentally acceptable and economically feasible way to eliminate cars from Yosemite Valley. The Valley must ultimately be freed from the noise, the glare and the environmental degradation caused by thousands of cars.

For example, people entering the Valley for the day will be asked to leave their cars in a centralized parking area at Taft Toe (see Fig. 4.8), near the El Capitan bridge, about one-third of the way into the Valley. Only visitors with reservations for accommodation or campsites will drive beyond Taft Toe to parking areas at their overnight destinations. No visitors, including those who are staying overnight, will be able to drive their cars from place to place once they have reached their designated parking area. The Valley shuttle bus system will be expanded, and this service will supplement walking, bicycling and horseback riding as forms of transportation in the eastern two-thirds of the Valley (see Fig. 4.8).

These changes in transportation are expected to dramatically improve opportunities for park activities. Visitors should be able to drive directly to the Taft Toe parking area (see Fig. 4.8) or to their overnight accommodations, leave their cars, and begin enjoying the Park without being caught in stop-and-go traffic or suffering the frustration of trying to find a parking space. Walking and biking trails will begin at the day parking area, and shuttle buses will stop there regularly, providing easy access to other developments and trailheads and offering comfortable scenic tours. The sights and sounds of cars should be less and less obtrusive as visitors move into the Valley, and many hazards associated with traffic congestion will be removed, making the Valley a safer and more pleasant place for sight-seeing and other park activities.

At the same time these changes are taking place inside the Valley, Park managers will be asked to experiment with another transportation system with the long-term goal of eventually excluding cars from the Valley. Two outlying parking areas will be developed at El Portal (see Figs. 4.2 and 4.9) and Crane Flat (see Figs. 4.2 and 4.11), and bus service will be initiated between these areas and the Valley for people who choose to use it. There will be several weekends each summer when the day parking area at Taft Toe (see Fig. 4.8) will be filled and late-arriving visitors will be able to park at these outlying areas and ride a bus to the Valley. If the bus service to the Valley from these outlying parking areas works well, it will be expanded.

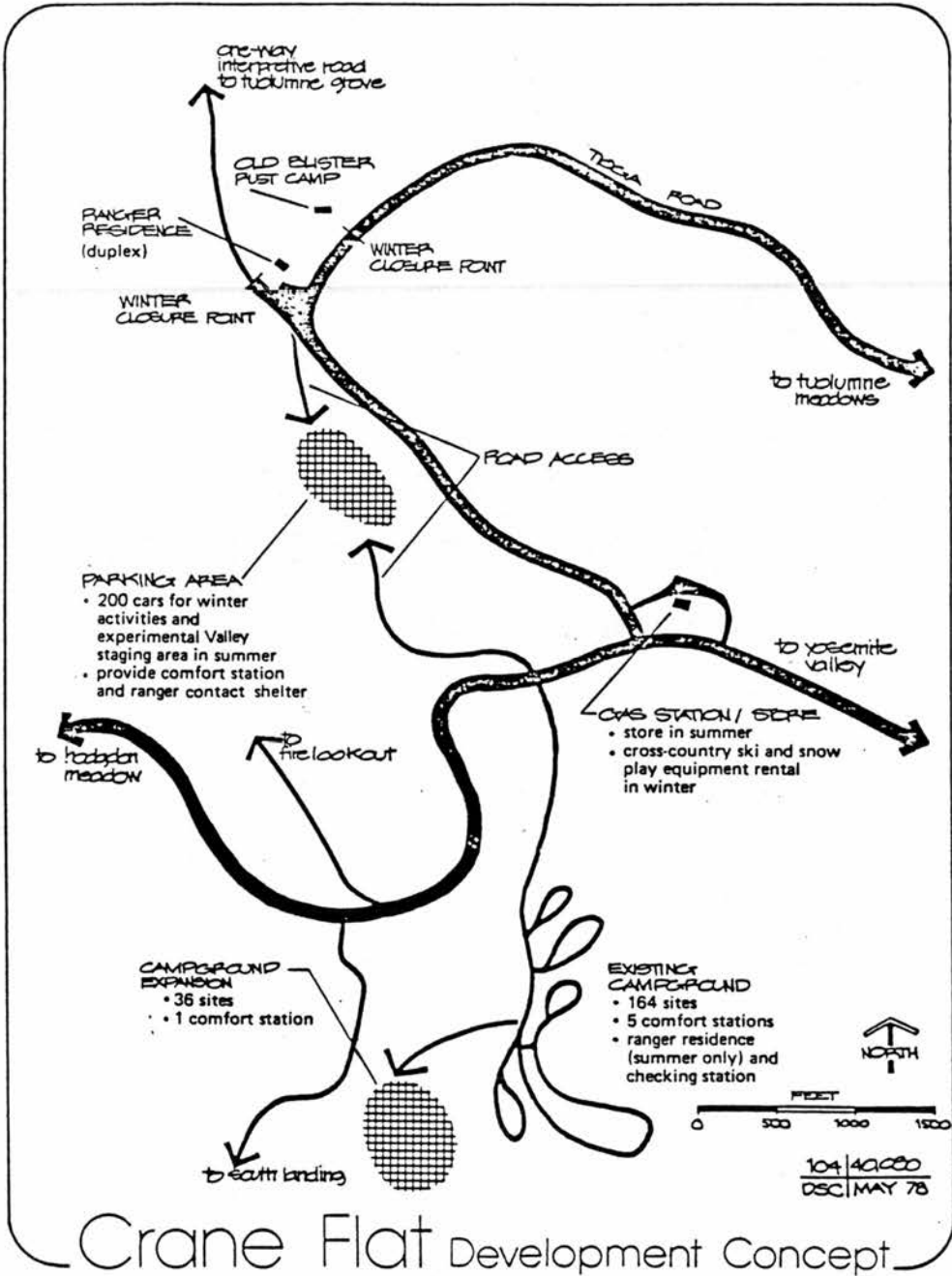


Fig. 4.11 Crane Flat Development Concept in compliance with the General Management Plan for Yosemite National Park (From National Park Service, 1978)

4.3.3 Allow Natural Processes to Prevail

The primary objective of natural resource management programmes will be to restore and perpetuate the natural processes of the Park's ecosystems. The Yosemite environment is not a static accumulation of geological and biological features but rather a dynamic system of interrelated and evolving forms. Therefore, if this environment is to be preserved, the natural processes that are occurring there must be understood and allowed to prevail. In the developed areas like the Valley, facilities will be removed from floodplains and geological hazard areas in deference to these natural phenomena, and the natural role of fire in vegetative communities will be simulated with controlled burns or mechanical removal of vegetation. In areas that have been disturbed by man's activity, natural processes will be allowed to restore the scene.

4.3.4 Reduce Crowding

Appropriate visitor use levels have been established for particular areas of the Park so that overcrowding does not interfere with visitor enjoyment or threaten the Park's values; facilities such as day parking and overnight accommodations will be based on these levels. As visitors approach and enter the Park, they will find information stations with reservation services to direct them to available facilities. Greater opportunities for year-round use should allow visitors to enjoy Yosemite at different times of the year.

4.3.5 Promote Visitor Understanding and Enjoyment

It is intended that the amount and kinds of information and interpretive programmes available to visitors will be greatly increased. Information about the Park's programmes and services will be broadcast through the news media and made available at regional centres in San Francisco and Los Angeles areas and at information stations along roads leading to the Park. The Park's excellent natural history and historical collections will be on display. Creative audiovisual programmes will help visitors to understand the processes and events that have shaped Yosemite's natural features and the relationship of the cultural values to the preservation of the Park. The intent of these expanded and visitor programmes is to help ensure that a visit to Yosemite will enjoyably confirm the Park's immense resources for outdoor recreation.

4.4 Yosemite Valley and Yosemite Village

Environmental considerations were most thoroughly examined for Yosemite Valley, especially the qualities of natural vegetation patterns and scenic beauty. These factors were used to determine where existing facilities should be removed and new facilities should be located.

During the early years of its administration of Yosemite, the National Park Service identified the need for a visitor programme and activity area in the Valley. The selected site was above the broad curve in the Merced River, backed by the valley walls and fronted by a large open meadow, where a person could stand in one place and enjoy a panorama that included Half Dome, Sentinel Dome, the Merced River, Glacier Point, Yosemite Falls and Cathedral Spires - the most scenic spot in the Valley (see Figs. 4.2, 4.7 and 4.8).

From this beginning Yosemite Village has developed into the Park's interpretive centre, commercial services complex, public transport depot, and administrative and maintenance headquarters. But something has been lost. Part of the best viewing area has been asphalted over and the Village is congested (see Fig. 4.12) and (see Fig. 4.13).

YOSEMITE VILLAGE

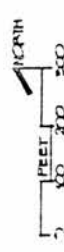
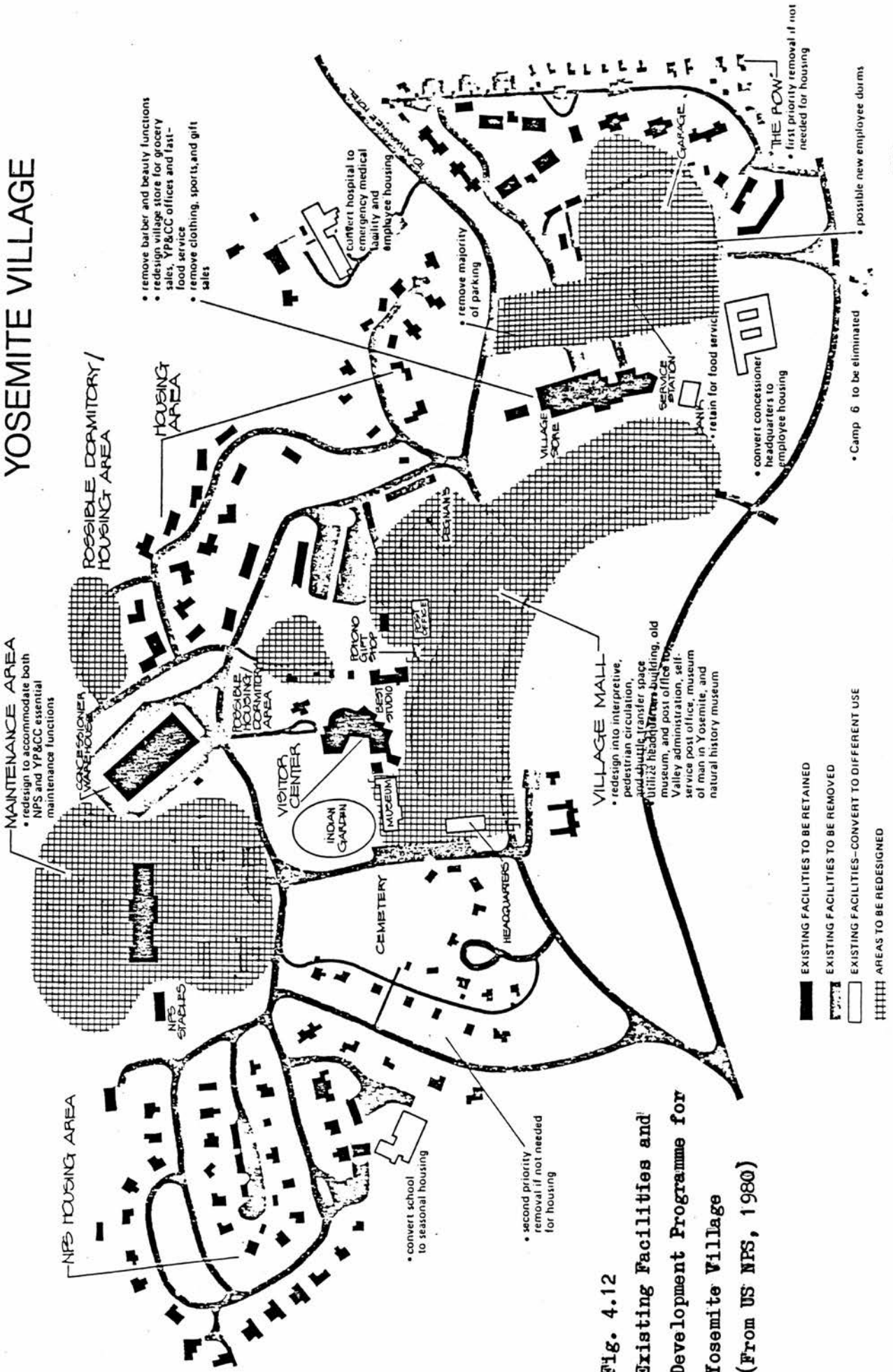


Fig. 4.12
Existing Facilities and Development Programme for Yosemite Village
 (From US NPS, 1980)

- EXISTING FACILITIES TO BE RETAINED
- ▨ EXISTING FACILITIES TO BE REMOVED
- EXISTING FACILITIES—CONVERT TO DIFFERENT USE
- ||||| AREAS TO BE REDESIGNED

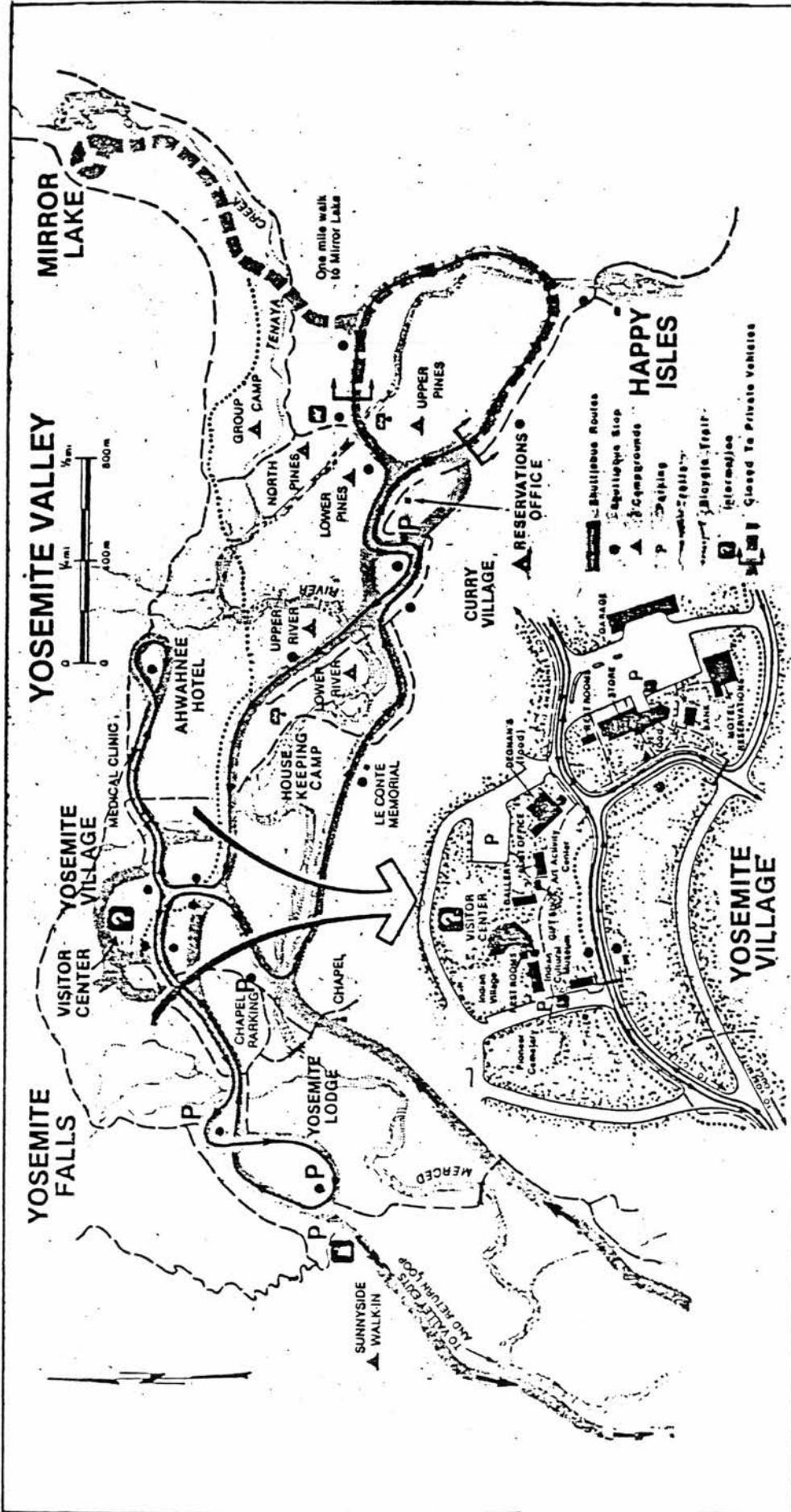


Fig. 4.13 Yosemite Valley : Existing Facilities

(From US NPS, 1974)

The Plan for Yosemite Village is to recapture its original character by simplifying the activities that take place there and by reinforcing its rustic architectural design. The Village Mall will be redesigned to provide viewing and interpretive spaces and shuttle bus stops (Fig. 4.12). An expanded visitor programme area will be separated from a smaller commercial services area by open space. Visitors arriving in the Village will be oriented toward the Visitor Centre, where they will get a comprehensive overview of the Park from interpreters, exhibits and films. Then they will be able to browse at their leisure through two new museums highlighting the themes of Yosemite's natural history and man in Yosemite. Here the Park's excellent exhibit collections and audiovisual programmes will explain the processes and events that have shaped Yosemite's natural and cultural features. Grocery sales and food service will still be conveniently available at the Village Store. But Degnans Store (food service and gift shop), the Pohono Gift Shop, the petrol station and the garage will be gone; and so will services such as banking, recreational equipment store, the barber and beauty services and car rental. Figure 4.12 shows the existing facilities and future development at Yosemite Village.

Many Park operations, maintenance, housing and community support facilities will be relocated to El Portal (Fig. 4.9). Emphasis will be placed on consolidating remaining National Park Service, Yosemite Park and Curry Company functions, and pulling development back from the edges of the meadows and the Merced River (Fig. 4.12).

4.5 Costs of Implementation

The implementation of the General Management Plan for Yosemite National Park, scheduled for a period of 15 to 20 years from 1980 to 1995/2000, will require the investment of substantial amounts of money by both the Federal Government and the principal concessioner, the Yosemite Park and Curry Company. The breakdown of attributable costs is as follows:

National Park Service

Design and Construction	\$29.0-34.0 million
Land Acquisition	12.0-15.0 "
Archaeological Investigation and Salvage	2.5-2.6 "
Payments to the Concessioner for Removal and Relocation of Facilities	<u>2.0-3.2 "</u>
Total	\$45.5-54.8 million
 Yosemite Park and Curry Company	 <u>\$27.0-30.0 "</u>
 Grand Total	 <u><u>\$72.5-84.8 million</u></u>

4.6 Concessions Management

The National Park Service provides, through the use of concessions, those commercial facilities and services within National Parks necessary for visitors' use and enjoyment. This system was authorized by Congress in 1916 when it established the National Park Service. In 1965, Congress enacted the Concessions Policy Act, which requires the National Park Service to ensure that a Park Concessioner has a 'reasonable opportunity' to realize a profit on its operation 'commensurate with the capital invested and the obligations assumed'.

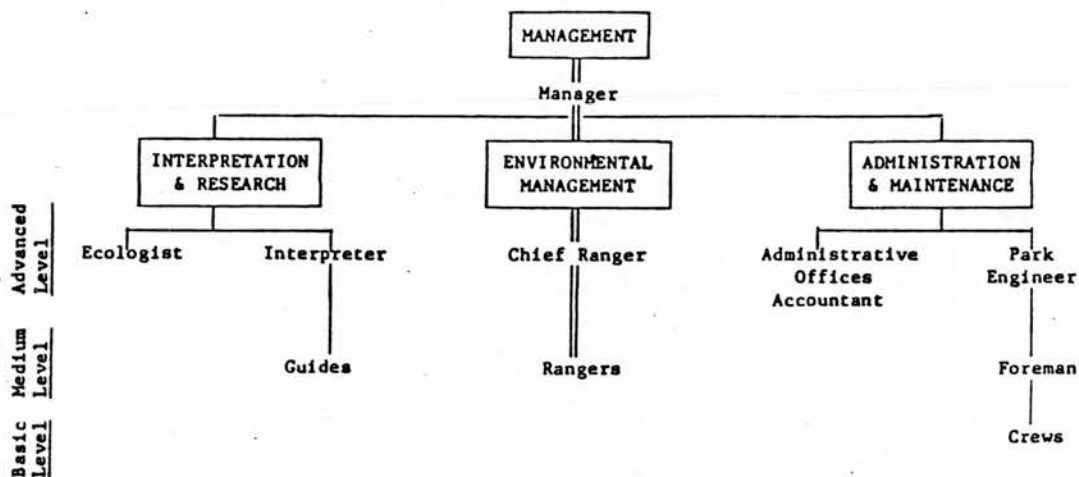
In Yosemite National Park, lodging, restaurants, sales, transportation systems and various recreational facilities are operated by private businesses under concession contracts with the National Park Service. The Curry Company is the primary concessioner at Yosemite and is operating under a 30-year contract that expires in 1993. The Curry Company's operations are supervised by Yosemite National Park to ensure the provision of better quality services.

4.7 The Management Set-Up of Yosemite National Park

The Head of Yosemite National Park is the Park Superintendent who serves directly under the Regional Director of the National Park Service, Western Region, in San Francisco, California. The Park Superintendent is the leader of the team made up of staff members of the Park and therefore directs them towards achieving the objectives of the Park for which he is officially held responsible; and he has under him divisional heads of the following: Resources Management Division, Maintenance Division, Information and Interpretive Division, Visitor Services and Protection Division, Concession Division and Administrative Division (Fig. 4.14).

The Resources Management Division initiates the planning and interpretes the development programmes of the Park in accordance with the land classification system of Yosemite (Fig. 4.6). The Division therefore operates closely with the various Divisions towards achieving the objectives of the Park. The Division also conducts research in the natural and social sciences of the Park and provides scientific data upon which all aspects of planning, development and management of the units of the Park may be based. It may permit the use of the Park by scientists when such use is consistent with the Park's policies and contributes to the attainment of the Park's objectives.

SCHEMATIC DIAGRAM OF STAFF REQUIRED TO IMPLEMENT THE
FUNCTIONS OF AN INDIVIDUAL NATIONAL PARK PROGRAMME



Staff assigned to the individual park unit, to regional or national offices, or on loan from universities or other institutions as necessary, according to the site and the development phase of the programmes

Sociologist/Psychologist
Economist
Botanist
Zoologist
Marine Biologist
Oceanographer
Geologist
Archeologist
Anthropologist

Historian
Lawyer/Policy Specialist
Land Tenure and Acquisition
Communications
Public Relations and Fund Raising
Planner
Architect
Landscape Architect
Civil Engineer

Art
Exhibit
Museum Technique

Fig. 4.14 Schematic Diagram of Staff Requirement to Implement
Functions of a National Park Programme
(From Miller, 1978)

The Maintenance Division is responsible for the proper functioning and upkeep of the various buildings, grounds, roads, trails and other installations and facilities of the entire Park. During such periods when physical developments are being designed and constructed in the Park, officers of the Division, for example the Landscape Architect and the Engineer, work in close collaboration with those activities. In short, the Division takes care of all the operational utilities of the Park.

The Park's Information Centres, especially those in California and Yosemite itself provide the public with information about facilities available at Yosemite, and during visit how one could use those opportunities and enjoy them.

The Interpretive Programme is based on the features of the Park, mostly natural areas of outstanding beauty including flora and fauna and the geological phenomena of the Park. The Information and Interpretive Division aims to provide visitors with a foundation on which they can build an understanding and appreciation of the Park's significance, natural, historic and cultural values.

The Visitor Services and Protection Division provides functions for law enforcement, traffic control, and boundary control to prevent poaching, emergency services, fire fighting and collection of entrance fees. These functions are carried out by Park Rangers. (The Park Ranger has a supplied uniform).

The Concession Division provides hotel and restaurant services; and also provides accommodation for tent cabins. It runs food shops and souvenir shops. The Division also runs bus services, trail service, boating, cycling and horseback riding.

The Administrative Division is responsible for the overall operational aspects of the Park. It works closely under the Park Superintendent, and reports to him on the progress of all physical, institutional and personnel development activities, and the overall personnel and budgetary status of the Park.

The Park Superintendent for Yosemite National Park prepares the Park's annual budget and submits it to the Regional Director at the National Park Service regional headquarters in San Francisco, California. The Director may accept it or request changes to be before submitting it to the Department of the Interior's Office of Management and Budget which is directly under the President. The President presents to Congress the proposed budgets three years in advance for all Executive Bodies which include Federal Agencies, Departments and Bureaus. For instance, the Budget for Yosemite National Park for 1987 will be presented by the President to Congress for approval in 1984. To get an increase in Budget due to increase in inflation there is Personal Services' Allocation to cover that.

4.8 Commitment to the Implementation of the General Management Plan

Full and forceful commitment to these goals is needed, and the National Park Service has the skill and desire, expressed in public advocacy, to achieve them. Yosemite National Park will celebrate its centenary in 1990. By then, there should be tremendous improvement in the quality of the visitor experience in the Park. The actions put forward in the General Management Plan, studied and here expressed will provide a springboard from which further actions can be taken in the future.

4.9 Summary and Conclusions

This Chapter has studied the United States tier-one national parks' management system and has drawn attention to Yosemite because it is one of the major parks in the world visited by about 3 million people every year, and therefore has very substantial management experience which other parks can draw upon.

Though Yosemite is a tier-one designated Park some aspects of its management processes are so important that they have implications for and are referred to in the management of tier-two Bosumtwe National Park in subsequent Chapters of this thesis.

The differences in the management between the American and British systems become clearer after one has studied the British system in the following Chapter 5.

CHAPTER VTHE BRITISH NATIONAL PARK SYSTEMContents :

- 5.1 Introduction
- 5.2 The Organisation of National Parks from 1951
- 5.3 The Reorganisation of the National Parks from 1974
- 5.4 The National Park Boards
- 5.5 The National Park Committees
- 5.6 The Difference between National Park Boards and Committees
- 5.7 Development Plan System: New Form of Development Plan
- 5.8 Report of Survey
- 5.9 Survey Criteria
- 5.10 The Structure Plan
- 5.11 Relationship Between Structure and Local Plans
- 5.12 Preparation of Structure Plan
- 5.13 Public Participation of the Structure Plan
- 5.14 Approval of Structure Plan
- 5.15 The National Park Plan
- 5.16 Planning and Management
- 5.17 The Development Plan and the National Park Plan
- 5.18 The Need for Close Liaison
- 5.19 Purposes of the National Park Plan
- 5.20 Consultation During Preparation of the National Park Plan

CHAPTER V

THE BRITISH NATIONAL PARK SYSTEM

Contents :

- 5.21 Review
- 5.22 The Submission of Structure Plan and National
Park Plan
- 5.23 Summary and Conclusions

CHAPTER FIVE : THE BRITISH NATIONAL PARK SYSTEM

5.1 Introduction

The conceptual diversification discussed in Chapter 3 of this thesis is clearly reflected in the management of the British National Parks. This Chapter, therefore, studies the British National Park management system of tier-two designation (which is later explained in this thesis). It also allows comparison of the differences between the British National Park management system and the American one treated in Chapter 4.

The National Parks and Access to the Countryside Act, 1949 gave the responsibility for the planning and management of National Parks to specially constituted committees and planning boards. Of the ten National Parks established between 1951 and 1957, two became boards and the remaining eight were managed by committees of Local Planning Authorities. In effect, Local Planning Authorities responsible for National Parks became the 'National Park Authorities' (NPA's). The Local Government Act, 1972 made substantial alterations to the administrative structure of the National Parks as well as to the county boundaries in some of the National Park Areas. From 1st April, 1974 each National Park became the responsibility of a single executive board or committee.

The Local Government Act 1972 also required each National Park to prepare a National Park Plan formulating its policy for the planning, development and management of the Park; and the National Park Plan was to be published within three years from 1st April, 1974; and review it at intervals of not more than five years as the National Park Plan was published.

5.2 The Organisation of National Parks from 1951

The National Parks and Access to the Countryside Act, 1949 gave the responsibility for the planning and management of National Parks to specially constituted committees of the county council or county councils concerned or to planning boards. In effect local planning authorities responsible for national parks became the 'National Park Authorities' (NPAs).

The 1949 Act provided that where a national park lay in the areas of two or more local planning authorities, a joint planning board was to be constituted. The Minister of Town and Country Planning was empowered to waive this provision where 'by reason of any special circumstances it is expedient to do so for securing efficient administration in the Park' (Sect. 8(2)). Where a national park lay wholly within the area of a single county, a special planning committee had to be set up to which there were to be delegated such powers of the county council under the Town and Country Planning Act, 1947 and the National Park and Access to the Countryside Act, 1949 as might be agreed between the County and the National Parks Commission (otherwise the Countryside Commission by 'The Town and Country Planning Act, 1968'). Where in the case of a park comprised in two or more counties (a multi-county park), if a joint board was not established, the park planning committees of the respective counties were separately to administer their portions of the national park but were to be linked by a joint advisory committee.

Normally not more than two-thirds of the members of boards or committees were to be nominated by the local planning authorities and not less than one-third by the Minister of Town and Country Planning.

Peak District, the first National Park was designated in 1951, and the tenth and last, Brecon Beacons, in 1957 (Bell, 1975, p. 10). Planning boards were set up for the Peak District and the Lake District; in the case of the other multi-county Parks (then Brecon Beacons, Exmoor, Snowdonia and the Yorkshire Dales) there were separate committees for each county with a joint advisory committee; and the other four Parks, namely, Dartmoor, Northumberland, the North York Moors and the Pembrokeshire Coast were wholly contained in single county committees (Hurley, 1979).

The Peak Board had its own staff, headed by a director and planning officer. All the other park planning authorities, including the Lake District Board, were administered on a part-time basis by officers of the county councils. The Peak and the Lake Boards and each of the joint advisory committees had always appointed as clerk the clerk of one of the constituent county councils.

Planning advice, except for the Peak Board, was provided by the planning officers of the constituent county councils; the Snowdonia Joint Advisory Committee was assisted also by a part-time consultant. Each park planning committee was served by the clerk and planning officer of the county council concerned (Association of County Councils, 1979).

5.3 The Reorganisation of the National Parks from 1974

Following the passing of the Local Government Act, 1972 the local government system of England and Wales underwent a complete reorganisation, with new authorities assuming responsibility for adjusted functions and duties on 1st. April, 1974.

As part of this reorganisation there were major changes in the arrangements for the administration of the ten National Parks. The Local Government Act, 1972 made substantial alterations to the administrative structure for the National Parks as well as to the county boundaries in some of the National Park Areas.

Part I of Schedule 17 of the Local Government Act, 1972 provided that from 1st. April, 1974 each National Park became the responsibility of a single executive board or committee. It was the duty of the county council concerned to establish the new committee for the national park. For a park comprised in two or more counties (a multi-county park) the committee was to be established by one of the councils by agreement, or in the absence of such agreement jointly by the councils concerned. The new boards were to be constituted by orders made by the Secretary of State for the Environment under Section I of the Town and Country Planning Act, 1971.

The Lake District and the Peak District retained their separate boards; while with the remaining eight parks, a separate national park committee was established for the whole of each park (Hurley, 1969, p. 5). Dartmoor, Northumberland, Pembrokeshire Coast and Snowdonia became single county committees (Ibid., p. 5). In the case of multi-parks, the committee was either to be appointed by agreement, by one of the county councils, or jointly by the county councils concerned. Thus, the Brecon Beacons came under a joint committee of the four county councils involved, but attached to Powys for the purposes of staffing and finance (MacEwen and MacEwen, 1982, p. 116). The other three multi-county parks: now Exmoor, the Yorkshire Dales and the Yorkshire Moors became committees of the county councils responsible for the greater part of the national park area. But they included also member representatives from other counties whose areas were affected (see Fig. 5.1). The county councils, by agreement with the district councils, appointed a small number of district councils nominees, but the 'Wildlife and Countryside Act, 1981' (Section 46 (2)) has given each district council one member, subject to a maximum of one-seventh of the board or committee (see Fig. 5.1). Somerset County Council administers Exmoor; the North Yorkshire County Council administers Yorkshire Dales and North York Moors (see Fig. 5.1). The Wildlife and Countryside Act, 1981 confirms that members of all National Park boards or committees will continue to be appointed as to not more than two-thirds by the county councils and as to not less than one-third by the Secretaries of State - currently by Secretary of State for the Environment and the Secretary of State for Wales. Each Park board and committee must appoint, after consultation

<i>Park</i>	<i>County Council</i>	<i>Membership</i>			
		<i>County</i>	<i>District</i>	<i>Appointed</i>	<i>Total</i>
<i>Boards</i>					
<i>Peak</i>	Cheshire	2			
	Derbyshire	8			
	Greater Manchester	2			
	Staffordshire	2			
	South Yorkshire	2			
	West Yorkshire	2	18	4	11
					33
<i>Lake District</i>	Cumbria		16	2	9
					27
<i>Single county committees</i>					
<i>Dartmoor</i>	Devon	12	2	7	21
<i>Northumberland</i>	Northumberland	15	3	9	27
<i>Pembroke Coast</i>	Dyfed	10	2	6	18
<i>Snowdonia</i>	Gwynedd	14	4	9	27
<i>Multi-county committees</i>					
<i>Brecon Beacons</i>	Dyfed	2			
	Gwent	2			
	Mid-Glamorgan	2			
	Powys	8	14	4	9
					27
<i>Exmoor</i>	Devon	4			
	Somerset	8	12	2	7
					21
<i>North York Moors</i>	Cleveland	2			
	North Yorks	12	14	4	9
					27
<i>Yorkshire Dales</i>	Cumbria	1			
	North Yorks	12	13	3	8
					24
<i>totals</i>			138	30	84
					252

Fig. 5.1 The Composition of National Park Authorities 1980-81
(From MacEwen and MacEwen, 1982)

Three of the multi-county committees are committees of the county council responsible for the greater part of the national park area. Somerset County Council administers Exmoor; the North Yorkshire County Council administers Yorkshire Dales and the North York Moors. The Brecon Beacons are administered by a joint committee of the four counties, but attached to Powys for the purposes of staffing and finance.

with the Countryside Commission, a national park officer who will normally devote his whole attention to the park.

5.4 The National Park Boards

The difference between boards and committees lies in their relationship to the county council/s concerned. 'A board is an autonomous local planning authority. It settles its own budget and levies a rate by precepting on the constituent county councils. It employs its own staff and determines both the size of its staff establishment and the salary grades of their employees. A board is free to use or not to use the services of county council officials, to hire their own staffs or to engage specialist consultants' (MacEwen and MacEwen, 1982, p. 115). A board can buy land or conclude management agreements on its own authority. It combines the plan-making and development control functions of both county and district councils and prepares both structure plan and local plans (Ibid., p. 116). It is responsible for the conservation of historic buildings and areas; and it makes its own standing orders about procedure and administration (Ibid., p. 116).

The extent to which a board uses its autonomy depends in practice on local political factors. For example, the Peak Board has six constituent county councils (Fig. 5.1), the largest of which (Derbyshire) has less than a quarter of the Board's membership and is in no position to control it. The Lake District Board lies wholly within the County of Cumbria, but Cumbria cannot force the board to toe its line in matters of policy, finance or staffing unless it can muster a political majority on the Board.

In practice, this has not proved to be easy.

The work of a board is not subject to scrutiny by county councillors. In fact, the elected members of boards are accountable to their electorate in exactly the same way as members of committees. Only a minority either of boards or committees is directly accountable to the populations of the parks (MacEwan and MacEwan, 1982, p. 117). The autonomous status of the board enables its members and officers to be free both from the grip of the party politics that controls the county council through its policy and resources committee and from the all-pervading influence of the county council chief executive and his management team of senior officers.

The autonomy of the board does not extend beyond the limits of their statutory planning, amenity and recreational functional (Ibid., p. 117). For example, the Peak Board initiated traffic studies in consultation with the highway authorities. But neither boards nor park committees have highway or traffic powers, any more than they have powers to deal with the social and economic problems of their areas, such as jobs, housing, public transport, or the support of tourism or farming. For example, the Lake District Board had to rely on Cumbria County Council to implement its policy of banning heavy through traffic from West Cumberland from using the A591 through the heart of the Lake District. The County Council blew hot and cold for several years before making necessary Order (Ibid., p. 117).

5.5 The National Park Committees

The national park committees are committees of a county council and are subject to its political and financial control. Their decisions on development control and on countryside matters under powers delegated to them by statute, cannot be challenged by the county council, and they alone appoint the National Park Officer. But the county council decides the size of the national park budget and the amount of the annual bid made by the national park for its share of the National Park Supplementary Grant (NPSG).

The National Park Officer and his staff are officers of the county council which decides the total staff establishment, its distribution and the salary gradings for each post; whether capital can be provided for unforeseen purchases; whether capital spending should be frozen in times of retrenchment; and whether recruitment to established posts should be allowed, or new posts created.

The National Park committees are also tightly integrated into the county council administration on which they are dependent for legal, financial, administrative and technical staff for many of their services. County Council officers write the agendas and minutes. It can be advantageous for a national park department to make use of architects, landscape architects, engineers, solicitors and other professional on the county council staff, but the national park has to take its place in the queue for their services, is charged for them at rates fixed by the county council and is not allowed to go shopping elsewhere if it is dissatisfied

with the speed, quality or the cost of the service it gets (MacEwen and MacEwen, 1982, p. 118).

The autonomy of national park committees in development control does not extend to county matters, which are defined in the 1972 Local Government Act as applications that are not in accordance with the fundamental provisions of the county development or structure plans, or straddle national park boundaries. Some county councils allow the national park committees to determine all but the most county matters. Others call in the most trivial applications if the County Planning Officer thinks that they transgress the policies of the development plan, or the County Survey thinks that they do not satisfy his detailed highway design requirements. The Secretary of State's right to call in important applications, or to settle them on appeal, means that usually the most controversial proposals are taken out of the hands of the National Park Authorities (Ibid., p. 118).

5.6 The Difference between National Park Boards and Committees

The major difference between Boards and the National Park Committees is that the former exercise in their own right all planning and countryside functions, while the latter are responsible for discharging on behalf of the county councils a more limited range of planning functions as well as countryside functions.

In so doing, the Committees are subject to the budgetary controls and the staffing and other disciplines which the county councils prescribe for their committees by virtue of Schedule 17

(the statutory functions) the National Park Committees' decisions are not subject to the approval or control of their parent councils.

The Act provides for two distinct forms of administration: by Boards which are autonomous corporate bodies in their own right, and by Committees which are committees of the county councils through discharging the statutory functions on behalf of the county councils without having to obtain the latter's approval of their decisions.

If the Committees were to have complete freedom in all their activities, there would have been no point in Parliament having differentiated between them and Boards. And as committees of the county councils they are subject to whatever disciplines the councils impose, though clearly these should not defeat their ability to exercise the statutory functions as provided for by the Act. In the same way, the Committees will be advised by the National Park Officer, and by other appropriate officers as determined by the county councils.

5.7 Development Plan System: New Form of Development Plan

The Town and Country Planning Act, 1968 (now incorporated in the Town and Country Planning Act, 1971) introduced a development plan system which was new in form, content and procedure, reflecting the advances in planning techniques which had taken place over the past twenty years and the growing complexity and urgency of planning problems. (Before 1968, local planning authorities were operating the old Development Plan system; for example, the First Review of the Development Plan for the Peak District National Park was

completed in 1966).

The 1968 Act made fundamental changes in the responsibilities of the Minister and of local planning authorities for the consideration and approval of plans, by bringing before the Minister the major planning issues in each area, and giving to authorities the responsibility for deciding matters of mainly local significance. And it introduced new procedures for the participation of the public in the formulation of plans.

The 1968 Act requires each planning authority to prepare a structure plan and local plans which jointly will constitute the 'new' development plan for any particular area. Initially, the development plan will comprise only the structure plan and the Minister's approval of it is required before the local plans can be put on deposit.

Thus, the new Development Plan has two components:

1. The Structure Plan which sets out the main planning policies and major proposals for change in the area over the next 20-30 years. It examines 'the physical, social and economic systems of the area, so far as they are subject to planning control and influence'. It therefore, provides the broad framework and context for the Local Plans.
2. Local plans which specify policies in greater detail for particular areas or subjects.

5.8 Report of Survey

Section I of the Town and Country Planning Act, 1968 requires a planning authority to submit a report of survey (section 2 (1)), to ensure that the proposals of the structure plan are justified by the result of the survey (section 2 (4)), to publicise the report of the survey (section 3 (1) (a)) or, where the plan is a local plan, any relevant matter arising from the survey (section 7 (1) (a)). For example, the Report of Survey, 1974 of the Peak District National Park gave a summary of the factual background used to define policies together with a summary of the main issues to be resolved.

5.9 Survey Criteria

In the preparation of the development plan authorities will use certain key criteria in the analysis of survey data to identify the problems of their area and to decide between different course of action to meet those problems. These criteria are crucial to the development plan and so should be as readily identifiable as the aims, policies and proposals.

5.10 The Structure Plan

The term 'structure' is used to mean the social, economic and physical systems of an area, so far as they are subject to planning control or influence. The structure plan is, in effect, the planning framework for an area and includes such matters as the distribution of the population, the activities and the relationship

between them, the patterns of land use and the development the activities give rise to, together with the network of communications and the systems of utility service.

Cumbria County Council and the Lake District National Park submitted a Joint Structure Plan in 1980 for the period up to 1991. The structure plan was submitted as a written statement accompanied by a key diagram (Whitfield and Taylor, 1980). Its purpose is:

1. To set out the main planning policies and broad planning strategy for the development and other use of land including measures for the improvement of the physical environment and the management of traffic.
2. To interpret national and regional policies in terms of physical and environmental planning as they apply to a county area.
3. To provide the framework and statutory basis for the more detailed local plans. It is concerned with minor detailed changes in land use but rather with major changes and with the broad overall strategy for the area as a whole.

5.11 Relationship Between Structure and Local Plans

It is because the development plan has to express such varied information that the 1968 Act requires its division into structure and local plans. The structure plan provides a framework for the local plans that follow it; and local plans, which must conform to the general intentions of the structure plan, apply and work out in detail the structure plan policies. However, this relationship does not imply that the process of making plans merely involves the working through of policies and proposals from a higher to a lower level. Close examination, particularly of critical areas, will be needed before the decisions in the structure plan can be made

firm; this more detailed study finds decisive expression in local plans. In many cases, too, specific commitments stretching several years ahead, fix the pattern of future development and to that extent shape the policies in the structure plan.

5.12 Preparation of Structure Plan

A local planning authority to the whole or part of whose area Part I of the 1968 Town and Country Planning Act has been applied is under an obligation to submit a structure plan for the area or the part to the Minister (for the Environment) for his approval (section 2(1) and (7)); and the Minister may set a time-limit for this submission (section 2(1)).

The Structure Plan is a written statement which offers three things:

1. It sets out policy and general proposals for the development and other use of land in the area. Measures for the improvement of the physical environment and the management of traffic are to be included. 'Other use' of land as opposed to development gives cover, for example, for the statement of policies for preservation and for the securing of access to the countryside.
2. It must state the relationship of the proposals it contains to the general proposals made by neighbouring planning authorities for the development and other use of land in their areas. The planning authority in meeting this requirement will have to present its own plan in the context of their plans relating to the same region or sub-region.
3. The statement must contain such other matters as the Minister may prescribe in the regulations (made under his power in section 13(1)).

Subsection (4) of section 2 is concerned with the foundation of the plan in the technical sense. First, it requires the authority to secure that the policy and proposals set out in the structure plan are justified by the results of the survey they have carried under section 1, and by any other information which they have obtained in preparing the plan. It further requires the authority to have regard to the policies being applied to the economic planning and development of the region; to the resources likely to be available for the carrying out of the proposals which they include in the plan; and to other matters required by regulations or about which the Minister may give a direction.

Subsection (5) requires the structure plan to indicate 'action areas'. These are areas which the planning authority has selected for comprehensive treatment, beginning within a period of 10 to 20 years. The forms of treatment to which the subsection refers are development, redevelopment and improvement. More than one of these may be contemplated in a single action area.

The local planning authority must put into or submit with their structure plan whatever diagrams, illustrations, and descriptive matter they think appropriate for explaining or illustrating the proposals in the plan. In addition the Minister is given power to prescribe in regulations, and in particular cases to direct, the matter to be included. All these things are to be treated as part of the plan. The Act does not preclude the separate sending to the Minister of other illustrative matter not intended to form part of this plan.

5.13 Public Participation of the Structure Plan

The requirements of section 3 about publicity and participation by the public must be met by the local planning authority 'when preparing a structure plan for their area and before finally determining its content for submission to the Minister'. The Act requires that persons who may be expected to desire an opportunity of making representations to the authority about structure or local plans in preparation are given an adequate opportunity of doing so. It is intended in this way that individual members of the public, and local and national bodies with an interest in planning should be able to participate far more in the process of planning than hitherto.

5.14 Approval of Structure Plan

Section 4 of the 1968 Act gives the Minister power to approve a structure plan in whole or in part, and with or without modifications or reservations. As the Minister need no longer modify a plan to his entire satisfaction in detail before he approves it, the document conveying his view on the plan is important to its correct construction as part of a development plan.

5.15 The National Park Plan

Schedule 17 of the Local Government Act, 1972 requires each National Park Authority, 'to prepare a National Park Plan formulating their policy for management of the Park and for the exercise of the functions exercisable by them as respects the Park'. Schedule 17 of the Local Government Act 1972 states that: 'Every joint planning board, special planning board or National Park Committee established for a National Park shall:

- (a) within three years of 1st April, 1974 or of being established, whichever is the later, prepare and publish a plan to be known as a National Park Plan formulating their policy for the management of the Park and for the exercise of the functions exercisable by them as respects the Park; and
- (b) review at intervals of not more than five years a National Park Plan published under this paragraph, making any amendments to it which they consider expedient, and publish a report on their review of any such amendments'.

'The National Park Plan is a statutory requirement which breaks new ground. The concept of the National Park Plan is a new one reflecting the growing emphasis upon the functions of planning and management in the national parks' (Countryside Commission, 1974).

5.16 Planning and Management

The Countryside Commission (1974) defines 'planning' and 'management' as follows:

'Planning' is taken to mean the processes associated with the town and country planning system, i.e. the making of Development Plans and the operation of development control. In the context of national parks, planning fixes a basis for policies and decisions

affecting the physical, social and economic environment, and having implications for land use and development; these policies are set out in the Development Plan and given largely through the operation of development control and development by public agencies.

By 'management' in a national park is meant the organisation and provision of services and facilities related to national park purposes (i.e. landscape conservation and recreational provision) and the use and management of land and resources to serve those purposes. Thus management will include land acquisition, recreational development, recreation and land management, tree planting, clearance of eyesores, and guidance and control of visitors including warden, interpretation and information services and traffic management. It will cover both the activities of the park authority as landowner, developer and provider of services and facilities and, by arrangement and agreement, similar action undertaken by other owners and occupiers of land in the park. Development, in so far as it is subject to development control, can be part of both the planning and management processes in national parks, but management in many instances operates outside the sphere of statutory planning.

5.17 The Development Plan and the National Park Plan

A distinction is drawn between planning and management because the National Park Plan is not part of the development plan system; it is the function of the Development Plan to deal with the planning of the park and the National Park Plan to set up the framework for its management (Countryside Commission, 1974, p. 1).

In practice, planning and management are not distinct activities; there is a good deal of overlap between them. Even though there is a clear difference in emphasis, approach and main area of concern, the processes are complementary and interdependent. Therefore the content of each type of plan will influence the content of the other. Some material will be common to both, and there will be a need for considerable cross-referencing between them.

Since the National Park Plan is not primarily concerned with formulating planning policies - though it will set them out in so far as they provide the context for management - it is clear that the National Park Plan in no way reduces the need for structure and local plans.

All national park authorities will have important functions under the Town and Country Planning Acts, particularly in relation to development control. Even where all development plan functions are retained by the County, the park authority's policies will have a major influence on the content of the Development Plan.

5.18 The Need for Close Liaison

A National Park Plan might well be prepared before the structure plan for that area - or, in the case of multi-county parks, for part of it - has been approved or local plans adopted, but in all cases the closest liaison will be needed in the preparation of Development Plans and National Park Plans, particularly when responsibilities are shared between different authorities.

Close co-operation will be especially important in relation to survey work, because such information will be required in common

for both planning and management purposes. It should be possible to avoid duplication of work; information ought to be collected, stored, shared and used in the most effective and economic way.

5.19 Purposes of the National Park Plan

As Schedule 17 of the Local Government Act 1972 makes clear, the National Park Plan will be used to formulate policy for the management of the park and for the exercise of the park authority's functions. Thus the greater part of the plan will be concerned with management issues, including those such as footpaths or traffic management which may be conferred upon the park authority by the County. It will, however, also state how the authority intends to arrange the organisation of development control, and of any plan-making functions as (in the case of Boards) they may have as of right, or (in the case of Committees) may be delegated to them. However, the National Park Plan will not supplant the Statutory Development Plans as the main means by which new planning policies are formulated, although these may develop in part out of the work of preparing the National Park Plan.

The National Park Plan will:

Set out the objectives for the National Park.

Describe the management policies of the national park authority.

Form the basis for co-ordination of management policies of other bodies, public and private, to achieve park objectives.

Provide the framework for organisation of the work and staff of the national park authority.

Provide a basis for the co-ordination of management policies within the area of the park with those operating outside.

Provide a basis for programming the implementation of management management policies.

Provide a basis for financial estimates related to management policies.

Provide a means of informing the public and involving them in management policy for the park.

In short, the plan will be the key to the complex work of management in a National Park and eventually enable the authority to check the effectiveness of policy in achieving national park objectives. Components of the management concept usually include:

Management by agreed and defined objectives.

Setting targets for achievement of results.

Programming.

Evaluation of results, using defined criteria, including quantitative measurements where possible.

Flexibility in implementation with monitoring to check results.

This sequence is relevant in developing a systematic approach to national park management, although some adaptation may be needed for a situation where there is a need for an approach which is flexible, although in accordance with defined principles.

5.20 Consultation During Preparation of the National Park Plan

There are no statutory requirements relating to consultation during the preparation of the National Park Plan, other than that copies of the proposed plan should be sent to the Countryside Commission and to district councils lying partly or wholly within the park, and their observations taken into consideration. However, if the policies contained in the plan are to command the general approval of farmers, foresters and landowners, other local residents, amenity and conservation groups and visitors to the park, the park authority will need to consult widely in the course of preparing the plan, both with the local and visiting public and with groups representing particular interests. Doubtless, too, they will recognise the value of early and full consultation with the many official organisations whose interests will overlap with those of the park authority, for example, those of other organisations and land users in the park.

5.21 Review

The Act requires that a review of the plan should be undertaken at not more than five-yearly intervals. This, together with an effective system of monitoring and updating of the detailed programme, should ensure that the plan remains a relevant up-to-date document for guiding day-to-day management of the park. However, in cases where the National Park Plan is prepared ahead of the structure plan for the whole or part of the area, it may need to be reviewed within the five year period, to take account of policies in the structure plan.

5.22 The Submission of Structure Plan and National Park Plan

To get to understand the legislative system, planning, development and management of National Parks in Britain the following were studied:

1. Peak District National Park: Structure Plan Report of Survey.
2. Peak District National Park: Structure Plan.
3. Lake District National Park: Structure Plan.
4. Lake District National Park Plan.
5. Pembrokeshire Coast National Park Plan.

The exercise gives a comparative study of the two Park Boards, namely, the Peak District National Park Board and the Lake District National Park Board. The Pembrokeshire Coast National Park, as its name implies, is more of a coastal landscape totally different from any of the National Parks. In fact, it is the only National Park in Britain with the longest coastline of over 260 miles of richly varied landscape.

The first Review of the Development Plan for the Peak District National Park was completed by the 1968 Planning Act (now incorporated in the Town and Country Planning Act 1971). The 'new' Development Plans have two components:

1. The Structure Plan which sets out the main planning policies and major proposals for change in the area over the next 20-30 years.
2. Local Plans for a Planning Authority like a Local Planning Authority or a National Park Board, for example, the Peak District National Park Board or the Lake District National Park Board. (Any National Park under a Local Planning Authority has its National Park Plan prepared by the Local Planning Authority concerned).

The Structure Plan therefore provides the broad framework and context for the Local Plans and, in the case of the Peak District, the National Park Plan.

The Peak Park Report of Survey is the preparatory part of the Structure Plan. It is used as basis for monitoring future development and use of the Park and effectiveness of the Structure Plan and the National Park Plan in guiding developments in the Park. The Report of Survey provides the detailed report and analysis of the survey materials. It has been divided into three parts. The first section examines the basic resources of the Park, such as the quality of the landscape, and its ecology, and the resource based activities such as agriculture, forestry and mineral working. The second part discusses various aspects of recreation, the potential of the area and the increasing pressures from visitors from urban areas. Part three is concerned with the social and economic questions, such as population changes, housing, employment and transport. In the preparation of the Report of Survey it has been necessary to consider not only the situation within the Park boundaries but to consider the influence of various outside factors - this is particularly important in view of external pressures, especially visitor pressure, on the Park.

The Structure Plan for the Peak District National Park was submitted to the Secretary of State in August, 1979. It was finalised to conform to the policies defined in Circular 4/78 (Dept. of the En) and was prepared in close consultation with the many organisations concerned. At each significant stage in the Structure Plan process there was an opportunity for public comment.

The Structure Plan forms the starting point for the National Park Plan and gives a factual background for many of the subjects included in the National Park Plan. This is particularly true of Chapters 8 and 9 dealing with landscape character, agriculture, forestry and recreation.

The duty of preparing the National Park Plan was the responsibility of the Peak Park Planning Board as the National Park Authority. The Peak Board sees one of the main purposes of this Plan as providing a common framework within which all the organisations and individuals concerned can work to achieve the purposes of the designation of the Peak District National Park. Of course, many organisations and individuals which operate within the Park have their interests and responsibilities as well. The farmer, for instance, is primarily concerned with producing food and making a living from farming. In doing this, however, he can make major contribution towards maintaining the distinctive character of the area which is the particular attraction of the Park to most visitors to the Park. One of the main purposes of the Plan is to suggest how the "public interest" in land management can be reconciled with the "private interest" of the landowner or farmer.

The National Park Plan is concerned with more detailed policies and proposals arising from the two purposes of National Park designation - the conservation of the Park's distinctive character and the provision of appropriate recreation opportunities. Thus, some elements of the Structure Plan, particularly Chapters 8 and 9 on landscape conservation and recreation, were used.

So far as possible, the Peak Park Board has produced a National Park Plan that has been acceptable and agreed by all and that as a consequence being applied consistently. The National Park Plan was the end product of several rounds of consultation with other authorities and organisations.

The Local Government Act, 1972 specifies 1st April 1977 as the date for the formal presentation of the National Park Plan to the Government. It was impossible to meet this deadline because the Peak Board was then working on the final stages of preparing a Structure Plan during 1975 and 1976. The National Park Plan was published in a draft form in summer 1977 together with a summary booklet. The summary booklet was intended to give the public a general impression to the policies and proposals suggested and provided an opportunity to comment on them using a simple questionnaire. Finally, the Peak District National Park Plan was published in 1978.

The Lake District was designated as a National Park in May, 1951 with the aims of preserving and enhancing its natural beauty and promoting its enjoyment to the public. In the same year the Lake District Planning Board was set up as the National Park Authority. As well as its national park duties the Planning Board, as Local Planning Authority has responsibilities for the social and economic well being of the area.

On 1st April, 1974, the Lake District Special Planning Board succeeded the Lake District Planning Board (by an Order of the Secretary of State on 29th November, 1973 under the Local Government Act, 1972, Schedule 17).

The former Board was a joint Board of the three constituent County Councils (Cumberland, Westmorland and Lancashire). The Special Planning Board is now the unitary Planning Authority of the National Park, which lies wholly within Cumbria and includes parts of four district council areas namely: Copeland, Allerdale, Eden and South Lakeland.

After the designation of the Park it has now become clear that total preservation of an area such as the Lake District is neither possible nor desirable (Taylor, 1978). As with any other area in which people live, work and spend their leisure time, changes take place in response to the needs of those people. Therefore, in preparing the National Park Plan, the task of the Planning Board has been to identify changes which threaten the qualities of the Lake District and formulate policies to try to resist or modify them. Many changes can take place without adversely affecting the character of the area and it has been equally important to see that beneficial changes encouraged.

The Plan has been prepared in the light of wide and comprehensive public discussions. Following surveys and preliminary consultations with a variety of organisations and authorities a series of leaflets entitled "Ideas for Discussion" was published in August, 1976. The leaflets contained a number of suggested actions, and comments were invited on the suggestions. Replies were received from a number

of individuals and organisations, and a summary of the replies entitled "Response to Ideas for Discussion" was published in December, 1976.

The draft Plan was developed from the suggestions in the leaflets and in the light of the response to them. It was published in June, 1977. Overall the draft Plan was very favourably received; and individual criticisms were considered by the Planning Board and a number of modifications made.

The Lake District National Park Plan has been divided into three parts. Part One deals with the introduction which covers the character of the Park and the role of the Lake District Special Planning Board; the purpose of the National Park Plan and how it relates to the Joint Structure Plan and to other current reports; the history of efforts to protect National Parks from harmful damage; the local context, the issues which have been of increasing concern to the Lake District, and the broad approach which the National Park Planning Board proposes to take towards the main issues.

Part Two interprets the broad approach as management policies and proposals which are discussed and developed under a series of subject headings such as landscape, agriculture, forestry and woodland, archaeological sites, the needs of the local people, building conservation, access and recreation, transport, quarrying, mining etc.

Part Three considers the implementation of the policies and proposals introduced in the previous Chapters. The various ways of taking the Plan forward and translating it into specific actions are considered, and an initial programme is presented in the light of available manpower and financial resources.

The Pembrokeshire Coast National Park is administered by the Pembrokeshire Coast National Park Committee of Dyfed County Council. The Local Government Act of 1972 required the newly constituted National Park Authorities which came into being in April, 1974 to publish National Park Plans for their areas in 1977. This Park Plan was produced in response to that requirement, for submission to the Secretary of State for Wales. It sets out the policies and programmes which the National Park Committee considers necessary for the management of the National Park during the next five years, in the context of the Park environment, the Committee's responsibilities, its resources of finance and staff, and in the light of consultations with other official bodies, voluntary organisations and members of the public.

The National Park Plan has five main parts.

1. It is a brief introduction to the National Park Authority.
2. It presents the administrative background of the National Park Plan and identifies objectives.
3. It examines the resources of the National Park, both natural and man-made in the light of these objectives and states policy proposals for management.
4. It reviews the activities using these resources in relation to the National Park's objectives, with specific policies for each activity.
5. It summaries the policies in terms of the National Park Authority's work programmes and financial allocations.

The Pembrokeshire Coast National Park Plan, published in August, 1977, is as detailed and definitive as possible in its discussion of the issues which demand attention as well as its statutory purpose as a set of policies. In addition to the statutory functions, the Park Authority hopes the National Park Plan will fulfil some wider service, to encourage public interest and awareness of the unique nature of the National Park and its contribution to the quality of life generally.

5.23 Summary and Conclusions

British National Parks are all of tier-two designated system, and thus they are living institutions. For instance, human existence within a British National Park has its social and economic objectives which for their proper development are governed by Park laws and regulations. Other bodies and agencies economically exploit and operate within a British National Park, and prominent among them are agriculture, forestry, water authority, mining and military. And all these have to be governed by laws and regulations relating to a Park's two primary objectives, the conservation of its natural resources and beauty, and the provision of outdoor recreation for the enjoyment by the public.

This Chapter has studied the British National Park Management system, particularly its laws and regulations, intended to be applied further in this thesis.

The study of this Chapter also enables one to realise the differences between the two systems: the British and the American (see Chapter 4).

PART III

- CHAPTER VI Africa's National Parks
- CHAPTER VII Ghana's Existing Tier-One National Parks: The Choice of a Tier-Two National Park Case Study
- CHAPTER VIII Lake Bosomtwe Tier-Two National Park Case Study: An Approach to its Delimitation
- CHAPTER IX Lake Bosomtwe Tier-Two National Park Case Study: An Approach to its Designation and Management
- CHAPTER X Man and Man-Made Resources of Lake Bosomtwe National Park
- CHAPTER XI Bosomtwe Case Study: Human Resources Related to Visitors
- CHAPTER XII Bosomtwe Case Study: The National Park's Administrative Processes

CHAPTER VI

AFRICA'S NATIONAL PARKS

Contents :

- 6.1 Introduction
- 6.2 The Structure of East Africa and the Great Rift Valley
- 6.3 The Climate
- 6.4 Vegetation
- 6.5 East Africa's National Parks
- 6.6 West Africa's National Parks
- 6.7 Summary and Conclusions

CHAPTER SIX : AFRICA'S NATIONAL PARKS

6.1 Introduction

African National Parks like American National Parks have been designated on the basis of the IUCN concept, as tier-one national parks, and managed by governmental processes like that of the United States.

East African national parks are among the best developed and best managed in Africa, particularly those in Kenya and Tanzania. The specific location of this thesis as we will see in Chapter 7 originates in Ghana in West Africa. Therefore, in the study of national parks in Africa this Chapter limits itself to the two regional areas, West and East Africa, although it makes references to the whole of Africa.

6.2 The Structure of East Africa and the Great Rift Valley

The immensity of the African Continent and the diversity of its climate, vegetation, geological setting and wildlife offer outstanding opportunities for the designation of national parks. The best of those so far designated are to be found in East Africa and specifically in Kenya and Tanzania.

Horrobin (1971) and Bolles (1979) have given full description of the physiographic qualities of East Africa. The fundamental structure of East Africa seems to have been a vast plain, consisting of many different types of old rocks weathered down to give a relatively flat surface with numerous minor depressions filled by lakes. But about that time there began extraordinary features of the landscape which can be seen today. The most dramatic of these movements which dates back some fifteen million years was the upthrusting and splitting of the earth's crust along a length of over 4,000 miles to form the Great Rift Valley, dominating and defining the whole of East Africa, as all of one piece (see Fig. 6.1).

The Rift as it is commonly known extends from the Turkish border into Jordan Valley, comes down through the Red Sea, crosses Ethiopia, Kenya and Tanzania and finally peters out into southern Mozambique (Fig. 6.1). The result of this rifting process was the formation of two sets of highland regions, the rise to the Rift, from east and west separated by ^a valley varying roughly from twenty to sixty

The Great Rift Valley

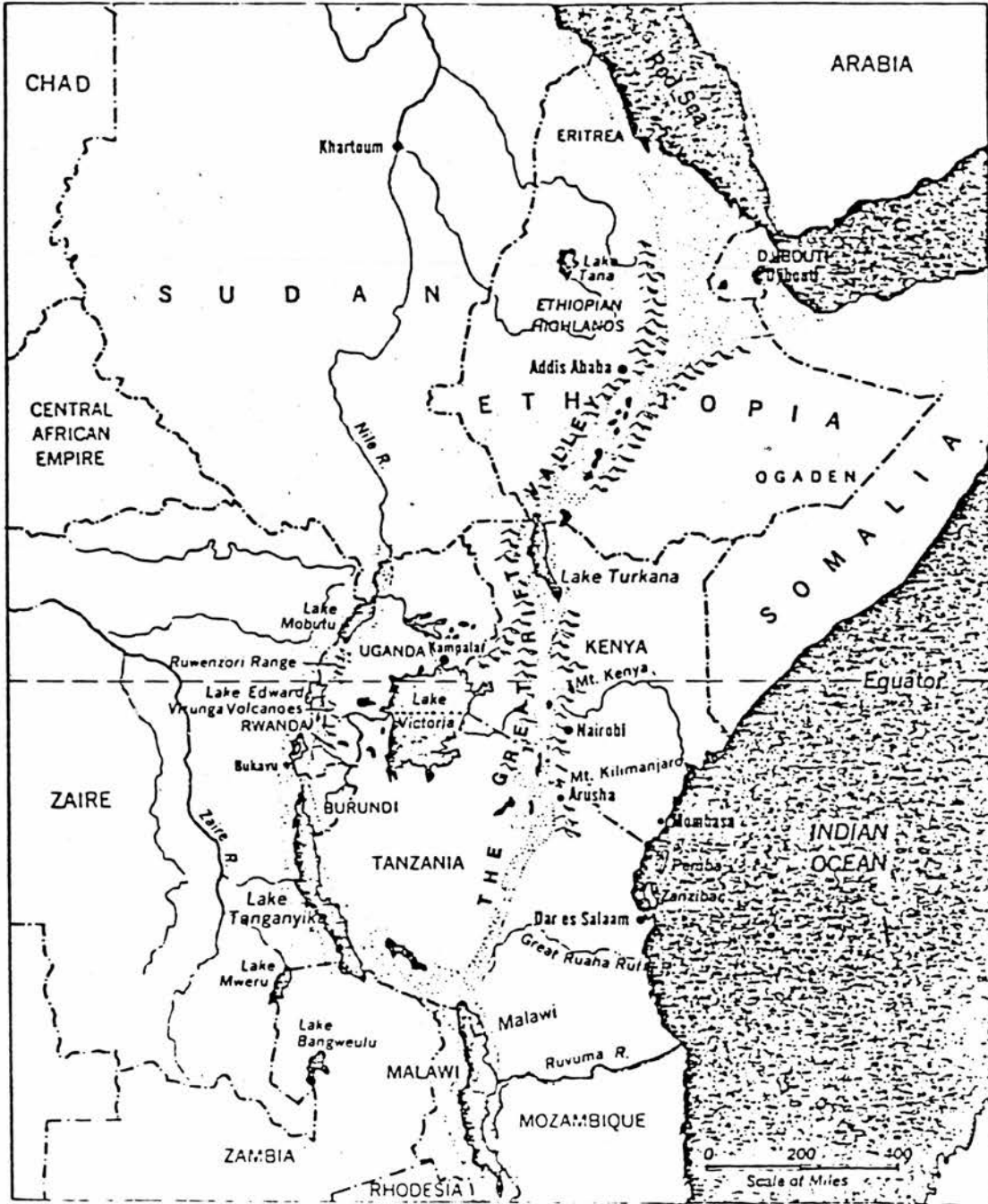


Fig. 6.1 Showing East Africa and the Great Rift Valley
(From Bolles, 1979)

miles across and from a few hundred to several thousand feet deep.

Many lesser rift valleys were formed as branches of the Great Rift Valley. In East Africa the most spectacular of these is the West Rift whose west wall separates East Africa from the Congo. The Western Rift contains a series of the deepest lakes in the world (up to 4,700 feet deep) which are major suppliers of waters of the Nile. Between the east wall of the Western Rift and the west wall of the Great Rift lies an immense shallow depression largely filled by Lake Victoria. This is relatively shallow (no more than 270 feet deep) and in area is the second largest body of fresh water in the world, only Lake Superior being bigger.

In Kenya, the earth's upward movement was greatest (and the valley is consequently deepest) in the hundred miles or so running north of Nairobi. The floor of most of the Great Rift has no outlet to the sea. The lakes in it tend to be shallow and to have a very high mineral content resulting from the evaporation of water leaving the solid salts behind.

The formation of the Great Rift Valley has not yet been completed. The most recent studies suggest that it is still slowly widening and that perhaps ultimately, in many millions of years, the whole of Africa east of the Rift may split off to form a new sub-continent. As a result of this massive upheaval, the earth's crust in the area has, of course, been considerably weakened.

Several million years ago this weakening was made apparent by the development in the floor of the Rift itself and along the cracks of weakness radiating from the main valley, of the vast numbers of volcanic formations on which much of the beauty of the region now depends.

Africa's seven highest mountains are all set in East Africa. The most spectacular are, of course, Kilimanjaro Africa's highest mountain 5,894m (19,340 feet), followed by Mount Kenya 5,200m (17,058 feet), (Fig. 6.1). But Mount Elgon, Mount Meru, Aberdares, Chyulu and Taita are all equally elegant (William, 1967).

East Africa consists of a narrow coastal strip built up from old coral and silt carried down by rivers. From this narrow strip, the land rises steadily towards the heart of central Africa. The evenness of the rise is dramatically interrupted by the very numerous volcanoes. This is the structural basis of one of the most significant landscapes on earth (Horrobin, 1971).

6.3 The Climate

The pleasantness of a climate, the vegetation and wildlife depend on three major factors: temperature, rainfall^{and} humidity. Over the greater part of East Africa all three factors are governed by altitude. In general, the low areas are very hot and tend to have a scanty rainfall and a dry atmosphere with very low humidity. The main exceptions are the coastal strip and the area along the shores of Lake Victoria which are with a high rainfall and a high humidity (Horrobin, 1971, p. 4).

6.4 Vegetation

Taken as a whole, the vegetation of East Africa at first sight seems very different from the usual conception of tropical vegetation. There is not ^avast expanse of dense forest, in which the trees are buried below in a matted jungle of undergrowth, and laced together above by twining creepers, lianas, while the trunks are adorned by epiphytic orchids. Instead of this wild luxuriance, the vegetation is sparse. Of course, there are exceptions. Belts of dense forest occur on the alluvial plains bordering the rivers, and in zones of perennial rain on the mountains of the interior (Horrobin, 1971) and (Lind and Morrison, 1974).

Throughout East Africa, however, the general aspect of the vegetation, taken in mass, is remarkably similar to that of temperate regions. Both the scrub of the plains and the scrubs of the plateaux, when seen in mass from a little distance, appears much like the bushes and pollards of the British woodlands. The grass and the tussocks of rush and sedge resemble those of England in form and habit, and in the interior many such as the reed-mace (*Typha angustifolia*, L.) and the common rush (*Juncus effusus*, L.) are the familiar British species (Horrobin, 1971) and (Lind and Morrison, 1974).

6.5 East Africa's National Parks

The most important reason for East Africa's abundant wildlife, however, is the unique diversity of its landscape. Africa's seven highest mountains are all set in East Africa, and they provide a wide range of habitats: from tropical forest to savanna; from temperate vegetation to the extremes of desert and permanent arctic snow; from very cold weather to extremely hot areas; from places with almost daily rainfall to regions with virtually non-existent rainfall (Bolles, 1979, p. 49).

The land itself is filled with some form of natural phenomena: glaciers on the Equator; forest in the midst of desert; and rich patches of fertile land side by side with land that is almost worthless for agriculture. A combination of these features has led to the development of a particular land use for which East Africa is today world-wide acclaimed, its National Parks.

East Africa has more than fifty national parks and reserves distributed among eight countries. The most famous ones are in Kenya and Tanzania (see Fig. 6.2); but the countries of Uganda, Zaire, Malawi, Rwanda and Ethiopia have also established some splendid examples.

NATIONAL PARKS IN KENYA AND TANZANIA

<u>Kenya</u>	<u>Area/Hectare</u>	<u>Date of Designation</u>
1. Tsavo NP	2,082,114	1948
2. Sibiloi NP	157,085	1973
3. Meru NP	87,044	1966
4. Aberdare NP	76,619	1950
5. Mount Kenya NP	71,559	1949
6. Amboseli NP	39,206	1974
7. Mount Elgon NP	16,923	1968
8. Nairobi NP	11,721	1946
9. Lake Nakuru NP	5,763	1967
10. Ol Doinyo Sabuk NP	1,842	1967
11. East Turkana NP
	<hr/>	
Total	2,549,876	
	<hr/>	
 <u>Tanzania</u>		
1. Serengeti NP	1,476,300	1956
2. Ruaha NP	1,295,000	1964
3. Ngorongoro CA-muly land use	528,000	1959
4. Mikumi NP	323,000	1964
5. Tarangire NP	260,000	1970
6. Katavi NP	225,300	1974
7. Kilimanjaro NP	75,600	1973
8. Lake Manyara NP	32,500	1960
9. Arusha NP	13,700	1962
10. Gombe Stream NP	5,200	1943
	<hr/>	
Total	4,234,600	
	<hr/>	
Grand Total	6,784,476	
	<hr/> <hr/>	

Fig. 6.2 National Parks of Kenya and Tanzania
(Compiled from IUCN, 1981)

6.6 West Africa's National Parks

West Africa is the mainland area lying south of the Sahara and extending from the western bend from Mauritania to west of the boundary between Nigeria and Cameroon (Fig. 6.3), a boundary that is one of Africa's major physical and human divides, consisting of Adamawa Highlands, Bemenda Highlands and Cameroon Highlands (Fig. 6.4). West Africa covers a total area of 6.2 million sq km (2.4 million sq mi), and has a population of over 122 million (Fig. 6.5).

With the exception of some bold relief features, for example, Fouta Djallon, Guinea Highlands, Banfora, Togo Mountains, Atacora Mountains, Jos Plateau, Adamawa Highlands, Bemenda Highlands and Cameroon Highlands (Fig. 6.4), West Africa is fairly a flat region. So that in all, West Africa relief features are not as impressive as those of East Africa.

As in other parts of the world, the distribution and character of vegetation results from the interplay of climate, edaphic (soils and soil water) and biotic influences (animals, especially man, and plants). In West Africa man has been a ruthless modifier or destroyer of the natural flora and fauna. Edaphic factors are often extremely significant or even overriding, especially near climatic margins and when lateritic crusts, saline or water logged soils occur (Church, 1980, p. 59). Therefore, the vegetation of West Africa shows a diminishing trend from forest vegetation in the south towards a sparsely savanna woodland in the Sahelian region in the north (Fig. 6.6).

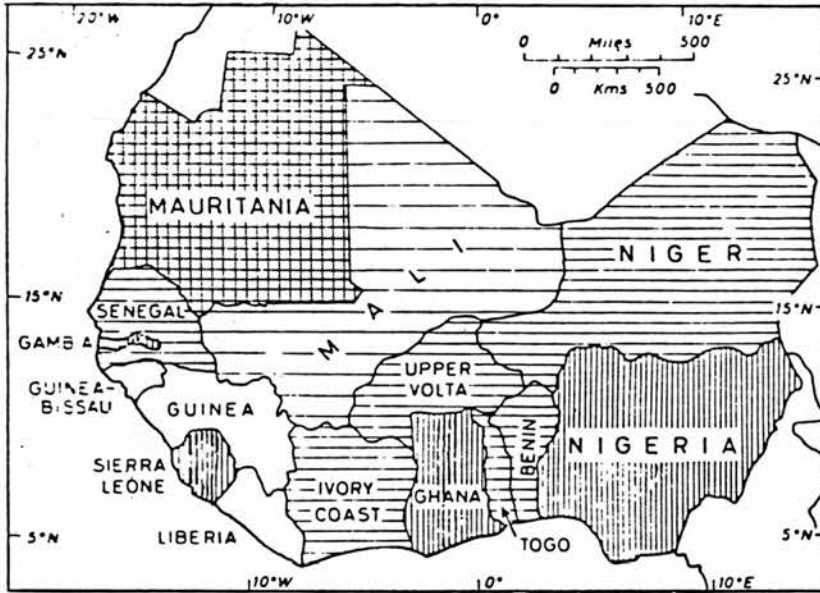


Fig. 6.3 Countries of West Africa
(From Church, 1980)

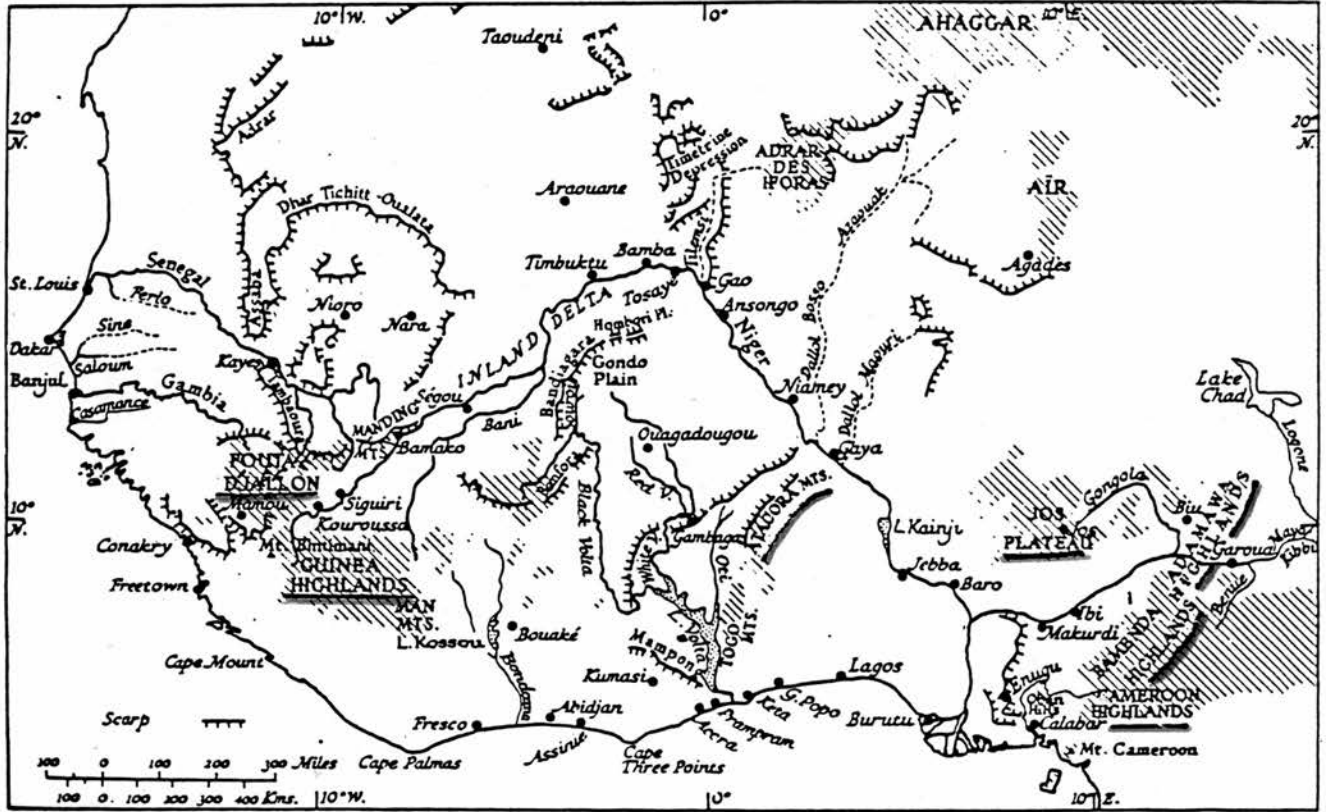


Fig. 6.4 Major Relief Features of West Africa
(From Church, 1980)

<i>Country</i>	<i>Capital</i>	<i>Area in sq km and sq miles*</i>	<i>Estimated population 1977</i>	<i>Annual rate of increase 1970-77</i>	<i>Density per sq km and per sq mile</i>
Senegal	Dakar	196 192 <i>75 750</i>	5 085 388 (1976)	n.a.	26 67
Gambia	Banjul	11 295 <i>4 361</i>	553 000	2.6	49 127
Mauritania	Nouakchott	1 030 700 <i>397 969</i>	1 420 000 (1976)	n.a.	1 4
Mali	Bamako	1 240 000 <i>478 783</i>	6 035 272 (1976)	2.5	5 13
Upper Volta	Ouagadougou	274 200 <i>105 868</i>	6 319 000	2.3	23 60
Niger	Niamey	1 267 000 <i>489 208</i>	4 859 000	2.7	4 10
Guinea-Bissau	Bissau	36 125 <i>13 948</i>	544 000	1.6	15 39
Guinea	Conakry	245 857 <i>94 930</i>	4 646 000	2.5	19 49
Sierra Leone	Freetown	71 740 <i>27 699</i>	3 470 000	n.a.	48 125
Liberia	Monrovia	111 369 <i>43 000</i>	1 796 000	2.4	16 42
Ivory Coast	Abidjan	322 463 <i>124 504</i>	5 152 000	2.6	16 41
Ghana	Accra	238 537 <i>92 100</i>	10 475 000	2.8	44 114
Togo	Lomé	56 000 <i>21 622</i>	2 348 000	2.6	42 109
Benin	Porto-Novo	112 622 <i>43 484</i>	3 286 000	2.7	29 75
Nigeria	Lagos	923 768 <i>356 669</i>	66 628 000	2.8	72 187
Total West Africa		6 137 869 <i>2 369 895</i>	122 616 660	2.7	20 52

*Square miles shown in italic numerals.

**Fig. 6.5 West African States : Area and Population
(From Church, 1980)**

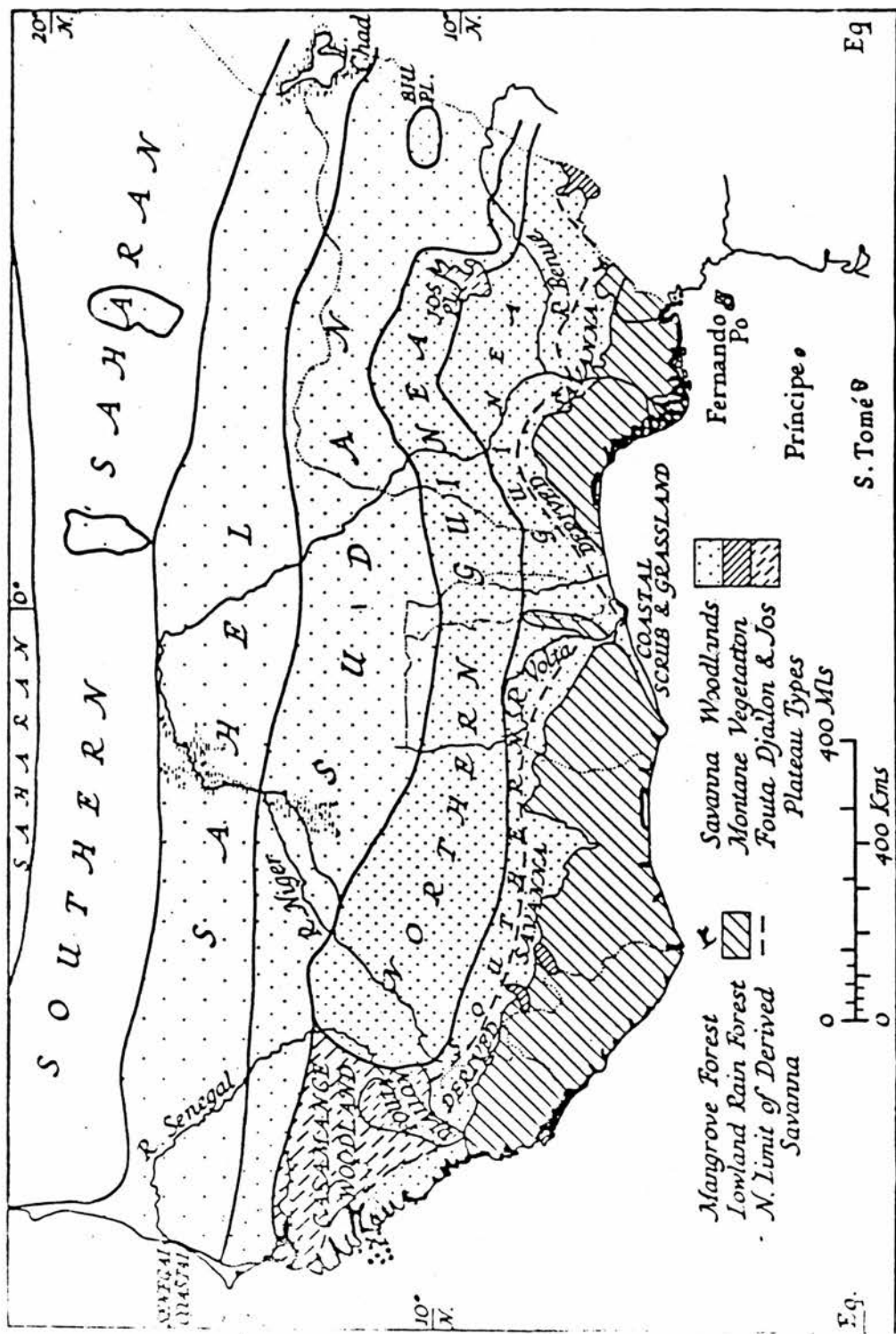


Fig. 6.6. Vegetation Zones of West Africa
(From Church, 1980)

Of the climatic factors, rainfall and relative humidity normally exert the most powerful influences upon vegetation (Church, 1980, p.59). 'Very important factors are the number of months with less than one inch of rain and the minimum relative humidity. Other factors are the duration and frequency of low humidities; and the minimum saturation deficit, which gives a measure of the evaporating power of the air independent of temperature' (Ibid. p.59). All these factors are very significant in West Africa, especially in the north, together with outstanding types, characteristics and aspects of the vegetation (Fig. 6.6), their relationships with other aspects of the environment - physical and human, the value of certain species and some of the problems which arise.

The culmination of all these led to the institution of some form of solution which has necessitated the designation of some areas of outstanding natural beauty as national parks. And even though West African National Parks are not teeming with fauna as those of East Africa, and do not possess phenomenal landmarks like Kilimanjaro and Mount Kenya and many others, they are in a class not less significant than East African National Parks. Of course, the envy of East African National Parks, especially those in Kenya and Tanzania, is that they are highly developed and better managed than those in West Africa.

A comparison between West Africa and East Africa will give a clear picture of how inadequate the former has contributed to National Park development on the Continent. Eleven out of fifteen countries in West Africa share among themselves 32 National Parks which cover a total area of 9,477,157 hectares (Figs. 6.7A and 6.7B). (Guinea Bissau, Guinea, Sierra Leone and Liberia have not established any National Parks, although they have nature reserves), (Fig. 6.7A).

In East Africa, Kenya and Tanzania alone have 11 and 10 National Parks respectively, with a total area of 6,784,476 hectares about 72% of the total area of National Parks in West Africa. Kenya's Tsavo National Park alone has an area of 2,082,114 ha., established in 1948 (IUCN, 1981).

Worthy of mentioning is Zambia's remarkable achievement as Africa's only country with the largest land area designated as National Parks. Zambia has 18 National Parks established between 1938 and 1973, and altogether totalling 12,942,170 hectares (IUCN, 1981), which are 3,465,013 ha more than the total area of National Parks in West Africa. Zambia's Lukusuzi National Park has an area of 7,272,000 ha established in 1938; and Kafue National Park 2,240,000 ha, designated in 1950.

South Africa has 8 National Parks designated from 1916-1964; and they occupy an area of 2,941,654 ha. The famous Kruger National Park established in 1926 has an area of 1,948,528 ha (IUCN, 1981).

NATIONAL PARKS IN WEST AFRICA

	<u>Area/Hectare</u>	<u>Date of Designation</u>
<u>Mauritania</u>		
1. Banc d'Arguin (Marine Component) (Park).	1,173,000	1978
<u>Senegal</u>		
1. Niokolo-Koba NP	913,000	1954
2. Delta du Saloum NP (14,600 hec. land and 58,400 hec. water).	73,000	1976
3. Djoudj NP	16,000	1971
4. Basse-Casamance NP	5,000	1970
5. Langue de Barbarie NP	2,000	1976
6. Ile de la Madeleine NP	500	1976
<u>Gambia</u>		
1. Le Baboon Island NP	2,000	
2. Le Kiang West NP		
3. Le Delta River NP		
<u>Mali</u>		
1. Ansongo-Menaka NP	1,750,000	
2. Boucle de Baoule NP	350,000	1954
<u>Niger</u>		
1. "W" NP (Contiguous to Benin and Upper Volta)	334,375	1954
<u>Upper Volta</u>		
1. "W" NP (Contiguous to Benin and Niger)	190,000	1953
2. Po NP	155,000	1976
3. Deux Baies NP	115,000	
<u>Guinea Bissau</u>		
—	—	—
<u>Guinea</u>		
—	—	—
<u>Sierra Leone</u>		
—	—	—
<u>Liberia</u>		
—	—	—

*

*(Continue on next page; see Fig. 6.7B)

Fig. 6.7A National Parks of West Africa
(Compiled from IUCN, 1981)

* NATIONAL PARKS IN WEST AFRICA

<u>Ivory Coast</u>	<u>Area/Hectare</u>	<u>Date of Designation</u>
1. La Comoé NP	1,150,000	1968
2. Tai NP	330,000	1972
3. Marahoue NP	101,000	1968
4. Mount Sangbe NP	100,000	1975
5. Mont Peko NP	34,000	1968
6. Banco NP	30,000	1953
 <u>Ghana</u>		
1. Mole NP	492,100	1971
2. Digya NP	312,354	1971
3. Bui NP	207,200	1971
4. Nini-Suhien	16,278	1976
5. Bia NP	7,700	1977
 <u>Togo</u>		
1. Kazao-Malfacassa NP	200,000	1950
2. Keran NP	109,200	1950
 <u>Benin</u>		
1. "W" NP (Contiguous to Upper Volta and Niger)	502,050	1954
2. Boucle de la Pendjari NP	275,500	1961
 <u>Nigeria</u>		
1. Kainji Lake NP	530,900	1975
GRAND TOTAL	<u>9,477,157</u>	Hectares.

* (See Fig. 6.7A)

Fig. 6.7B National Parks of West Africa
(Compiled from IUCN, 1981)

The conservation programme is an international effort, however, some African countries have been hesitant to make any firm attempt to designate any or more national parks. The 1983-85 drought in Africa triggered bush fires that obliterated thousands of square miles of flora and hundreds of thousands of fauna. Inevitably, it has caused the worst famine, in living memory, on the Continent. And for which almost all African countries have been seeking international food aid, especially by Ethiopia, the worst hit country, where hundreds of people are dying of hunger daily. The drought disaster has at least given African governments some food for thought.

It is, therefore hoped that more National Parks will be established in Africa, particularly in West Africa, considering that Kenya and Tanzania have more land area as national parks which form about three quarters of all national parks in West Africa.

This Chapter does not intend to give the impression that if there were what might be considered many more IUCN designated national parks in Africa, the drought and food problems on the Continent, as the world has been witnessing, could have been solved. Far from it, because IUCN designated national parks are not humanly habited and not exploited for food production. It does not also attempt to suggest that the designation of tier-two national parks is the panacea to the drought and food problems in Africa.

However, the significance is that tier-two designated parks have the potential to contribute to conservation, recreation as well as other economic ventures including agriculture within parklands.

6.7 Summary and Conclusions

Despite the designation and establishment of many IUCN tier-one type of national parks in Africa, there are still many remaining areas of outstanding natural beauty with human habitation but which can be saved from despoliation; and the only way to do so is by designating them as tier-two national parks.

The situation as it is here informed is pursued in subsequent Chapters. And in the next Chapter 7, Ghana is taken as a subject of discussion as to how a tier-two system might be developed and applied.

CHAPTER VII

GHANA'S EXISTING TIER-ONE NATIONAL PARKS: THE CHOICE
OF A TIER-TWO NATIONAL PARK CASE STUDY

Contents

- 7.1 Introduction
- 7.2 Ghana's National Parks
- 7.3 Description of the Six Test Areas
- 7.4 The Criteria Used to Select the Most Outstanding Area
- 7.5 Summary and Conclusions

CHAPTER SEVEN : GHANA'S EXISTING-TIER ONE NATIONAL PARKS: THE
CHOICE OF A TIER-TWO NATIONAL PARK CASE STUDY

7.1 Introduction

This Chapter discusses the potentiality of some areas of outstanding natural beauty in Ghana for possible designation as national parks. They cannot, however, be so designated because they do not come under the IUCN category of national park as they include areas of human settlement.

One of these areas is selected as a test case for examining the validity of tier-two designation.

7.2 Ghana's National Parks

Ghana is relatively small country of only 238,537 sq. km. (92,100 sq. miles) in area.

Ghana has, in all, five national parks (see Fig. 7.1) established within the framework of the IUCN concept of the national park, and have therefore all been listed in the United Nations List of National Parks and Equivalent Reserves. These five national parks (see Fig. 7.1) established between 1971 and 1976 are as follows:-

<u>Name</u>	<u>Area</u>	<u>Date of Designation</u>
1. Mole National Park	1900 sq. miles	1971
2. Digya National Park	1200 " "	1971
3. Bui National Park	800 " "	1971
4. Bia National Park	30 " "	1974
5. Nimi-Suhien National Park	63 " "	1976
	<u>3993</u> " "	

GHANA - WILDLIFE CONSERVATION AREAS

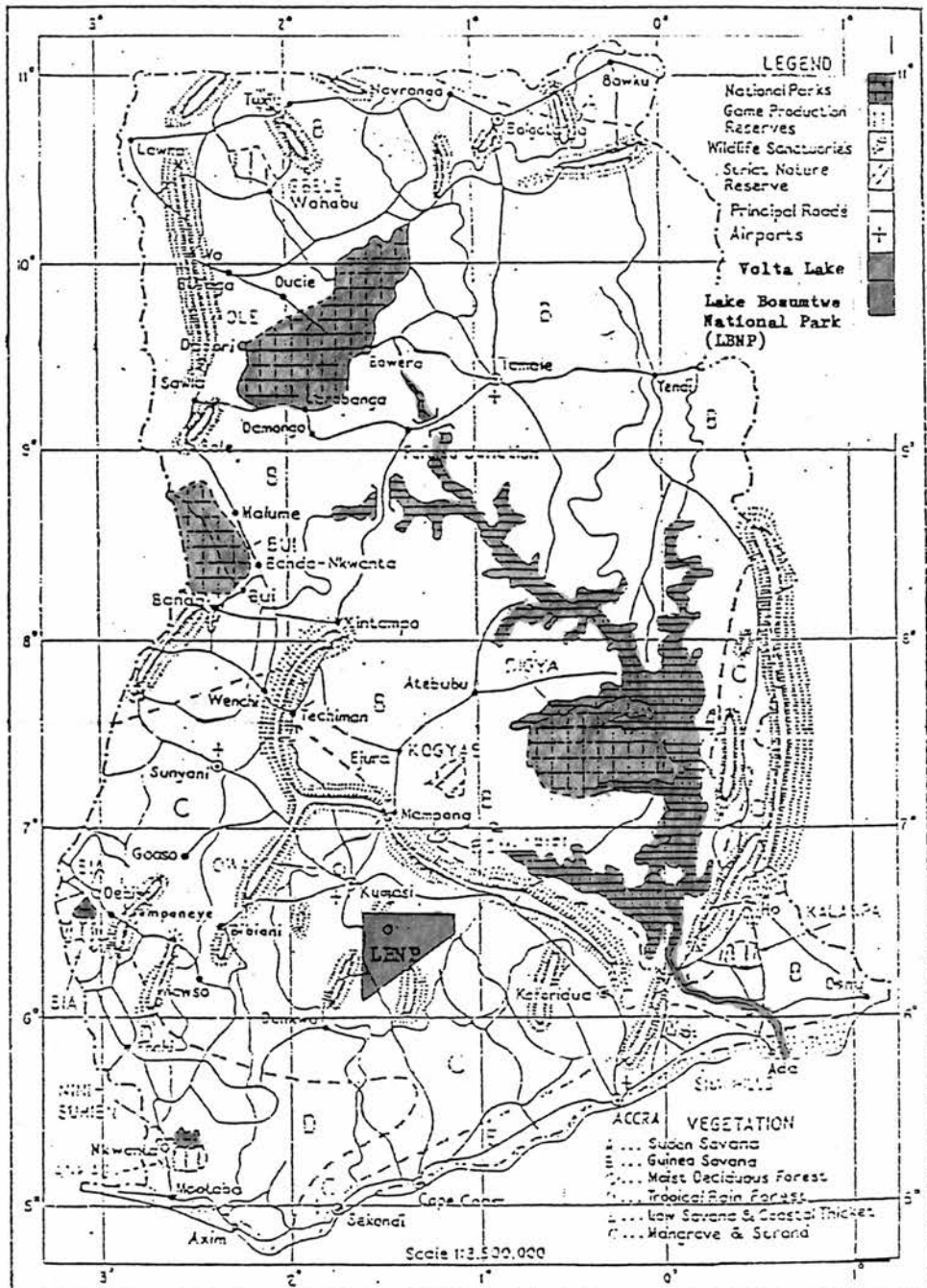


Fig. 7.1 Wildlife Conservation Area of Ghana showing existing National Parks and the proposed Lake Bosumtwé National Park (LBNP) (From The Survey of Ghana, 1969).

For the purposes of this thesis these five Ghana's national parks or any other national parks designated under the IUCN concept will be referred to simply as tier-one national parks. Any other areas of outstanding natural beauty which are inhabited and with the potential of being considered for designation or designated as national parks will be referred to as tier-two national parks.

Unproportional to its size, Ghana is rich in further areas of outstanding natural beauty many of which could well merit the status of a national park. But all such areas are significantly inhabited and therefore do not comply with the IUCN requirements. Therefore, to be able to assess which particular area might be adopted in order to test the application of a second level of a tier-two system of national parks, it was decided to shortlist and examine the most outstanding of these areas.

Upon that remit the author subjectively shortlisted four areas on the basis of his experience and in consultation with the national park management officials in Ghana as follows:

1. Volta Lake.
2. Lake Bosomtwe.
3. Axim Rain Forest.
4. Fete Coast.

Upon further examination and for reasons given below, it was decided that the Volta Lake should be divided into three separate areas with each being listed as an independent area as: North, Central and South Volta Lakes. This brought the number of listed areas to a total of six; the location and draft boundaries of each of these are shown in Fig. 7.2 as follows:-

1. North Volta Lake.
2. Central Volta Lake.
3. South Volta Lake.
4. Lake Bosumtwe.
5. Axim Rain Forest.
6. Fete Coast.

The main reasons for dividing Volta Lake into three separate areas are that:

1. In natural beauty each area is distinctively different from the other. For example, the vegetation of the North Volta Lake is a savanna which develops into transitional vegetation of semi-forest in Central Volta Lake and then into pure forest vegetation in South Volta Lake.

2. Physiographically, the North Volta Lake is virtually flat, with few mountains and hills in Central Volta Lake, while South Volta Lake is semi-mountainous.

3. In size each area (including water body and land) is large and more than 3,000sq. miles, and in fact Central Volta Lake is more than 5,000 sq. miles; and their separation, it is believed, will provide better park management.

4. The Volta Lake although artificial rather has a more natural disposition which enhances the natural beauty of its surrounding catchment.

5. Each of the three areas: North, Central and South Volta Lakes, is inhabited by different tribal groups and their social and economic lives, agricultural and land use patterns, problems and solutions are seen to be totally different from one area to the other.

7.3 Description of the Six Test Areas

Test areas 1, 2, and 3: North, Central and South Volta Lakes (see Fig. 7.2) are based on the Volta Lake.

The Volta River with its tributaries, the Black Volta which forms Ghana's north-western boundary with Ivory Coast; the White Volta stretching from the north-east and joined by Kulpaw River from the north-west; the Oti and Daka Rivers from the east; and the Afram River in the south-west, majestically traverses almost the entire length and breadth of Ghana (see Fig. 7.3).

In 1964, the dam across the Volta River at Akosombo was completed, inundation began and the Volta Lake was formed (see 7.2); and has totally changed the landscape of Ghana (Obeng, 1975). The Volta Lake stretches over 250 miles, traversing five regions, and covering a surface area of 3295 sq. miles, almost four per cent of the total land surface of Ghana (Denyoh, 1969, p. 206) and (Obeng, 1975, p. 79). Denyoh (1969) and Obeng (1975) describe that 'the Lake has a maximum depth of 276 ft and a shoreline of

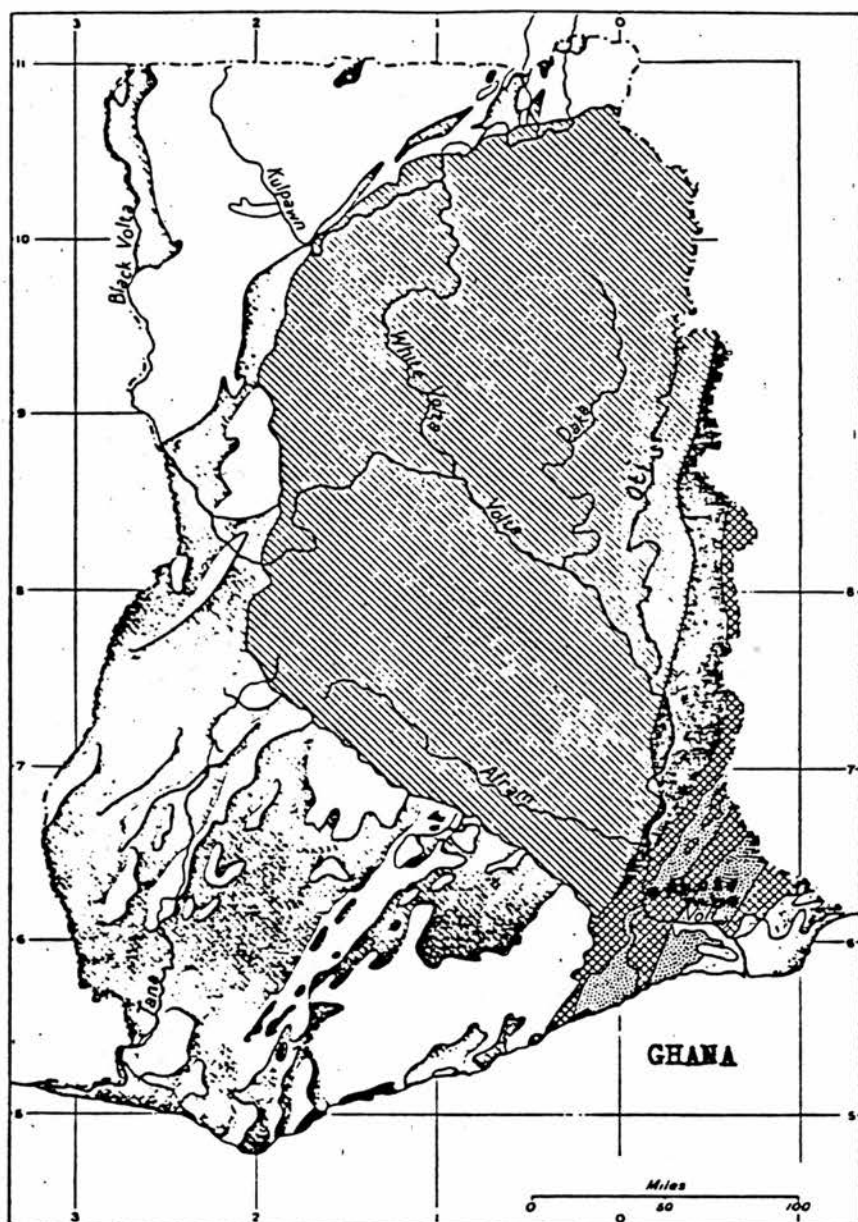


Fig. 7.3 Showing Major Rivers of Ghana
(From Varley and White, 1958)

over 4,000 miles. At its widest section the Lake has a maximum width of 20 miles'. The inundation displaced about 88,000 people from their homes and for whom 250 village settlements were built (Quartey, 1969) and (Obeng, 1975). Obeng (1975) concludes that the Volta Lake stands as the largest artificial lake in the world (see Fig. 7.2).

The Volta Lake is a national asset with an enormous potentiality. The main purpose of building the dam was to generate hydro-electric power on a wider and much more economic scale than hitherto to feed Ghana's industrial expansion. But there were other benefits too to accrue from the over £250m nationally and internationally financed Volta Scheme, such as:

1. To link northern and southern Ghana by a waterway transportation system.
2. To effectively and economically exploit the Lake with its teeming fish as a source of protein to feed the nation.
3. To improve agriculture by irrigation of the outlying agricultural lands.
4. To offer opportunities for recreation and tourism.

Significantly, there was no recognition of the surrounding catchment areas or of the water-body itself as an ecologically coherent unit. In considering the potential of the Volta Lake to be developed and designated as national park/s to provide outdoor recreation, it was argued that the Lake is man-made and therefore it does not fall into the exclusive category of 'an area of outstanding natural beauty' so as to warrant it being selected and designated as a national park/s. Although it is the largest

artificial lake in the world the facts still remain that its river-bed and tributaries were natural and that the new landscape has developed out of its natural disposition and congenially merged with existing one, and therefore making it profoundly difficult to differentiate between the naturalness and artificiality of the two patterns of landscape. And today, in all respects, the Volta Lake looks more natural than artificial, and thereby presenting its own characteristics and natural beauty from North, Central and South Volta Lakes have been developed (see Fig. 7.2).

A North Volta Lake would encompass an area of 9,370 sq. km. (3,618 sq. miles); and it will be that section which flows through the south of the Northern Region, and having its lower tributary flowing across north eastern part of Brong Ahafo Region (see Fig. 7.2).

It is an area of outstanding natural beauty and distinctively different due mostly to its physical features and vegetation. Physiographically, it is a flat country, an open tract of land, with a vegetation of rolling savanna sparsely dotted with farms and villages. The farmers practise arable cropping and cattle rearing. Although they are not nomads, cattle are grazed extensively in the open country resulting in a lot of damage done to the vegetation and sometimes even to farms. The North Volta Lake farmers have a reputation of physically contributing to the destruction of the vegetation by uncontrolled bush burning for venison organised annually during the Harmattan dry season from November to January. The result has been that over the years parts of the savanna woodland have been reduced to eroded grassland with bare patches and consequently depleting the soil. Uncontrolled bush burning in

itself is very seriously detrimental to conservation. The local communities are members of the Gonja tribe and their cultural and social lives and particularly land use may need to be meaningfully reorientated in a North Volta Lake National Park.

A Central Volta Lake National Park would occupy an area of 13,856 sq. km. (5,350 sq. miles). About three quarters of the area lies in eastern Brong Ahafo Region, and one-third of the remainder in the north-eastern part of Ashanti Region, with the remaining two-thirds in the Volta Region. With the exception of the Volta Region where the area lies in moist semi-deciduous forest, the rest of the area lies in wooded savanna. Central Volta Lake has an outstanding natural beauty of its own, for example, the confluence of the Volta and Oti Rivers conjures a spectacular scenery (see Figs. 7.2 and 7.3), and it is also the widest section of the Volta Lake being about 32 km (20 mi), (see Fig. 7.2).

The area is occupied by farming communities consisting of two tribal groups namely, Akans and Ewes. The Ewes occupy the north-eastern parts, and the rest occupied by the Akans. Both tribal groups are food crop and plantation farmers, but they do not rear cattle as practised at North Volta Lake. Their farming methods and land use are similar and much more stable than the people of North Volta Lake. And although they do not practise annual bush burning for venison, whenever they establish new farms or plantations they burn the bushes and felled trees with the intention of reducing expenditure on field operations.

They practise their own conservation methods where some forests are deliberately preserved for traditional and cultural uses, for hunting, and as a source for rare medicinal plants. Socially, the land is linked with chiefship and the chiefs are regarded as the custodians of the land.

A South Volta Lake would occupy an area of 8560 sq. km. (3305 sq. mi.), (see Fig. 7.2). The area would stretch from the north eastern tip of Ashanti and continue almost perpendicular to the Volta Region. It would extend southwards to include the Akosombo Dam itself and continue westwards to encompass the Afram Lake. It would finally end up slightly south of the north eastern corner of Ashanti Region (Fig. 7.2). The area would consist of a varied vegetation of moist semi-deciduous forest in the south and north-east, and wooded savanna in the north and south-east. The physiography of the area is equally more diversified with hills and mountains surrounding the Lake, which provide it with enchanting panoramic views. In all, it is an area of outstanding natural beauty.

This area is inhabited by fishing and farming communities who fish the Lake and farm the land. They practise both intensive and extensive food cropping and plantation farming of cocoa and coffee. Agricultural land use seems to be better understood and practised; but as always there are conflicts between conservation and agricultural land use. And since no specific efforts have been made towards conservation and farmers tend to do almost what they like on the land. Fishing is done by individuals and by groups, but its conflicts with conservation are far less than that of agriculture.

Lake Bosumtwe and its surrounding district occupy an area of 1,092 sq. km. (422 sq. mi.), (see Fig. 7.2). Lake Bosumtwe itself which is the heart of the district is a natural phenomenon. It is not only a caldera but the only lake in West Africa with a calderic catchment, which is situated at a high altitude in a deep bowl that does not lie in any river bed (MacLaren, 1931). Undoubtedly, the Lake together with its environs represents an area of outstanding natural beauty, and is both a national and international asset which calls for recognition to preserve it as a national park for this and future generations for their enjoyment and study.

There are villages along the shores of the Lake and in the district and the local population consists of fishermen and farmers who fish the Lake and farm the land respectively. And an uncontrolled land use and excessive exploitation of the Lake will in the end affect the natural beauty of the area especially the Lake adversely. Therefore, the human habitation aspect of the area poses a great threat to the present near natural condition of the Lake; and therefore calls for an immediate action to preserve the Lake as a national park before it becomes too late to save it from despoliation.

The Axim tropical rain forest which covers an area of 7600 sq. km. (2937 sq. mi.), (see Fig. 7.2) is one of the few remaining in West Africa. It is an area of outstanding natural beauty expressed by its climatic climax vegetation which has developed over the centuries. Perhaps the best known of these, the tropical rain forest of Tai National Park (425,000 ha) in the Ivory Coast was designated in 1956, and it requires constant attention to prevent losses to other sorts of land use (IUCN, 1981).

In the absence of any other well preserved tropical rain forest with little or no human interference in Ghana, it was decided that Ghana's only remaining tropical rain forest of considerable size in the Western Region, the Axim forest, deserved shortlisting for designation.

Further, by coincidence, the Axim tropical rain forest is situated within the same area with the highest rainfall from 70 to 90 inches per annum in Ghana (see Appendix II). Hence, the rain forest could also serve as a natural gene bank for some rare floral and faunal species; and providing climatic stability in the region; and adequate management to provide also for limited recreational use.

The Axim forest is inhabited except for the inner core of the forest reserve itself. The high annual rainfall of the region makes the area very favourable for the development of agriculture. For example, there are hundreds of square miles of rubber and oil palm plantations in addition to food farms, where the government has greater share of investment. Therefore, there is the great fear that what is left will be encroached upon and destroyed for the development of further agriculture. And also any pressure

from the local communities on the government for the demand of more agricultural land will put the remaining tropical forest at risk; and for political reasons the government could accede to satisfy popular local demand. There is the fear of sporadic illegal encroachment on the forest for the development of agriculture by the local communities should the government fail to meet future requests.

With the possibility of these threats in the future the best approach will be to designate the area as a national park by the application of the tier-two system of the national park concept.

The Fete Coast, sixth and final area examined, covers an area of about 160 sq. km. (62 sq. mi.), (see Fig. 7.2). It is where the Akwapim and Togo mountain ranges rise practically from the sea at Senya Beraku. They are seen as prominent hills west and north-east of Accra; and trending northeastwards across Togo and northern Benin, where they straddle the Niger River and are known as the Atacora Mountains.

Beginning from Fete towards the east, the Fete coast itself which stretches for about 16 miles is virtually flat, unspoilt and in a near natural condition. It is an area of outstanding natural beauty and offers one of the most spectacular coastal shores of white sandy beaches in Ghana.

The vegetation is composed mainly of coastal scrub and grassland, and a little bit of strand and mangrove. The scrub has been the source of firewood, to the local population, for cooking and for smoking fish. Most parts of the scrub have been replaced by grass because of excessive destruction of the vegetation.

The inhabitants have a dual occupation of fishing and farming. They are not deep sea fishermen. In fishing they use dug-out canoes fixed with out-board motor and therefore they do not go very far off-shore, with the result that very often their catches are small and fishing does not become lucrative in the off-fishing season. The off-fishing season is not specific, and it depends on the size of catch. Therefore, in the off-fishing season they turn to the land and become farmers growing cereals, tubers and vegetables. When they establish new farms they do burn the bush but on a small scale. And they do not practise annual bush burning for venison. However, the agricultural and firewood programmes would have to be developed and strictly controlled in the designation of the Fete Coast National Park.

7.4 The Criteria Used to Select the Most Outstanding Areas

The criteria used in selecting the most outstanding areas were derived from seven sources as follows:-

1. John Dower's Report on National Parks, 1945.
2. Hobhouse's Report on National Parks, 1947.
3. IUCN criteria for the designation of national parks, 1969.
4. Tandy's "Isovist's" Technique 1971 (Revised).
5. Ian L. McHarg, "Design With Nature", 1971.
6. Hassan Kayhanfar's study (M. Phil. Thesis, 1981, University of Edinburgh) of three selected methods of Landscape Visual Quality Evaluation based on (1) Fines, 1967, (2) Tandy, 1971, and (3) Manchester University 1970-75, (Landscape Evaluation Research Project carried out at Manchester University 1970-75).
7. Terry J. Brown and Robert M. Itami, "Landscape Principles Study: Procedures for Landscape Assessment and Management, Australia", 1982. (The objective of the "Landscape Principles Study" is to assess the landscape character and potential changes in that character and to provide means for protection of the general landscape values of the Upper Yara Valley and Dandenong Ranges Region, a vast land area of approximately 3,000 sq. km. lying on the fringe of the metropolitan suburban development east of Melbourne, Australia).

The criteria developed and used to select the most outstanding of the six areas were:

1. Land area not less than 1,000 hectares and possessing the following:-
2. At least one uniquely valuable ecosystem.
3. Significant geological features.
4. Physiographical features of quality and beauty.
5. Landscape qualities of significance.
6. High scenic values.
7. Rural communities with economic ventures in agriculture, fishing and forestry.

The detailed criteria and the merits of grading and scoring of points of each of the six areas are shown in Figs. 7.4, 7.5 and 7.6. The final result of grading are as follows:-

1. Lake Bosomtwe	34 points.
2. Axim Rain Forest	30 "
3. South Volta Lake	29 "
4. Central Volta Lake	26 "
5. North Volta Lake	25 "
6. Fete Coast	23 "

	NORTH VOLTA LAKE	CENTRAL VOLTA LAKE	SOUTH VOLTA LAKE	LAKE BOSUMTWE	AXIM RAIN FOREST	FETE COAST
AREA						
Above 1,000 ha	0	0	0	0	0	0
1,000 "						
Below 1,000 "						
GEOLOGY						
Unique Features				0		
Scientific & Educational Features	0	0	0	0	0	0
PHYSIOGRAPHY						
1. Land Features						
Unique/High			0	0		
Moderate	0	0			0	0
Average/Low						
2. Water Features						
Unique/High	0	0	0	0		
Moderate						
Average/Low						
3. Coastal Beaches						
Unique/High						0
Moderate					0	
Average/Low						
Total Points	10	10	11	14	9	10

Grading	Value/Points
Very Good/Unique/High	3
Good/Moderate	2
Fair/Average/LOW	1

Fig. 7.4 Criteria for Selecting one out of six Listed Areas
Source: Compiled by Author

	NORTH VOLTA LAKE	CENTRAL VOLTA LAKE	SOUTH VOLTA LAKE	LAKE BOSUMTWE	AXIM RAIN FORST	FETE COAST
AGRICULTURE						
Food Farming	0	0	0	0	0	0
Plantation Crops			0	0	0	
FISHING						
Fresh Water Fishing	0	0	0	0		
Marine Fishing					0	0
FORESTRY						
Forest Reserves	0	0	0	0	0	0
Watersheds	0	0	0	0	0	
Total Points	10	10	12	12	14	5

Grading	Value/Points
High	3
Moderate	2
Low	1

Fig. 7.5 Criteria for Selecting one out of six Listed Areas

Source : Compiled by Author

	NORTH VOLTA LAKE	CENTRAL VOLTA LAKE	SOUTH VOLTA LAKE	LAKE BOSUMTWE	AXIM RAIN FOREST	FETE COAST
CONSERVATION						
Natural						
Near-Natural				0	0	0
Average/Low	●	●	●			
LANDSCAPE QUALITIES						
High				0		0
Moderate	0	0	0		0	
Low						
SCENIC VALUES						
High		0	0	0	0	0
Moderate	0					
Low						
Grand Total	25	26	29	34	30	23

Grading	Value/Points
High	0 3
Moderate	0 2
Low	0 1

Fig. 7.6 Criteria for Selecting one out of six Listed Areas
Source : Compiled by Author

7.5 Summary and Conclusions

Of the six shortlisted areas, Lake Bosumtwe was eventually selected as offering the best basis for a detailed case study within the thesis.

Possibly, apart from the Crater Lake National Park in Oregon, United States, Lake Bosumtwe is certainly one of the very best calderic landscapes in the world and undoubtedly the best in Africa. The human habitation characteristics of Lake Bosumtwe and its surrounding areas will eventually erode the Lake's very high landscape qualities and values, unless it is given international protection as a national park because of the human habitation factor. Therefore, the only practical solution appears to be its designation as a tier-two national park.

In order to explore the limits and nature of such a tier-two designation at Bosumtwe, it becomes necessary to examine in more detail the area's physiographic and social characteristics in subsequent chapters.

This examination and its concluding discussions form the basis of the remainder of this thesis. It begins at the beginning by considering the factors likely to most affect the designation of workable park boundaries.

CHAPTER VIII

LAKE BOSUMTWE TIER-TWO NATIONAL PARK CASE STUDY:
AN APPROACH TO ITS DELIMITATION

Contents :

- 8.1 Introduction
- 8.2 The Demarcation of Lake Bosumtwe National Park
Boundaries
 - 8.2.1 Options and Criteria for Selecting
Lake Bosumtwe National Park Boundaries
- 8.3 Summary and Conclusions

CHAPTER EIGHT : LAKE BOSUMTWE TIER-TWO NATIONAL PARK CASE STUDY:
AN APPROACH TO ITS DELIMITATION

8.1 Introduction

This Chapter considers the delimitation of the provisional boundaries for a tier-two Lake Bosumtwe National Park discussed with special reference to Ghana and some selected National Parks in Africa, Britain and the United States.

The criteria for the demarcation of the boundaries of these Parks together with the IUCN criteria have been used in producing related criteria considered by the author as most appropriate and acceptable for the delimitation of the boundaries of the proposed Lake Bosumtwe National Park as a tier-two Park.

8.2 The Demarcation of Lake Bosumtwe National Park Boundaries

In considering Bosumtwe's park boundaries the author made a study comparison between the remarkable physical similarities of Lake Bosumtwe, Ashanti, Ghana, and Crater Lake, in Oregon, United States; in the former's case as a potential Park to be designated as a tier-two National Park, and in the latter's as a fully fledged National Park designated as far back as 1902.

In this, Lake Bosumtwe (see Fig. 8.1) and Crater Lake (see Fig. 8.2) are seen to share almost the same physical characteristics. They are both crater lakes formed by explosion and subsidence, which are characteristics of calderic formation. Lake Bosumtwe is believed to have been probably formed in the early Pleistocene period about one million years ago (Church, 1980, p.376); Crater Lake on the other hand is geologically much younger being about 6600 years old (Williams, 1942).

MacLaren (1931), writing about Lake Bosumtwe observes that: 'Lakes are rare topographical phenomena in tropical West Africa. None other than Bosumtwe is known in the Gold Coast (now Ghana). The nearest are the Timbuktu Lake (Debo and Faquibine), 700 miles to the north, a small lake (Iyede), 500 miles to the east in southern Nigeria, Lake Chad, 1050 miles away to the north-west. All these latter, and a few others of trifling size, are merely phases of development of the Niger or of the Shari river-beds'.

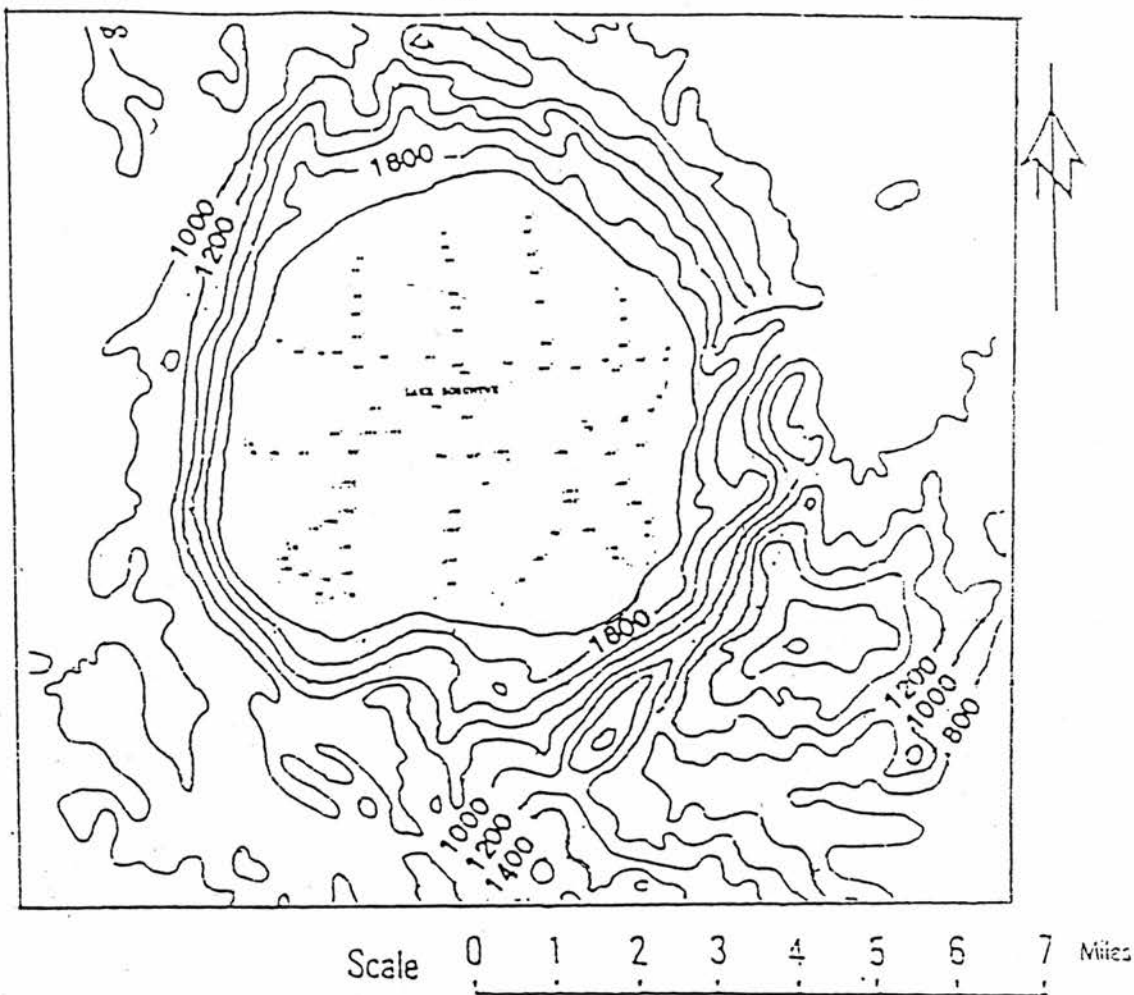


Fig. 8.1 Lake Bosomtwe, Ashanti, Ghana
(From The Surveys of Ghana, 1969)

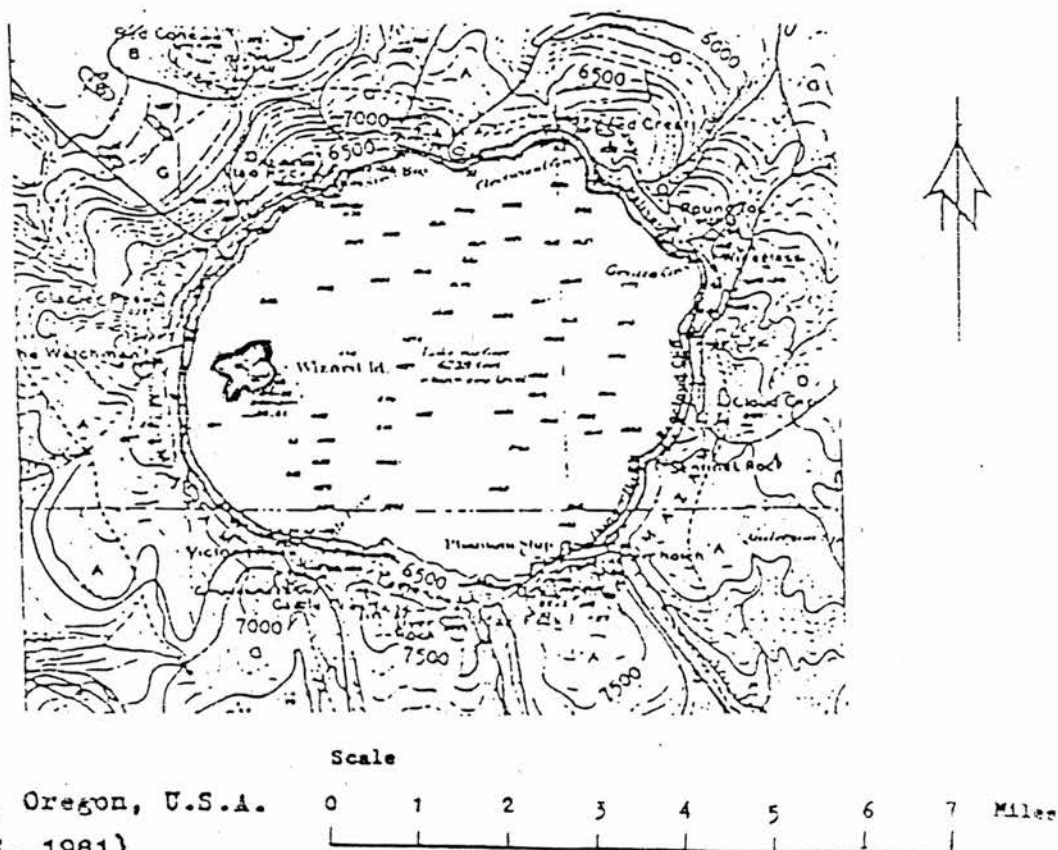


Fig. 8.2
Crater Lake, Oregon, U.S.A.
(From US NPS, 1981)

Unlike them, however, Lake Bosomtwe (see Fig. 8.1) does not lie in the channel, present or ancient, of any river. It is not only situated high up and at the bottom of a steep crater, but its waters are clean and fresh and self-contained. Lake Bosomtwe is circular, six miles wide, and has neither inlet nor outlet drainage systems, and wholly isolated from the general drainage system of southern Ashanti (Rattray, 1923, p. 74), (MacLaren, 1931, p. 268).

Crater Lake (see Fig. 8.2) is similarly situated in a high altitude and set in a deep bowl at the bottom of a crater surrounded by steep walls. Crater Lake is also circular, some six miles wide, and its waters are clean and fresh; it is self-contained and has no inlet nor outlets (Williams, 1942).

The only distinct physical difference between these two Lakes is that Crater Lake has an island called 'Wizard Island' situated in the western part of the Lake and standing some 800 ft. above the surface of the Lake (see Fig. 8.2 and Plate 8B). Lake Bosomtwe has no island (see Fig. 8.1 and Plate 8A).

Topographically both these crater lakes consist of a simply defined and contained inner tract within the crater rim, and the broad flanking skirts of the crater. The effective boundary of these skirts is influenced by factors other than the purely visual.

Both Crater Lake And Lake Bosomtwe are fine examples of calderas preserved in their natural state; Crater Lake protected as a National Park, and Lake Bosomtwe proclaimed sacred by the Asantehene, the King and people of Ashanti (see Plates 8A and 8B).

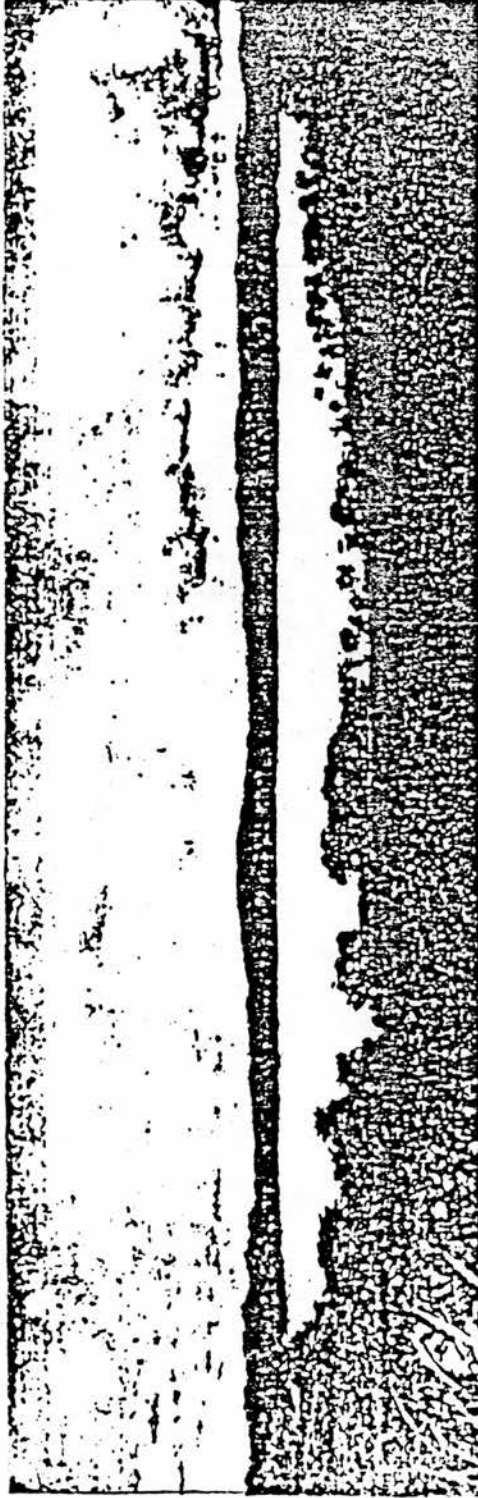


Plate 8A Lake Bosomtwe
(From MacLaren, 1931)

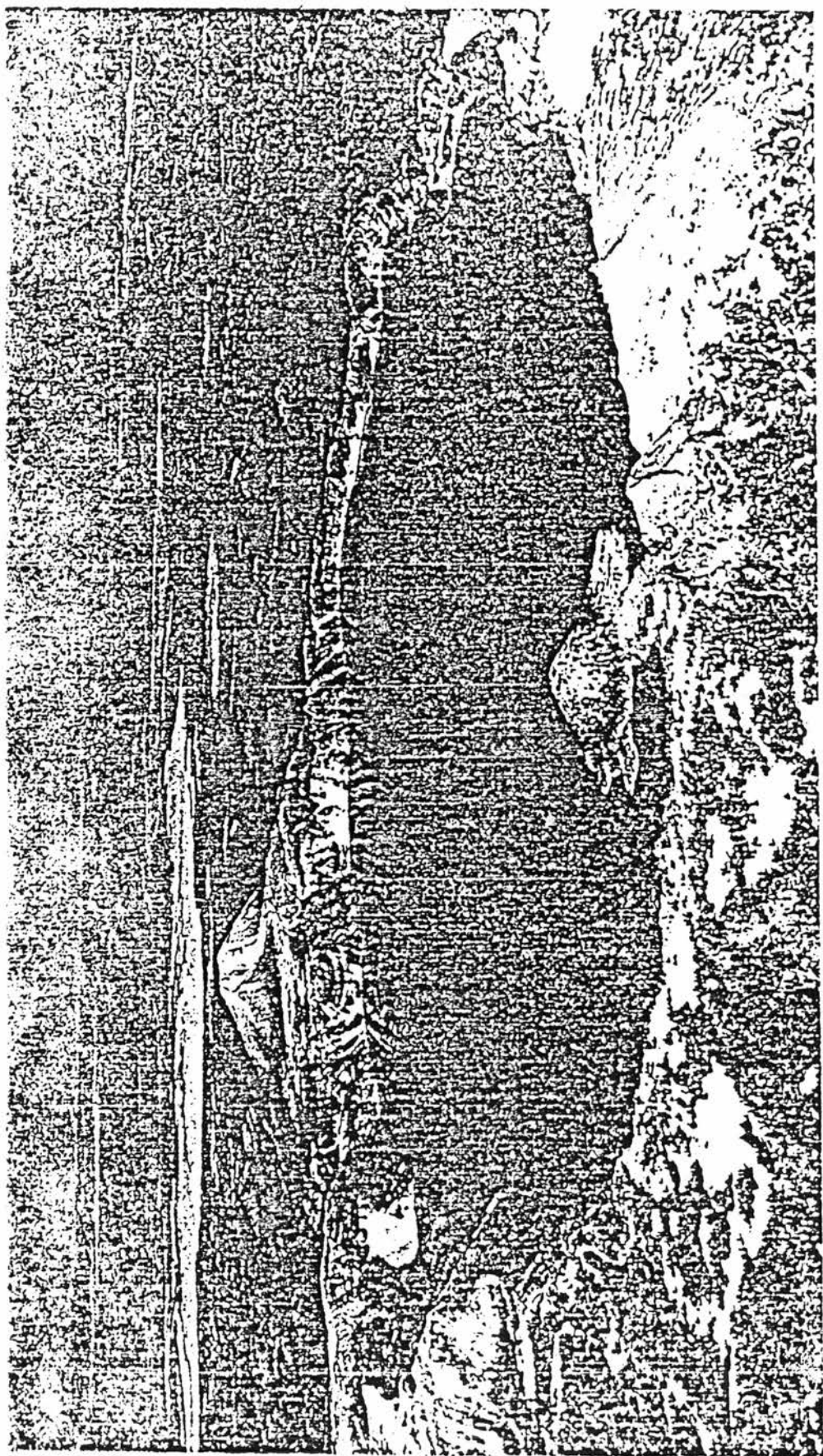


Plate 8B Crater Lake in winter. Wizard Island punctuates the lake's blue surface. Mount Scott lies beyond the caldera rim.

(From Hopworth, 1982)

8.2.1 Options and Criteria for Selecting Lake Bosomtwe National Park Boundaries

Bosomtwe's natural beauty as previously confirmed (see Chap. 7.3) extends beyond that of the Lake itself and includes prominent physical features to the north, south and east, like Beposei, Obuom, Prem and Ntibo Mountains (see Fig. 8.3A), and natural living features such as Obuom and Prem Forests (see Fig. 8.3A).

The author considers it very desirable to include these features within the Park, and therefore presents here boundary options illustrated in Figs. 8.3A, 8.3B, 8.3C and 8.3D, as offering the best combination of advantages. These options, for convenience, are referred to here as: (1) The Pear, (2) The Jelly, (3) The Rectangle and (4) The Triangle. Their advantages and disadvantages are discussed as follows:

The Pear Shape, Fig. 8.3A, provides adequate buffer zones on the north and south boundaries to the Lake, and the two forest reserves, Obuom and Prem; and by including Beposei, Obuom, Prem and Ntibo Mountains (see Fig. 8.3A). The Jelly Shape, Fig. 8.3B, allows a reduction in this buffer area, but both these shapes are not related adequately to the natural topography of Bosomtwe (see Map 8.1); neither are they related to the existing settlement pattern (see Fig. 9.2), nor are they related to the roads serving these settlements (see Fig. 9.2). A boundary solution based on the existing roads (see Fig. 9.2) is a possibility but it provides a very ragged small scale edge along the northern and western sides of the Lake (see Fig. 9.2). Two of the existing tier-one Ghana National Parks, Mole and Bui, do have boundaries closely defined in this way (see Fig. 8.6) and they offer convenient means of park

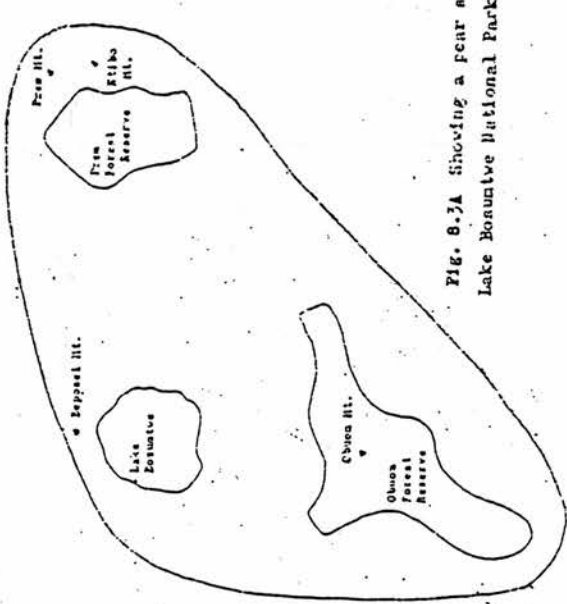


Fig. 8.3A Showing a pear shape of Lake Bonumtwa National Park

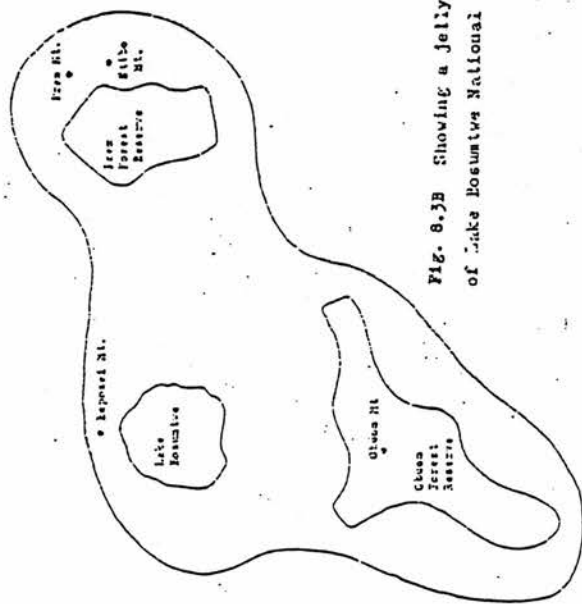


Fig. 8.3B Showing a Jelly shape of Lake Bonumtwa National Park

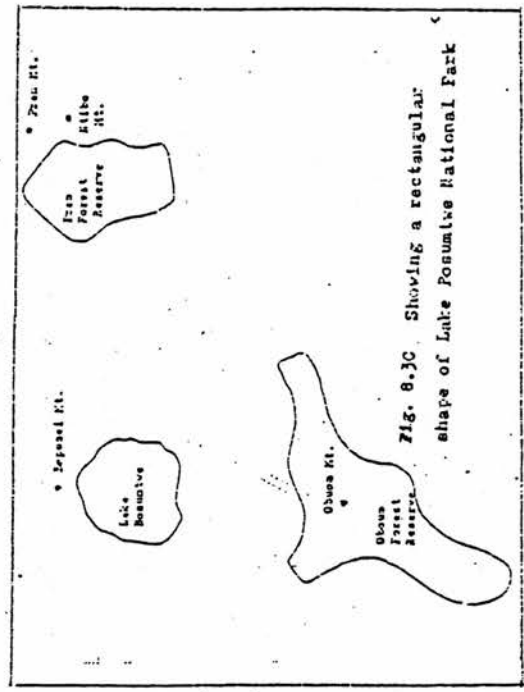


Fig. 8.3C Showing a rectangular shape of Lake Bonumtwa National Park

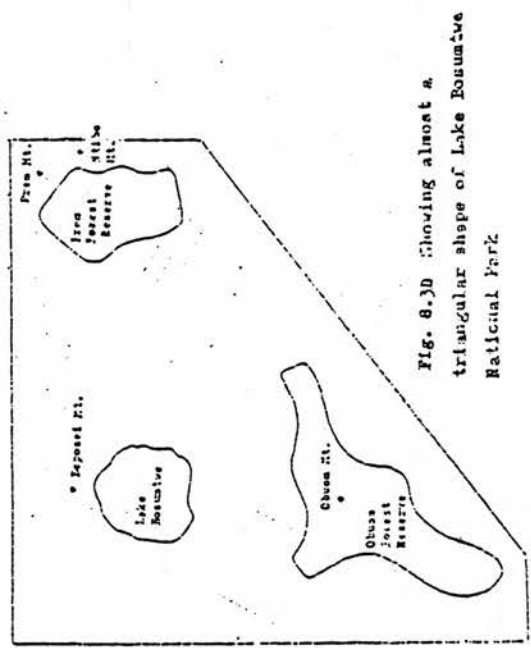


Fig. 8.3D Showing almost a triangular shape of Lake Bonumtwa National Park

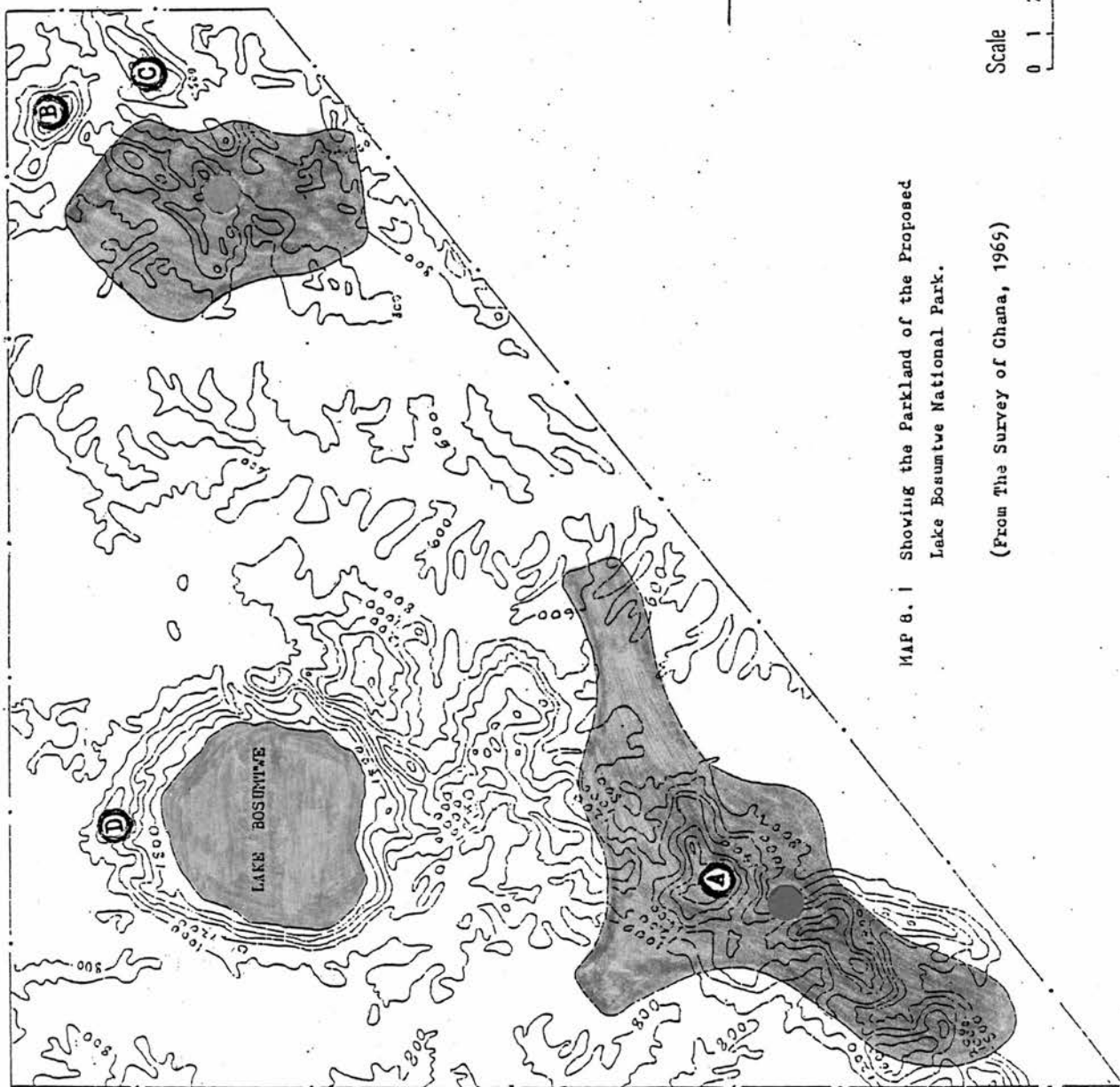
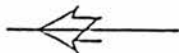
patrolling but also provide public boundary areas easily abused; a buffer zone set back from the road, as in Bui National Park between Malume and Banda-Nkwanta (see Fig. 8.6) offers much higher protection and better long term management.

The rectangular selection (see Fig. 8.3C) provides adequate buffering and has great simplicity in being related to the National Grid (see Fig. 8.6), but is poorly related to the local administrative boundaries (see Fig. 8.4), and includes a large area on the south-east which has little or no value (see Fig. 8.3C).









Fig. 8.3D in eliminating the latter back to a buffer following the existing roads (see Fig. 9.2) and in conveniently straightening the north, east and west boundaries of the pear shape (see Fig. 8.3A) appeared to the author to offer the best fit which would allow an adequate balance to be struck between the needs of the local farming and fishing communities, in allowing a tier-two designation, and those concerned with conservation. Finally, Fig. 8.3D is further conveniently adjusted at its southern end to complete an almost triangular shape (see Map 8.1).

Further details supporting this decision are shown in the presentation and discussion of each of the six sections of the Lake Bosomtwe National Draft Park Plan (treated in subsequent Chapters).

A further more detailed discussion of the Park boundaries in relation to the five existing national parks in Ghana and to Mercator Projection and National Grid planning is given in Appendix I. These are discussed with reference to other African national parks and also the boundaries of British and American examples.



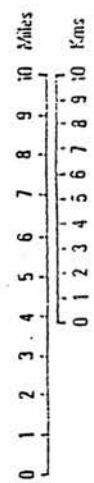
LEGEND

-  Lake Bosomtwe
-  Obuom Forest Reserve
-  Prem Forest Reserve
-  Obuom Mountain
-  Prem Mountain
-  Ntibo Mountain
-  Beposei Mountain
-  Park Boundary

MAP 8.1 Showing the Parkland of the Proposed Lake Bosomtwe National Park.

(From The Survey of Ghana, 1965)

Scale



8.3 Summary and Conclusions

This Chapter has considered four boundary options each of which includes major physical features and major natural living resources of the Bosomtwe parkland. The fourth option, the truncated triangular shape has been recommended as the best fit and the preliminary park boundaries so defined here and discussed in Appendix I, in relation to the application of the criteria for the delimitation of tier-one National Parks in Ghana, Kenya and Tanzania; and tier-two National Parks in Britain, tier-one National Parks in the United States, and the IUCN criteria meant for the designation of tier-one National Parks.

Bosomtwe Park boundaries of straight lines are seen to be common in other parts of the world, especially in East Africa and United States National Parks. Map 8.1 shows these boundaries encompassing Bosomtwe, the outlying forests and the hinterlands between these features.

CHAPTER IXLAKE BOSUMTWE TIER-TWO NATIONAL PARK CASE STUDY :
AN APPROACH TO ITS DESIGNATION AND MANAGEMENTContents :

- 9.1 Introduction
- 9.2 The Designation of Lake Bosumtwe National Park
- 9.3 An Advisory Management Committee of Lake Bosumtwe National Park
- 9.4 The Management of the Lake District National Park is Discussed in Relation to the Lake Bosumtwe National Park
- 9.5 The Lake District National Park Plan: As Discussed in Relation to the Lake Bosumtwe National Park
- 9.6 The Management of the Lake Bosumtwe National Park
- 9.7 Natural Living Resources
 - 9.7.1 Vegetation
 - 9.7.1.1 Rain Forest
 - 9.7.1.2 Mixed Communities
- 9.8 Fauna
- 9.9 Summary and Conclusions

CHAPTER NINE : LAKE BOSUMTWE TIER-TWO NATIONAL PARK CASE STUDY :
AN APPROACH TO ITS DESIGNATION AND MANAGEMENT

9.1 Introduction

This Chapter postulates the designation of Bosumtwe and considers its structure as a tier-two Lake Bosumtwe National Park and with a management adapted principally from that of the British Lake District National Park, that is a typical tier-two designation. Upon that basis a National Park Plan is developed for Bosumtwe as similar to that of the Lake District but with some considerations from the United States National Parks, particularly Crater Lake and Yosemite National Parks.

Consequently, the management of Bosumtwe is considered on the information provided in a National Draft Park Plan having five sections as follows:-

1. Natural Physical Resources.
2. Natural Living Resources.
3. Resident Population and Social Characteristics.
4. Visitor Recreation and Tourism.
5. Administrative Procedure, Staffing and Finance.

The information supporting each of these sections is for testing the viability of a tier-two management of Lake Bosumtwe National Park. Section 1 dealing with the Natural Physical Resources of the Park is treated in Appendix II of this thesis. Each of the remaining four Sections (Sections 2 to 5) is separately discussed and presented in a Chapter, thus consisting of Chapters 9, 10, 11 and 12 respectively. Finally, each Chapter concludes by considering the wider viability of such tier-two designation and management.

9.2 The Designation of Lake Bosomtwe National Park

The Government of Ghana having approved of the Bosomtwe Park boundaries (see Chapter 8), the author advises and recommends that the Government should as an IUCN requirement designate the Park and promote its management under a Lake Bosomtwe National Park Authority headed by a National Park Officer. A National Park Authority and the role of a National Park Officer are further discussed in this Chapter.

It is assumed that the Government of Ghana has promulgated a 'National Park Act' on 10th January, 1986, and by which Lake Bosomtwe National Park Authority has been established and Lake Bosomtwe National Park designated simultaneously on 20th February, 1986. And that the Government has also appointed a National Park Officer to head the Lake Bosomtwe National Park Authority.

9.3 An Advisory Management Committee of Lake Bosomtwe National Park

It is further assumed that the Government of Ghana has appointed the National Park Officer as the sole member of an 'Advisory Management Committee' to advise it on the management of Lake Bosomtwe National Park. And that the Advisory Management Committee, has made a comparative study of the United States and the British National Park management systems, by making full use of the information provided on them in this thesis in Chapters 4 and 5 respectively.

The study is then specified and limited to the management system of the British Lake District National Park, Cumbria, and some aspects of the management system of the United States Crater Lake National Park, Oregon. These two Parks have some aspects very much related to that of the Lake Bosomtwe National Park; for example, in human habitation as it exists in the Lake District and Lake Bosomtwe National Parks; in aquatic habitat as can be seen in the Lake District, Crater Lake and Lake Bosomtwe National Parks; and in some other natural and man-made resources as they exist in those three Parks.

9.4 The Management of the Lake District National Park is discussed in relation to the Lake Bosumtwe National Park

The present administration of British National Parks was established as part of the general re-organisation by the Local Government Act, 1972. On April 1st 1974, the Lake District Special Planning Board succeeded the Lake District Planning Board. The former Board was a Joint Board of the three constituent County Councils (Cumberland, Westmorland and Lancashire). The Special Board is now the unitary Planning Authority for the National Park which lies wholly within Cumbria and includes parts of four district council areas: Alderdale, Eden, South Lakeland and Copeland (see Fig. 9.1).

Similarly, Lake Bosumtwe National Park lies within three administrative areas: Kumasi City Council, and Amansie and Adansi-Banka District Councils (see Fig. 9.2). It is assumed that the Bosumtwe Advisory Management Committee has advised and recommended to the Government of Ghana that the Lake Bosumtwe National Park Authority should be given the status of a Board as the unitary Planning and Management Authority of the Park as it obtains in the Lake District National Park and the Peak District National Park. The Advisory Management Committee emphasises that the adoption and application of the Board system will be most appropriate for Bosumtwe as a tier-two National Park; it will enable it to manage its own affairs in a much quicker and more efficient manner without depending as a subordinate on any authority for its survival; and it will also remove the bureaucracy and administrative bottlenecks which may otherwise be experienced from those three administrative areas within which lies Lake Bosumtwe National Park.

The Lake District
National Park

and other administrative areas
within Cumbria

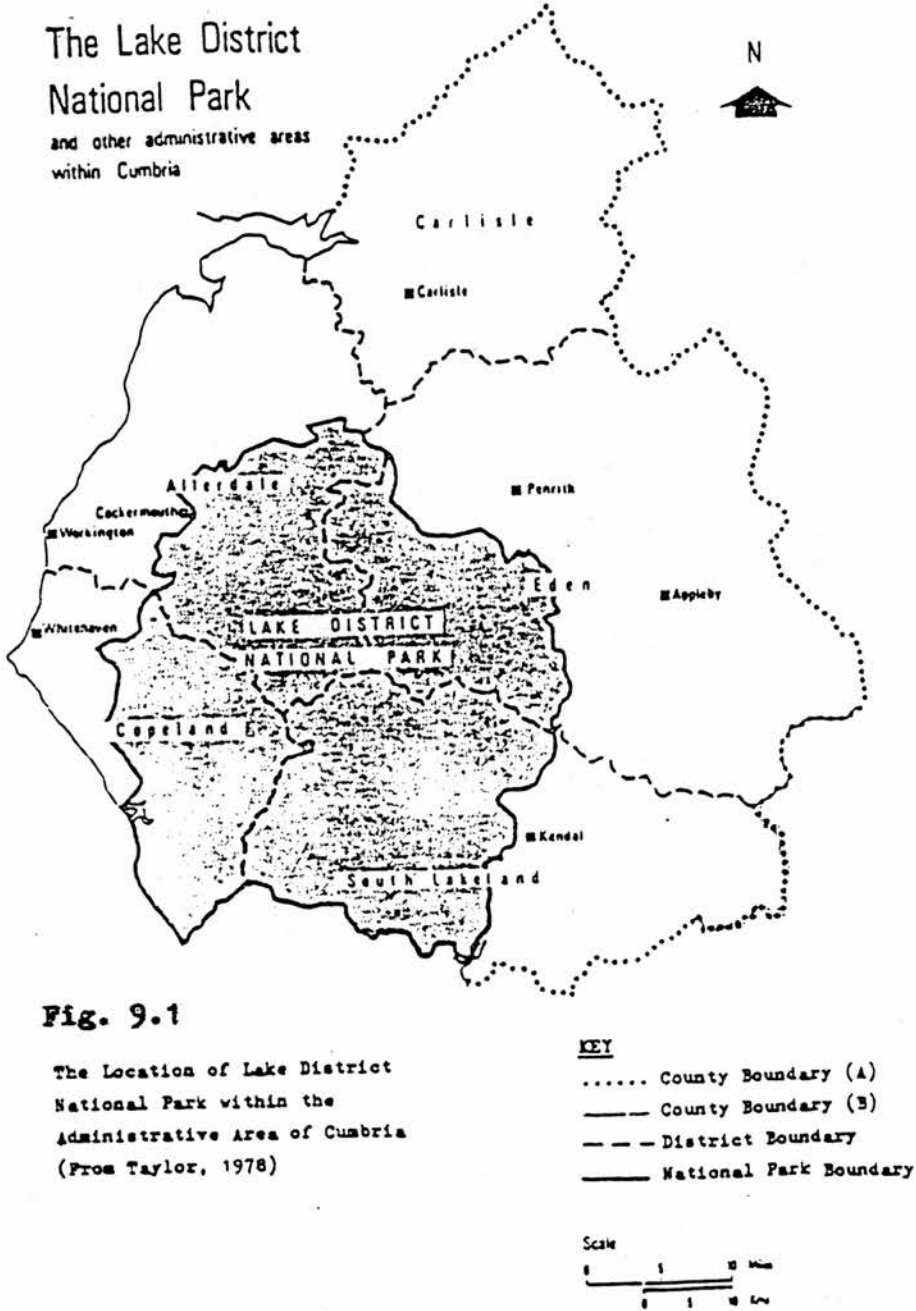
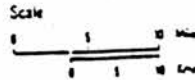


Fig. 9.1

The Location of Lake District
National Park within the
Administrative Area of Cumbria
(From Taylor, 1978)

- KEY**
- County Boundary (A)
 - County Boundary (B)
 - - - District Boundary
 - National Park Boundary



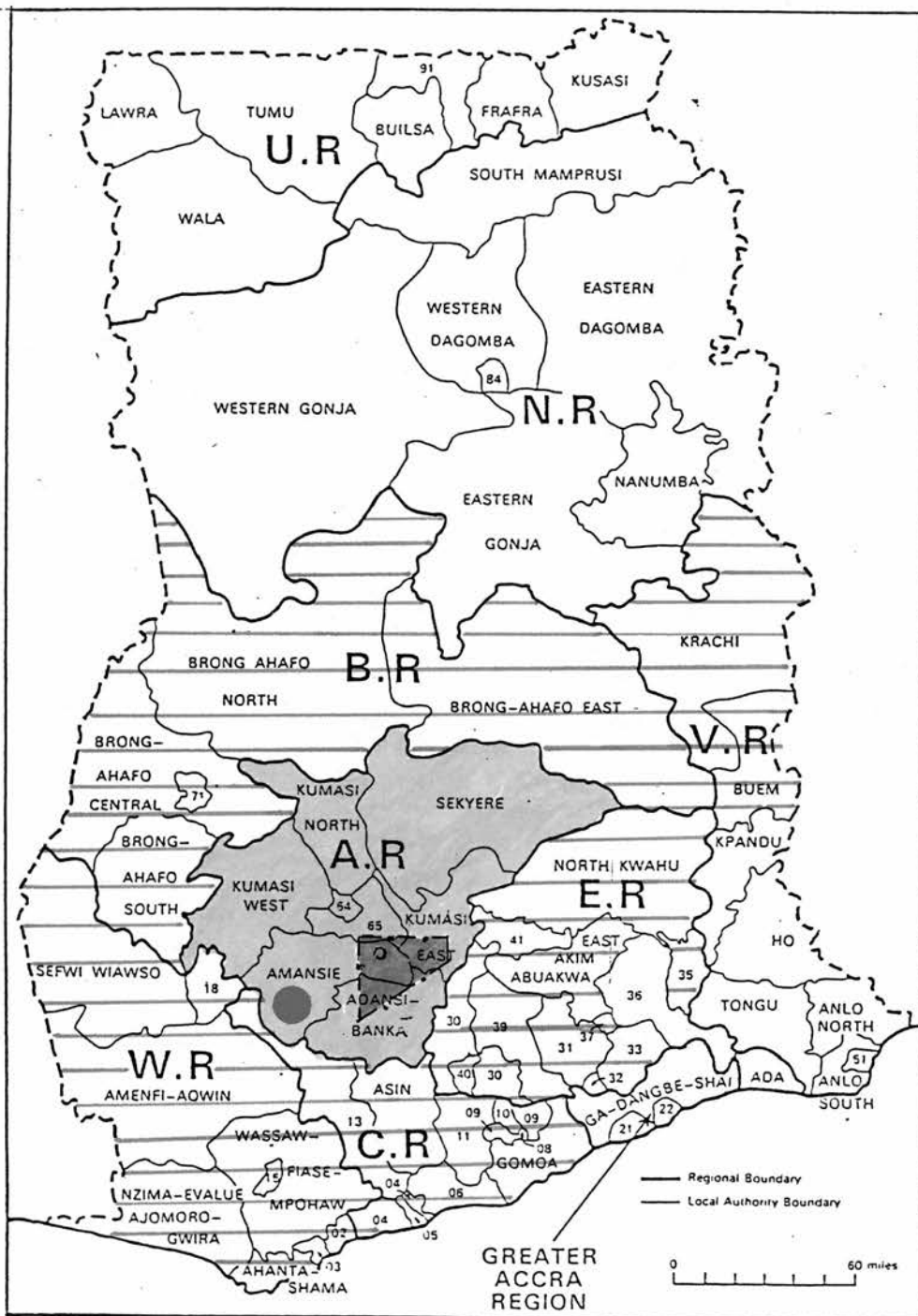







Fig. 9.2 Map of Ghana Showing Ashanti Region (A.R.)
(From Dickson, 1969)

LEGEND

-  Lake Bosomtwe
-  L.B. Natl. Park
-  Ashanti Region
-  Akan Tribe
-  Indicating Amansie District

It is assumed that the Government of Ghana has approved of the Bosomtwe Advisory Management Committee's proposal that Bosomtwe Park Authority should be made a Board; and that the Government has promulgated a Bosomtwe Park Board Act on 10th March, 1986 and has accordingly given the Lake Bosomtwe National Park Authority the status of a Park Board, confirming the Authority's position as the unitary Planning and Management body of the Park.

The British Lake District Special Planning Board, for example, consists of eighteen members appointed by the Cumbria County Council for representing local interests, and nine other members appointed by the Secretary of State for the Environment (who by the Local Government Act, 1972 has to appoint one-third of Board or Committee membership).

It is assumed that after careful consideration the Lake Bosomtwe National Park Board intends to adopt the Lake District Board's membership and composition system; but in its case it will consist of 24 members initially and that might be increased or decreased as the Park is developed; and that 16 of the 24 members will be appointed by the three Councils, for representing local interests, within whose areas Bosomtwe Park is situated (see Fig. 9.2). The remaining 8 members will be appointed by the Minister responsible for National Parks.

In Ghana the Minister for Agriculture is responsible for National Park Affairs within the Ministry of Agriculture. However, it is not considered as necessary to create in Ghana a Secretary/Minister for the Environment, as it is in Britain, to be responsible for National Parks. In fact, it does not necessarily matter which Ministry administers National Parks in Ghana so far as it is done responsibly and efficiently and in the national interest.

The Lake District National Park Board, as the National Park Authority, carries out all the planning and management functions which would otherwise be undertaken by the Cumbria County Council. The functions of the Board are embodied in the Lake District National Park Plan. The Board also contributes to the preparation of the Cumbria County Council's Structure Plan which covers the whole of the County including the Park. The Board's contribution to the Structure Plan covers broadly some aspects of the management of the Park.

9.5 The Lake District National Park Plan : As discussed in Relation to the Lake Bosumtwe National Park

The British Local Government Act of 1972 includes provision for each National Park Authority to publish a 'National Park Plan' and to review it at intervals of not more than five years. The Act provides that National Park Authorities shall formulate: 'their policy for the management of the Park and for the exercise of the functions exercisable by them as respects the Park'. The terms of reference of the National Park Plan are therefore very wide. For instance, the designation of the Lake District as a National Park does emphasise in the National Park Plan the aesthetic and recreational value of the area, and gives the Board additional powers and functions as a National Park Authority. For example, the Board has the powers to do all it feels is necessary by the planning and management of the Park's resources to preserve and enhance its natural beauty and to promote its enjoyment by the public. Statutorily, Bosumtwe Board has similar powers as assumed having been promulgated by the

Ghana Parliament to carry out the two basic objectives of the Park: to preserve its natural beauty and promote its public enjoyment for outdoor recreation. This is discussed in the Lake Bosomtwe National Draft Park Plan in this Chapter and in Chapters 10, 11 and 12.

Often the key to effective Park management lies in land ownership (Taylor, 1978). The Lake District Board is not a major land owner but other public bodies and the National Trust own and manage substantial areas in the Park (see Fig. 9.3). Approximately, a quarter of the Park is common land and the fell commons have a vital influence on agriculture, public access and on the open character of much of the landscape. Both the Forestry Commission and the Water Authority have provision for recreation amongst their statutory duties (Section 23, Countryside Act, 1968) and (Section 20, Water Act, 1973).

Lake Bosomtwe National Park Authority does not own any land in the Park. About 70-80% of the Park is privately owned; the Lake belongs to Asantehene, King of Ashanti; and the Obuom and Prem Forest Reserves forming about 20-30% of the Park belong to the Forestry Department (see Map 8.1). It is assumed that by a statutory order by the Ghana Parliament, as Lake Bosomtwe National Park Act, 1986, and also by special dispensation from Asantehene, the King of Ashanti, the Board can buy and own land in the Park. However, this approach is even seen as a long term policy because by tradition and culture the Ashantis do not sell their land either by a family or individuals. Traditionally, the Ashanti Kingdom (see Fig. 9.2) belongs to Asantehene, the Ashanti King, and the

LAND OWNERSHIP

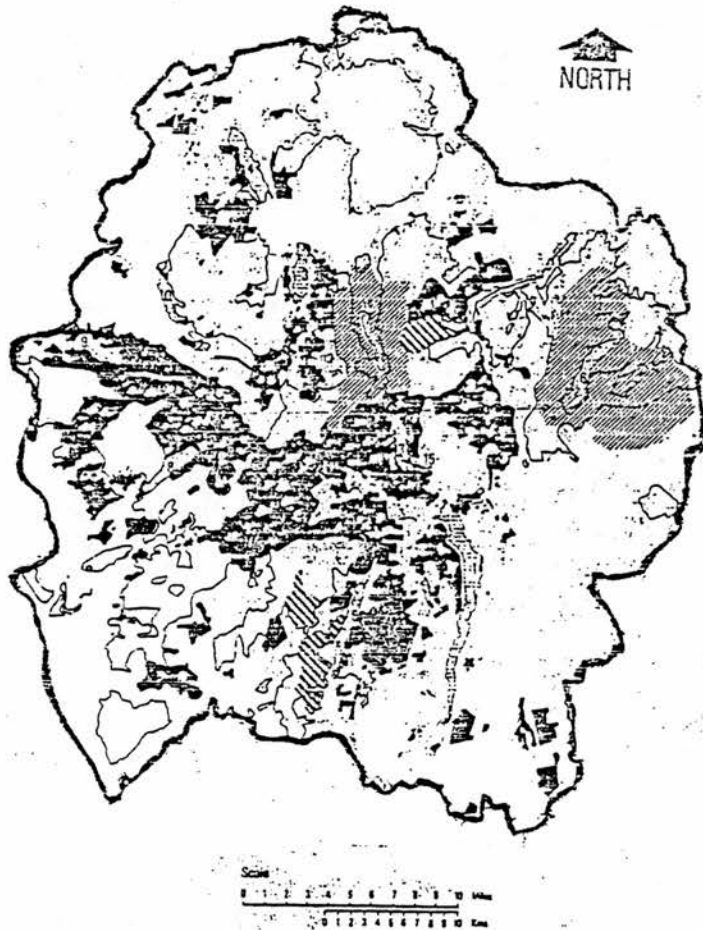


Fig. 9.3 Showing Land Ownership
in the Lake District
National Park
(From Taylor, 1978)

Notation

	National Trust
	Forestry Commission
	North West Water Authority
	Lake District Special Planning Board
	Common Land

fear that the King may intercede by using his traditional powers to acquire land within the Park on behalf of the Authority may soften this traditional attitude of refusing to sell any land; and no Ashanti citizen wishes to incur the displeasure of the King, which is even a taboo, and in the past it was punishable by death. However, the Bosumtwe Park Authority should be aware not to over-react and in its quest for acquiring any land in the Park to invoke the authority of the King, because the local residents will be incensed and inwardly resent this method, which will outwardly destroy any confidence they may have in the Authority. Probably, it will be enough for the Authority to acquire land within the Park by agreement and add that it has the approval and support of the Ghana Government and Asantehene, the King of Ashanti.

In the Lake District National Park, other Authorities play equally important role in certain aspects of the Park's management; for example, Lake ownership (see Fig. 9.4). The 15 Lakes in the Park have 5 different ownerships, namely: Lake District Special Planning Board, National Trust, South Lakeland District Council, North West Water Authority, and Private ownership (see Fig. 9.4).

In the Lake Bosumtwe National Park the only water body is the Lake which belongs to Asantehene, the King of Ashanti, and thus making it a single owner property. It is assumed that the King has retained the ownership of Lake Bosumtwe but he has transferred its management to the National Park Authority. It is also assumed that the Authority has given the King a legal understanding that its management of the Lake will enhance rather than jeopardize the Lake's traditional and cultural significance to the King and people of Ashanti.

The Lake District National Park

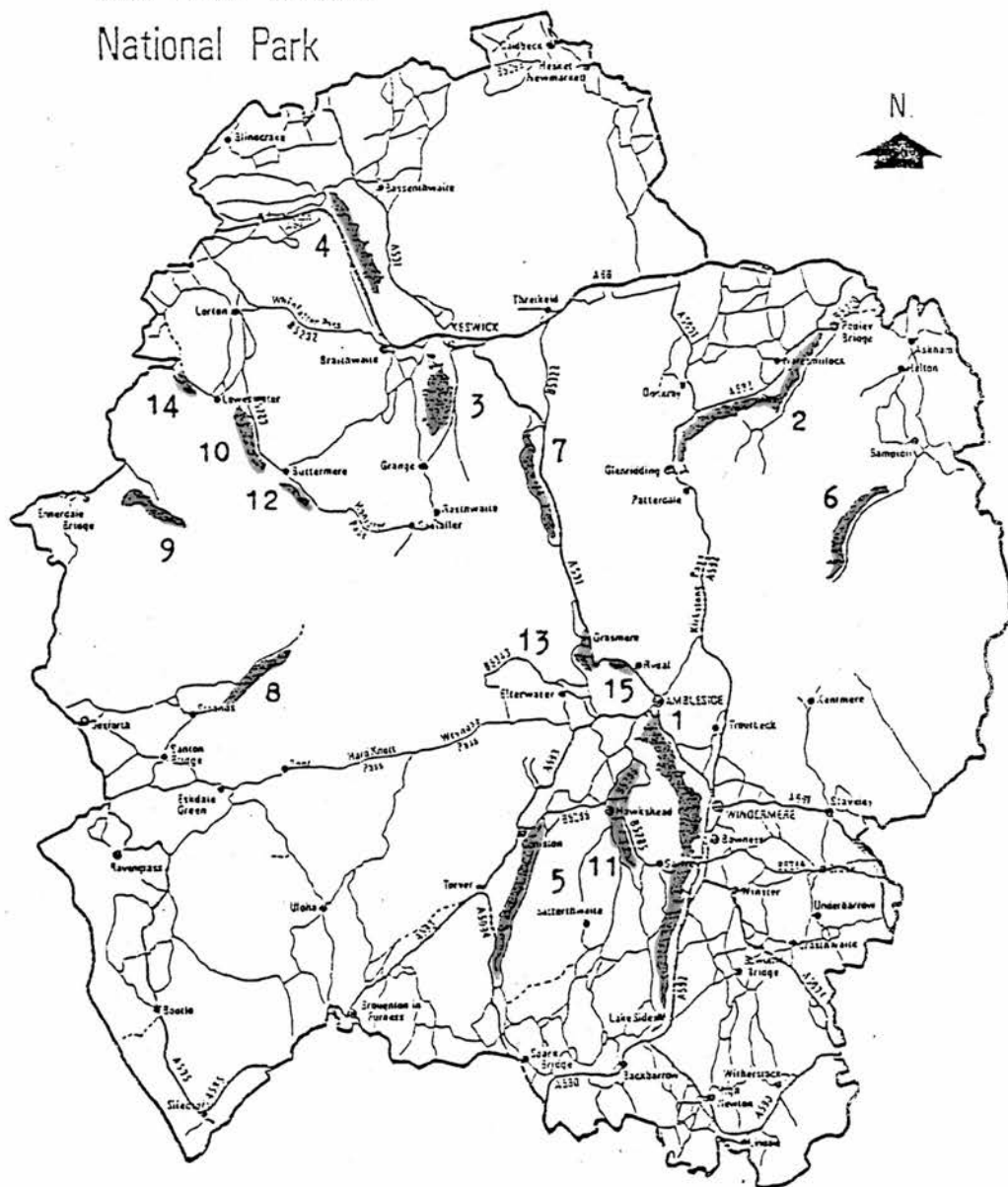
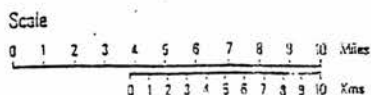


Fig. 9.4 The Lakes (Waters) of the
Lake District National Park



Lake Ownerships

- | | |
|---|------------------------------------|
| 1. Windermere - South Lakeland District Council. | 9. Ennerdale Water - NWWA. |
| 2. Ullswater - National Trust (NT) Lake District Special Planning Board (LDSPB), and Private. | 10. Crummock Water - NT. |
| 3. Derwent Water - NT and Private. | 11. Esthwaite Water - Private. |
| 4. Bassenthwaite - LDSPB. | 12. Buttermere - NT. |
| 5. ConistOn - Private. | 13. Grasmere - NT. and Private. |
| 6. Haweswater - North West Water Authority (NWWA). | 14. Loweswater - NT. and Private. |
| 7. Thirlmere - NWWA. | 15. Rydal Water - NT. and Private. |
| 8. Wastwater - NT | |

In the Lake District National Park the Highway Authority's role is in respect of roads and traffic management for the road network within the Park (see Fig. 9.4). The road network in Lake Bosumtwe National Park is discussed in Chapter 10 in this thesis. And the Ministry of Agriculture's position in the Lake District is in respect of farming (see Figs. 9.5 and 9.6). The farming aspects of the Lake Bosumtwe National Park is discussed in Chapter 10.



The Lake Board also has specific powers, for example, to secure adequate public access to open country, including woodlands, lakes and rivers; and it can provide accommodation, camping and caravan sites, car parks and toilets. The Board can make byelaws for the control and management of land which it owns, leases or over which it has access agreement. The Board runs information and warden services to advise and assist the public and to enforce byelaws and certain acts of Parliament. These functions in application to Bosumtwe have been discussed in the Lake Bosumtwe National Draft Park Plan and the discussions run through this Chapter and Chapters 10, 11 and 12.

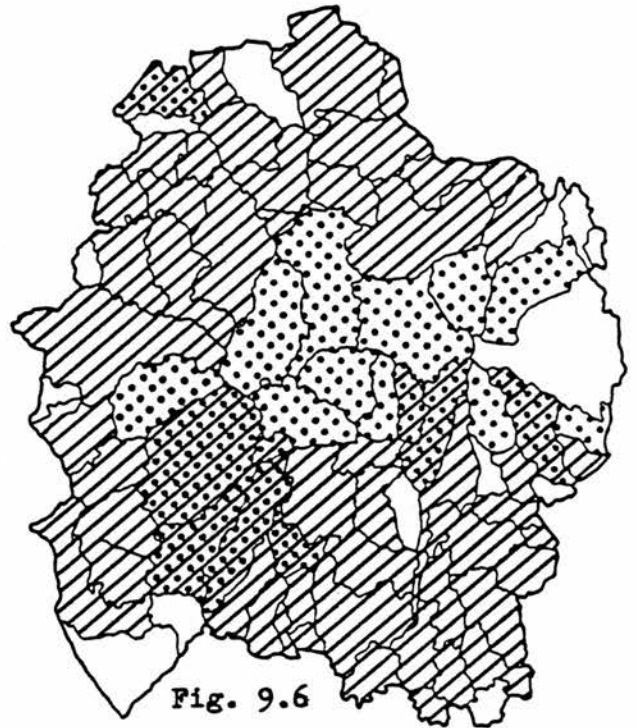
In recognition of the national importance of the National Park the Lake District Board's work is financed largely out of Central Government funds. Its budget is supported by grants from the Department of the Environment (National Park Supplementary Grant) and from the Countryside Commission (for Information and Interpretative Services). National Park Supplementary Grant is

ASPECTS OF FARMING





Parishes where the number of farms less than 50 ha (123 acres) exceeds

-  75% (excluding common grazings)
-  50%



Parishes where over 50% of the farms are either:—

-  sheep and/or cattle holdings.
-  less than 600 s.m.d.'s •

Number of farm holdings: 1531

No. of persons employed: 2899 (excludes wives of farmers, directors or partners).

• **Note**

The term "s.m.d." (standard man day) is a theoretical measure of the annual amount of manual labour that a farm requires for the production of crops and livestock, together with an allowance for maintenance and other tasks. It represents 8 hours work by an adult under average conditions. 600 s.m.d.'s defines a "commercial unit." Farms between 275 and 600 s.m.d.'s can still provide an adequate livelihood for one person, and may be capable of yielding a higher income for the farmer than units with an s.m.d. requirement in excess of this.

allocated on the basis of 75% of the appropriate expenditure. The remaining 25% is borne by Cumbria County Council although a substantial proportion of this 25% is derived from the annual rents and the National Rate Support Grant (NRSRG). The financial system of the Lake District National Park is further discussed together with that of the Lake Bosumtwe National Park in Chapter 12.

The Lake District National Plan was intended to provide guidance to, and to co-ordinate the efforts of other Authorities, organisations and private individuals whose decisions and actions affect the future of the Park. As with any other area in which people live, work and spend their leisure time, changes take place in response to the needs of these people. Indeed, at the outset, the Lake District National Park Board recognised the complex interactions between landscape and recreation, and the livelihood of the local communities within the Park. Therefore, while preparing the National Park Plan, the task of the Planning Board has been to identify changes which threaten the qualities of the Park and to formulate policies to try to resist or modify them.

Therefore, the Lake District National Park Plan has been prepared in response to these requirements. It sets out the policies and programmes which the Board considers necessary for the management of the Park in the context of the Park environment, the Board's responsibilities, its resources of finance and staff, and in the light of consultations with other official bodies, voluntary organisations and members of the public.

The layout of the Lake District National Park Plan is as follows:

Chapter 1 provides an introduction covering the character of the National Park and the role of the Lake District Special Planning Board as the National Park Authority; the purpose of the National Park Plan and how it relates to the Joint Structure Plan; the history of efforts to protect National Parks from harmful damage; the local context; the issues which have been of increasing concern to the Lake District; and the broad approach which the Planning Board proposes to take towards the main issues.

Chapters 2 to 13 interpret the broad approach as management policies and proposals which are discussed and developed under a series of subject headings.

Chapter 14 considers the implementation of the policies and proposals introduced in the previous Chapters. The various ways of taking the Plan forward and translating it into specific actions are considered, and an initial programme is presented in the light of available manpower and financial resources.

It is assumed that the Advisory Management Committee has submitted its Report to the Ghana Government and has recommended that the Lake Bosomtwe National Park should be managed on the pattern of the British National Park system, principally because of the Park's tier-two designation which is a major theme throughout this thesis. And that, particularly, it should adopt a management framework based on that of the Lake District National Park, and adapt it to suit the requirements of the Lake Bosomtwe National Park; and including also a number of aspects of the United States National Park management system.

It is also assumed that a Government White Paper issued on the Report has accepted and approved the Advisory Management Committee's Report and recommendations.

9.6 The Management of the Lake Bosumtwe National Park

The Lake Bosumtwe National Draft Park Plan is concerned with how the Lake Bosumtwe National Park Authority proposes to examine its various functions in the management of the Park in practical or realistic terms to establish the applicability of a tier-two system of the national park concept which has been the main theme of this thesis. Therefore, the Park Plan seeks to examine the main resource components in five sections:

- Section 1 : Natural physical resources of geology, landforms, soils and climate.
- Section 2 : Natural living resources of vegetation, habitats and wild life.
- Section 3 : Man-made resources related to population, settlement pattern, agricultural land use, fishing, forestry, employment and housing.
- Section 4 : Human resources related to visitors, including visitor characteristics, recreational seasonal patterns and accommodation facilities; and tourism.
- Section 5 : Administrative processes, including Staffing and Finance (Budget).

Within this framework Section 1, consisting of geology, landforms, soils and climate, has been treated in Appendix II. Section 2 has been included in this Chapter 9; Section 3 forms Chapter 10; Section 4 as Chapter 11;

and Section 5 is treated as Chapter 12. Each Section is discussed in the category which seems most appropriate although it may have some overlapping links with others. That is, if the Lake Bosumtwé National Park Plan is to provide the Lake Bosumtwé National Park Authority with a meaningful basis for carrying out its statutory duties it must be founded upon a clear understanding of the nature of the resources of the Park.

9.7 Natural Living Resources

The Lake Bosomtwe National Park contains a unique range of habitats supporting a great diversity of natural flora and fauna. These elements are the soft living tissues of the natural environment growing from the harder skeleton of physical resources, with their own special contribution to the Park's distinctive character. These habitats are described as terrestrial and aquatic.

9.7.1 Vegetation

The vegetation of Lake Bosomtwe National Park is a Moist Semi-Deciduous Forest (see Fig. 9.7) which forms part of the vast Closed Forest of Ghana or the Equatorial Evergreen Forest of West Africa. The Closed Forest of the Gold Coast (now Ghana) is considered by Chipp (1927) to form several communities: a *Cynometra-Lophira* association, and *Lophira-Entandrophragma*, *Entandrophragma-Khaya* and *Triplechiton-Piptadenia* pre-climaxes or associations. In Ghana the Moist Semi-Deciduous Forest occurs in regions where the annual rainfall is between 50 and 70 inches (Dickson and Benneh, 1970); and Lake Bosomtwe National Park has 60-70 inches of rainfall annually (see Appendix II).

Despite the evergreen nature of the moist semi-deciduous forest the leaves are shed, albeit sporadically, such that they preserve a pattern of continuous green (Griffiths, 1966, p. 55). There is no resting period for the plants, and flowering, fruiting and shedding

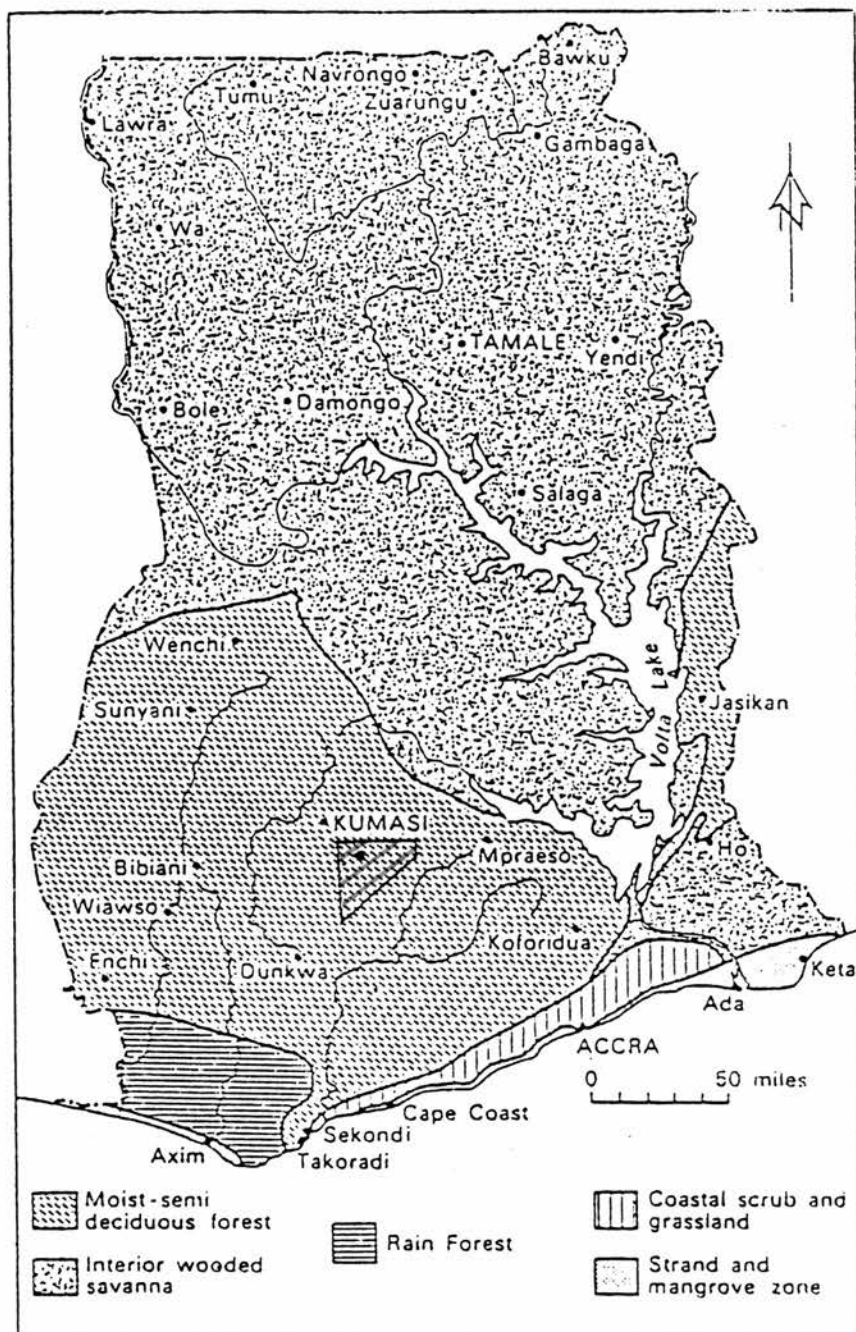


Fig. 9.7 The Moist Semi-Deciduous Forest of Lake Bosomtwe National Park

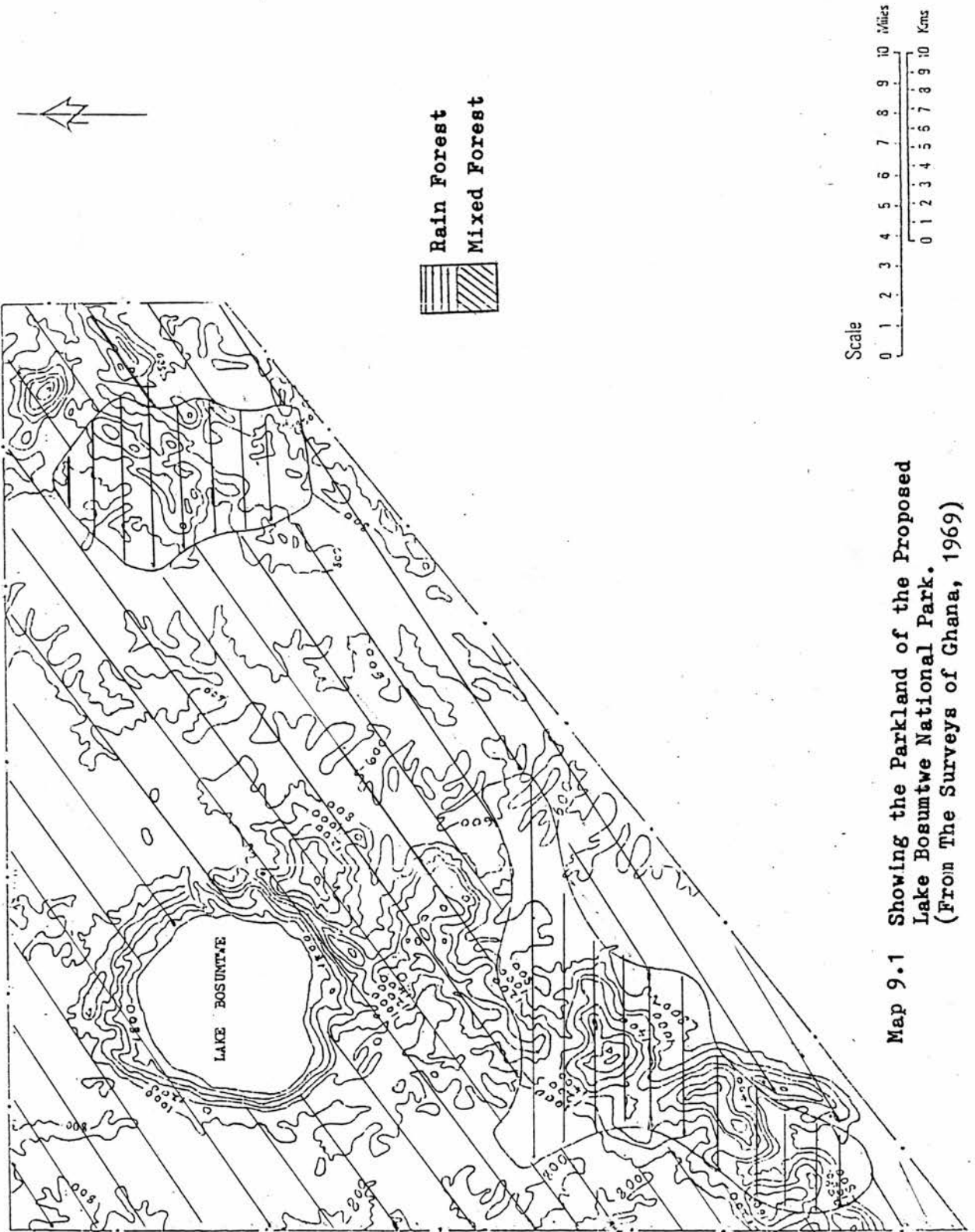
of leaves go on continuously; though the forest looks evergreen it is less luxuriant than the tropical rain forest (Ibid. p. 55). It is also distinguished by the fact that many of the trees in its upper and middle layers exhibit deciduous characteristics during the dry season (from November to March) when the influence of the dry Harmattan weather is greatly felt (Varley and White, 1958, p.37) and (Dickson and Benneh, 1970, p.39).

Lake Bosumtwe National Park has two vegetative communities and these are: Rain Forest and Mixed Vegetation (see Map 9.1).

9.7.1.1 Rain Forest

The Rain Forest of climatic climax formation covers two forest reserves: Prem and Obuom Forest Reserves (see Map 9.1). The Prem Forest Reserve which occupies an area of 62 K² (24 sq. miles) is situated in the eastern corner of the Park; and the Obuom Forest Reserve encompassing an area of 130 K² (50 sq. miles) is located south of the Park (see Map. 9.1). The characteristic species in these forest reserves are: *Entandrophragma utile* (Brown Mahogany); *Khaya senegalensis* (African Mahogany); *Cistanthera papaverifera* (Odanta); *Tarrietia utilis* (Nyankom); *Triplochiton nigericum* (Wawa); *Chlorophora excelsa* (Odum); *Celtis prantlii* (Isa); and *Azelia africana* (Pepe).

The landscape and forestry values of these reserves are further discussed in Chapter 10.



Map 9.1 Showing the Parkland of the Proposed Lake Bosomtwe National Park. (From The Surveys of Ghana, 1969)

9.7.1.2 Mixed Communities

The Mixed Communities which form about three quarters of the Park (see Map 9.1) consist of three types: Secondary Forest, Plantation Planting and Farming Land. At present these have not been mapped out; it is hoped that, for the management of the Park, the Lake Bosomtwe National Park Authority, will undertake this exercise in the near future. But from the author's knowledge and experience of the parkland, it is estimated that of the mixed communities the secondary forest forms about 5 per cent, plantation planting 45 per cent and farm land 50 per cent. The last two which are purely man-made have been fully discussed in Chapter 10.

Secondary forest originates when a virgin or primary forest has undergone some form of cultivation. It becomes impoverished and depleted of soil nutrients; but by shifting cultivation it is left fallow for 5 to 10 years or more to replenish itself into its original state. In the natural process of transformation through replenishment the forest becomes a secondary forest.

In Lake Bosomtwe National Park, most of the secondary forests are in isolated pockets with some being used as boundary marks by major land owners; and some are occasionally cut down and cultivated as farm or plantation land. Others have been left even for over 30 years to replenish themselves into rain forests, and out of that some are used as hunting grounds; while others are used as gene banks for the preservation of medicinal plants, fruits and herbs. One such plant is *Dioscoreophyllum cumminsii* (Serindipiti), which in Ghana mostly grows in Ashanti forests.

Locally, serindipiti is used for curing diabetes and thus considered as a major medicinal plant. It is interesting to note that the Faculty of Pharmacy of the University of Science and Technology, Kumasi, Ghana, has done a lot of research into the medicinal value of serindipiti, which has won international recognition.

The existing situation is that almost all the parkland is therefore under agricultural land use which is the basis of rural economy of the resident population. This system is similar to the pattern of land use, mostly agricultural, in British National Parks; and it is further discussed in detail as man-made resource in Chapter 10.

9.8 Fauna

By the intensive cultivation of cocoa plantations in southern Ashanti (see Fig. 9.2) in the 1930s most virgin forests were annihilated.. It also meant that the forest habitats of game animals were destroyed and in the process the animals were killed, trapped or hunted.

Hence, Lake Bosomtwe National Park can hardly be described as Game animal Park, as it is usually associated with almost all African National Parks, since game animals in great quantity do not exist in the Park, except just but a few. The small number of animals which live in the Park are herbivores mostly duikers, antelopes and porcupines; and some rodents like grass-cutters, squirrels and rats. There are no monkeys, and no big game like elephants and buffalos; and also there are no carnivores.

With herbivores like deer, the Lake Bosumtwe National Park Authority can create its 'animal attraction area' similar to the one in Yosemite National Park. For the past fifty years or more the meadow in the Yosemite Valley, roughly about two square miles and surrounded by sequoia forest, has never increased or decreased in size. On the fringes, sequoias which die are replaced immediately; trees and shrubs that invade the meadow are uprooted immediately as well. The meadow has not been fenced and serves as a continuity of the forest habitat of the deer, though it is also an open country for panoramic views.

The only time the deer are seen in full view is when they come into the open, sometimes in herds, to feed in the meadow; and it is a popular visitor attraction. Visitors are not allowed to disturb nor feed them with human food considered to be injurious to their health, and it is an offence to violate these regulations. Some deer even enter the lawns of Hotel Wawona near the meadow (see Plate 9A), unaware of the attraction they create and enjoyed by visitors, especially in summer afternoons when they are dining in the verandahs of the Hotel (see Plate 9A).

The meadow is maintained by controlled burning, in sections, in late spring to induce fresh growth which is more nutritious and palatable than old fibrous growth. In most National Parks over-populated animals are culled to keep their number in balance; but fortunately this has not happened yet to the deer in Yosemite Valley of Yosemite National Park.

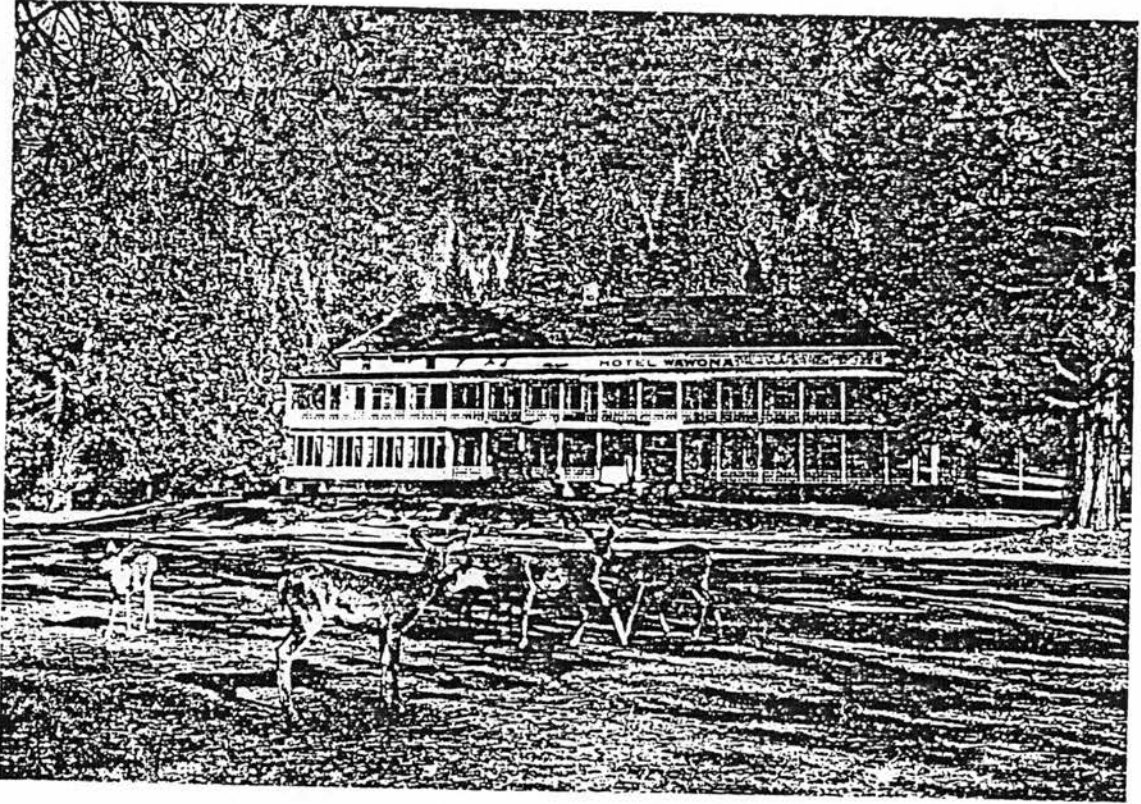


Plate 9A Showing deer on the lawns of Hotel Wawona in
Yosemite National Park, California, U.S.A.
(Source: Impact, 1979)

Macdonald and Taylor in 1977 made an ornithological study in the Moist Semi-Deciduous Forest of Ghana and recorded a number of species of the bird fauna, which broadly includes the Lake Bosomtwe area. In specific terms the bird fauna of Lake Bosomtwe National Park has to be studied to allow the Park Authority to know the bird-behavior, their migration to and from the Park during the raining and dry seasons; and the protection to be given to them particularly rare ones found in the rain forests, plantations and farms in the Park.

Naturalist movements, though popular in Britain and the United States, interested in the environment, the countryside and particularly the National Parks, do not exist in Ghana; and perhaps the Park Authority will introduce a society for bird-watching as one aspect of passive recreation.

Macdonald's and Taylor's recordings (1977) of bird species in the Moist Semi-Deciduous Forest of Ghana included the following: *Cassinaetus africanus* (Cassin's Hawk-Eagle); *Agaponis swinderniana* (Black-collard Lovebird); *Bycanistes fistulator* (Laughing Hornbill); *Verreauria africana* (Piculet); *Apus batesi* (Bates' Swift); *Telacanthura melanopygia* (Chapin's Spine-tailed Swift); *Hyliota violacea* (Nehrkorn's Yellow-bellied Flycatcher); *Trochocercus nigromitrtus* (Black-crowned Flycatcher); *Apalis sharpei* (Sharpe's Apalis); *Parus funereus* (Dusky Tit); *Malimbus cassini* (Cassin's Weaver) and *Parmoptila rubrifrona* (Red-fronted Ant-pecker).

The Park Authority's own study of the bird fauna will be more detailed and confirm which of these species really do exist in the Park, and whether there are new ones or some not previously recorded.

Lake Bosomtwe itself is of particular significance as it provides aquatic habitat to fish species, and as it is believed that the Lake abounds in different species of fish. Practically, no study has been made on the different species of fish in Lake Bosomtwe for over sixty years. The only known study so far was undertaken by J.R. Norman of the British Museum (Natural History), in London, in 1922. A list of the species represented is as follows: *Hemichromis fasciatus*; *Tilapia multifasciata*; *Tilapia zillii*; and *Tilapia melanopleura*.

One significant aspect is that up to the present no one knows how fish got into Lake Bosomtwe because no rivers flow into it; and it has no inlet nor outlet drainage system; and further, there are no historical accounts to confirm that fish were introduced by man into the Lake.

However, the Lake Bosomtwe country and the Lake itself which animals often came and drank there had been known to be a prolific hunting ground for many centuries until the forests there were destroyed in the 1930s and most of them converted into plantation cocoa farms. One theory is that a hunter or hunters well known to the area and probably intrigued by the beauty and wonder of the Lake might have introduced fish into the Lake.

In comparing the introduction of fish into Lake Bosumtwe and Crater Lake, that of the latter presents a different account. The fish in Crater Lake are exotic; they were first introduced in 1888 by William Steel, the man who campaigned for the designation of Crater Lake National Park. Steel carried Rainbow trout (*Salmo quairdnerri iridus*) from a nearby stream to be distributed into Crater Lake. During the period of 1888-1941, there were over a million fish stocked in the Lake; stocking was discontinued in 1941 (Stohr-Gillmore, 1983, p.31). At present Rainbow trout (*Salmo quairdnerri iridus*); Brown trout (*Salmo trutta*); and Kokanee salmon (*Oncorhynchus nerka*) are known to exist in the Lake. These species are presumed to have maintained themselves by natural reproduction; and while Crater Lake is teeming with *Salmo* sp., Lake Bosumtwe is believed to contain a high proportion of *Tilapia* sp.. Fishing is allowed in Crater Lake in summer only, and is restricted to rod-fishing, and as a form of less active recreation.

Lake Bosumtwe National Park stands to gain immensely from the number of researches being carried out in Crater Lake on the fish habitat and the future of the Lake itself.

In 1982, Crater Lake National Park initiated a limnological monitoring programme on the Lake. This action was prompted by a study which indicated that Crater Lake had undergone an estimated 20 to 30 per cent reduction in epilimetric transparency (from the surface to 40 metres approximately) in the past 15 years. It has been hypothesized that the decrease in clarity is due to human activities, past and present, occurring within and around the Lake's ecosystem.

Larson (1972) attributes this loss of clarity, tentatively, to an increase in phytoplankton biomass, which is often the cause of reduced transparency (Wetzel, 1975), and is regarded as a precursor of accelerated eutrophication in oligotrophic lakes (Hasler, 1969).

The testing methods used were to determine population characteristics (chlorophyll a production and phytoplankton species identification), possible acid rain formation (alkalinity and pH), water temperature profile, basic measurements for clarity, percentage of oxygen saturation in the water for suspended solids and pollution determinations (dissolved oxygen), and to provide baseline data.

Initially, the Monitoring Programme was envisaged as having three objectives:

Firstly, to provide the National Park Service with reliable baseline limnological data for use as a benchmark, or basis for comparison. Without this information, future investigators will not be able to determine if and to what extent the quality of the Lake has changed. The indications that the Lake has undergone a 25 per cent reduction in clarity are questionable because of a historical record consisting of two readings in 1913, three in 1937 and six in 1968-69.

The second objective was to gain an understanding of the Lake's physical, chemical and biological properties, and of how these elements interact to produce the limnological character of Crater Lake. This information should be of considerable importance to Park Interpretative Staff who must respond to visitors' information about limnological features.

The third objective was to develop an applied research capability so that cause-effect relationship, with regard to the impacts of park use and management practices on lake quality, can be determined. A long-term monitoring record may indicate a trend toward lake degradation. An appropriate, perhaps necessary response would be a special study aimed at identifying the cause so that corrective action could be taken before the lake is irreversibly damaged.

As Lake Bosumtwe National Park is developed, it will encounter either all or most of the problems at present being experienced at Crater Lake. The striking physical similarities Crater Lake and Lake Bosumtwe share, impose on the two National Parks the much needed comparative scientific studies of the Lakes. Hence, the Lake Bosumtwe National Park will attempt to foster links with Crater Lake National Park in order to benefit from its research experience of Crater Lake.

9.9 Summary and Conclusions

This Chapter has considered Bosomtwe as a tier-two national Park and has attempted to model its management on that of the British Lake District National Park as a typical tier-two Park; the basic assumption being that its tier-two experience offers lessons to those charged with the responsibility of looking after Bosomtwe.

A Bosomtwe National Draft Park Plan has been drawn; and firstly, it has discussed the 'Natural Living Resources' of the Park in this Chapter. Further aspects of the Lake Bosomtwe National Draft Park Plan are discussed in Chapter 10, 11 and 12.

CHAPTER XMAN AND MAN-MADE RESOURCES OF LAKE BOSUMTWE NATIONAL PARKContents

- 10.1 Introduction
- 10.2 Population
- 10.3 Settlement Pattern
- 10.4 The Communication System
- 10.5 Land Ownership and Agricultural Land Use
 - 10.5.1 Perennial Plantation Farming
 - 10.5.2 Semi-Perennial Plantation Farming
 - 10.5.3 Arable Crops
- 10.6 Fishing
- 10.7 Forestry
- 10.8 Employment
- 10.9 Housing and Building Generally
- 10.10 Summary and Conclusions

CHAPTER TEN : MAN AND MAN-MADE RESOURCES OF LAKE BOSUMTWE
NATIONAL PARK

10.1 Introduction

The man-made resources of Lake Bosumtwe National Park are a part of its distinctive character, and the successful balance between these and the Park's natural resources is the vital consideration upon which the proposed tier-two status of its designation is founded.

This Chapter is concerned with these resources and with balanced policies for existing and future management of the Park. Topics covered are included in Section 3 of the Park Plan.

This Chapter is principally concerned with the settlement pattern, agriculture and fishing, roads and communications, present and continued balanced with the natural features of the landscape.

10.2 Population

At present the population of the local residents within Lake Bosumtwe National Park is estimated at 8,000 to 10,000. An accurate survey and review of population and demographic structure will clearly have to be carried out in the very early stages of checking the draft management plan by the Park Authority. This will establish whether or not the existing population is stable, and the effect it is having and likely to have on the Park. Secondly, it will provide the Park Plan with accurate data on the economic and social structure of the local communities, and in particular their distribution, their physical characteristics, their employment pattern and social life, and the nature and level of their services like housing and education; the latter will remain chiefly the responsibilities of the Kumasi City Council, and the Amansie and Adansi-Banka District Councils, and not the Park Authority, but subject to the detailed planning control of the Park management.

This survey review may then be placed against the general statistical data on population for Ghana as a whole. For instance, for the past 14 years, from 1970 to 1984, the population of Ghana has increased by over one-third. This situation causes great concern, and it is hoped that the Government of Ghana will continue its national programme of 'family planning and birth control' intended to reduce the high population growth; a programme which is also supported by the World Health Organisation (WHO). In fact, the WHO population reduction programme for Africa operates in most African countries including Ghana.

However, taking the case of Ghana and comparing it to that of Britain gives some hope. Ghana has a land area of 238,537 sq. km. (92,100 sq. miles) with a population over 12 million. Great Britain has a land area of 229,988 sq. km. (89,000 sq. miles) that is almost the size of Ghana, but has a total population of about 54 million. At present Ghana makes favourable comparison with Britain in having a land unit area lead of population ratio of 1:50 as against 1:225. But if Ghana's population growth of 3 per cent is allowed to continue uncontrolled then the next three or four decades may see Ghana outstripping Britain in population density and such a rapid increase would have catastrophic implications for all existing land uses, not least those devoted to conserving natural resources.

In the 1970 census, Ghana had a population of 8,559,313; and in 1984 census it was 12,205,574 which showed an annual increase of approximately 3 per cent, a common example in Africa but among the highest in the world. The 1984 census also indicated an average density of 51 persons per sq. km. for the country as a whole, compared to 28 in 1960 and 36 in 1970 (Ghana Central Bureau of Statistics, 1960, 1970 and 1984). The implications of these figures are very alarming in the increasing pressure to bring all available land under production and settlement, and given adequate safeguards they form a major part of a cogent argument for adopting tier-two national parks in order to protect and conserve the remaining undesignated areas of national park status.

On a regional basis, the population of the Ashanti Region, (including the area of the proposed Bosomtwe Park) in 1970 was 1,461,698 and in 1984 it was 2,089,683 showing an increase of approximately 3% annually, and therefore reflecting the national figures previously referred to.

The proposed population study at Bosomtwe is essential if the Park Plan is to anticipate the Park's local, regional, national and international obligations. For example, the drift of young men from rural to urban areas to find better jobs than farming and fishing may well help to stabilise population pressures within the park area. The draw of nearby Kumasi, Ghana's second largest city and capital city of Ashanti Region (just 21 miles away from the Park), and also Obuasi, the major gold mining town in Ghana (about 20 miles from the Park), (see Fig. 10.2), may well prove a valuable natural correction to population increase within the park area and far more likely to be effective than birth control education. Otherwise, a goal of 1% population increase based on the recommendations of the National Family Planning Programme to achieve a permanent resident park population of no more than at present (that is some 10,000), is likely to remain a goal only on paper.

10.3 Settlement Pattern

The Lake Bosomtwe National Park area of 422 sq miles is about half the size of the British Lake District National Park which has an area of 866 sq. miles and having a population of 40,000. Even if the population of Lake Bosomtwe National Park is taken at an estimated maximum of 10,000 its present average density of settlement is still far less than half that of the Lake District National Park.

The local communities in Lake Bosomtwe National Park live in some 62 settlements including hamlets, villages and small towns. The main settlement distribution pattern is shown by Fig. 10.1. There are only 3 small towns, and these are: Kuntanasi, Amanfrom and Kokobin; and the remaining 59 are villages (see Fig. 10.1).

Hamlets have been excluded from Figure 10.1 as these are few and are only temporarily used by some of the farmers who otherwise reside in villages. A village is described as a small settlement with about 10 to 200 residents; and a small town as having about 200 to 1,000 resident population.

Most of the settlements owe their origin to agricultural development; except for nineteen villages, fairly evenly distributed around the Lake, and which owe their origin to fishing (see Fig. 10.1).

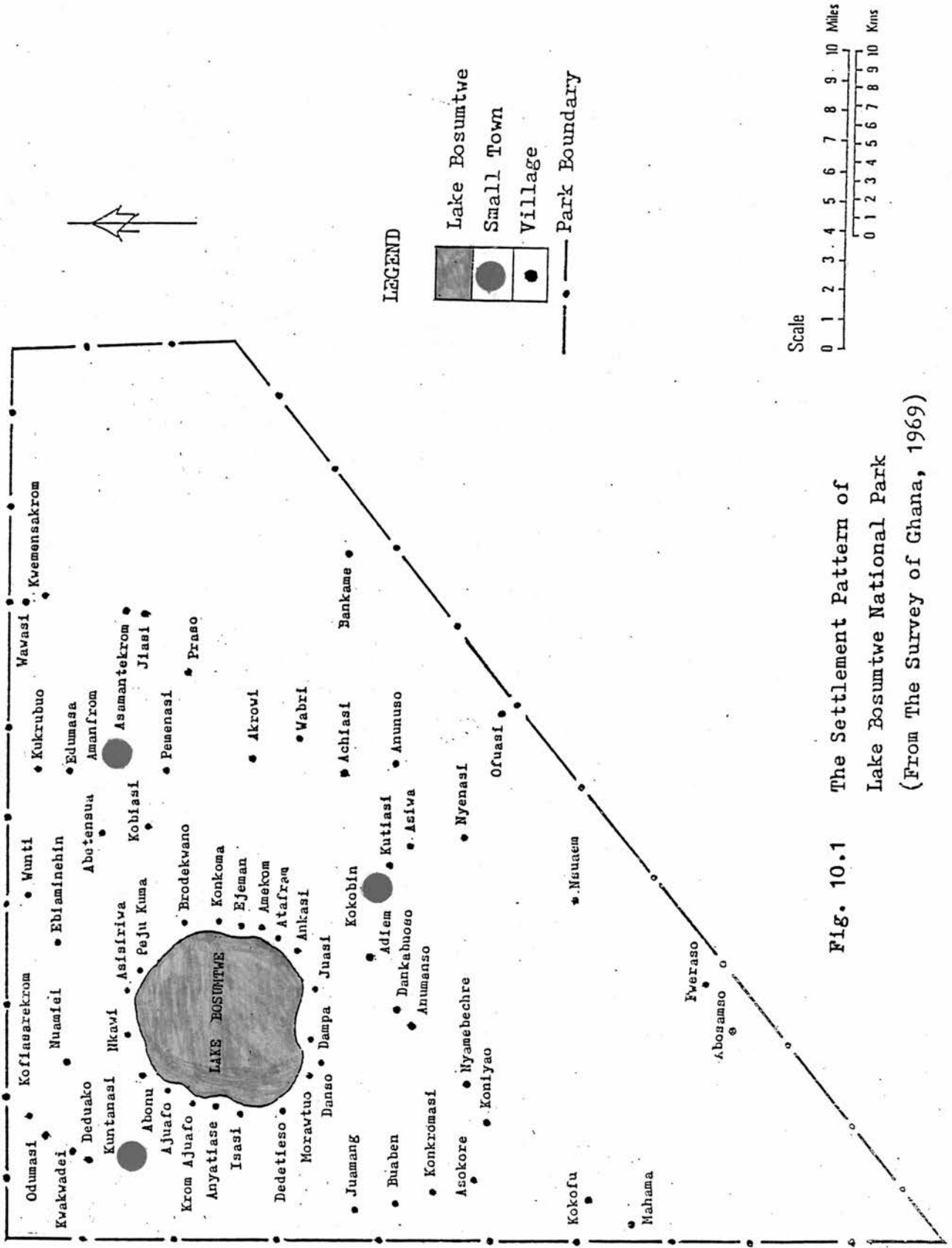


FIG. 10.1 The Settlement Pattern of Lake Bosomtwe National Park (From The Survey of Ghana, 1969)

In considering the settlement pattern of the fishing villages around Lake Bosomtwe, the evenness of their distribution suggests that they were probably not settled at the same time, but most likely spaced out according to need, one after the other, and thus making it possible for each village to be entirely separate from the other, and with a balance of land sufficient for expansion, and enough shore area for fishing operations.

It is reasonable to suggest that the expansion of these fishing villages in future either in size or in population growth or both will in fact depend on the economic viability of the Lake itself as a major fish production centre; the pressure for such an expansion has not yet occurred and whether it will do so in the future depends critically on the recommendation of the Park Plan in assessing the long-term effects of human settlement increase on the natural resources of the Lake and its surroundings.

The evenness of settlement pattern of the fishing villages may be readily observed in the six villages between Nkawi on the north of the Lake and Isasi on the west (see Fig. 10.1). From Nkawi to Abonu is about 1.25 miles; and from Abonu to Isasi each of the remaining five villages is a mile from the other (see Fig. 10.1). And the same settlement pattern exists on the eastern side of the Lake. The distance from Brodekwano to Ankasi thus also includes six villages and each of these is about a mile away from the other, except from Brodekwano to Konkoma and that is about 1.25 miles. The similarity of settlement pattern continues on the southern part of the Lake as well; and from Isasi to Danso is almost symmetrical

to the pattern of settlement from Ankasi to Danso (see Fig. 10.1). On the northern part of Lake Bosomtwe, Asisiriwa and Peju Kuma complete the ring of fishing villages.

The implication of all this is that the early settlers around the shores of Lake Bosomtwe, as far back as the 12th. or 13th. century, in their unsophisticated settlement pattern had some sense of the need to balance the natural and man-made resources. The designation of the Park will protect this significant settlement pattern.

Further north, south and east of the Lake the villages are more openly settled (see Fig. 10.1) because they are located in the countryside to exploit the land rather than the lakeside. With few exceptions, the distance between neighbouring villages is also fairly similar and reflects land needs in proportion to population. The existing towns also are similarly spaced apart and each located to serve a catchment of some 12 to 15 villages (see Fig. 10.1).

There are three small towns, namely, Kuntanasi located in the north-west; Kokobin in the south-east; and Amanfrom in the north-east, enclosing the Lake in almost equilateral triangular formation producing yet another distinctive feature of the settlement pattern (see Fig. 10.1). These three small towns are described as rural capitals; and also serving as agricultural produce and fishing distribution centres to other areas within and without the Park including even Kumasi the capital city of Ashanti Region (see Fig. 10.2).

The deduction made from the settlement pattern within Lake Bosomtwe National Park is that, even regarding it as 'primitive' because it was unofficially planned and without observing any conscious planning laws and regulations, it is nevertheless balanced to meet the needs of the local peasant farmers and fishermen, and is of ethnological interest in being nominally controlled by the Asantehene, King of Ashanti.

The future expansion of the fishing and farming villages has not been ruled out, likewise the introduction of modern farming methods and expansion of farms, and also the likelihood of the economic exploitation of the Lake. But these are some of the major reasons why the National Draft Park Plan must make a comprehensive study of the planning and management system of the Park to ensure the best balance of natural and man-made resources in the designated areas as a tier-two National Park.

No aerial photograph or landsat coverage of the Bosomtwe area was available to the author for study in order to examine the physical distribution and characteristics of these settlements in more detail. Such coverage will need to be a high priority in checking the details of the draft management plan. Regular updating of the photo coverage probably by landsat is likely to become an essential tool of future and efficient management.

10.4 The Communication System

The control of access to and from the Park, and within the Park is of critical importance in striking the right management balance in the day-to-day running of the Park. Communications within the Park consist of footpaths, minor and major roads. The footpath system of the Park has not been shown on Fig. 10.2, because it entails a complex communication network which is not properly mapped out or defined and which will need to be studied in detail on the ground in checking the Draft Park Plan. However, all the 62 settlements of the Park (see Fig. 10.1) are linked from one to other by some form of footpath. The relative importance of these and their linkage to the roads and possible upgrading as roads will also need careful and close study and control.

The minor road network within the Park makes up a total of only about 130 miles; it links up the three towns and helps to explain the rest of the pattern of settlement (see Fig. 10.2).

Within the Park there are some villages with no minor road connections at all (see Fig. 10.2) and which are therefore only served by footpaths. Villagers carry on their heads agricultural produce intended to^{be} sold in urban areas to the nearest road and wait to board vehicles which ply along the route. This is very common in the rural areas of Ghana. It may be argued that such a method of servicing these communities will be a necessary future condition of their continued existence within the Park.

Lake Bosomtwe
 Obuom Forest Reserve
 Prem Forest Reserve
 Kumasi City
 Big Town
 Small Town
 Village

LEGEND



Major Road
 Minor Road
 Park Boundary

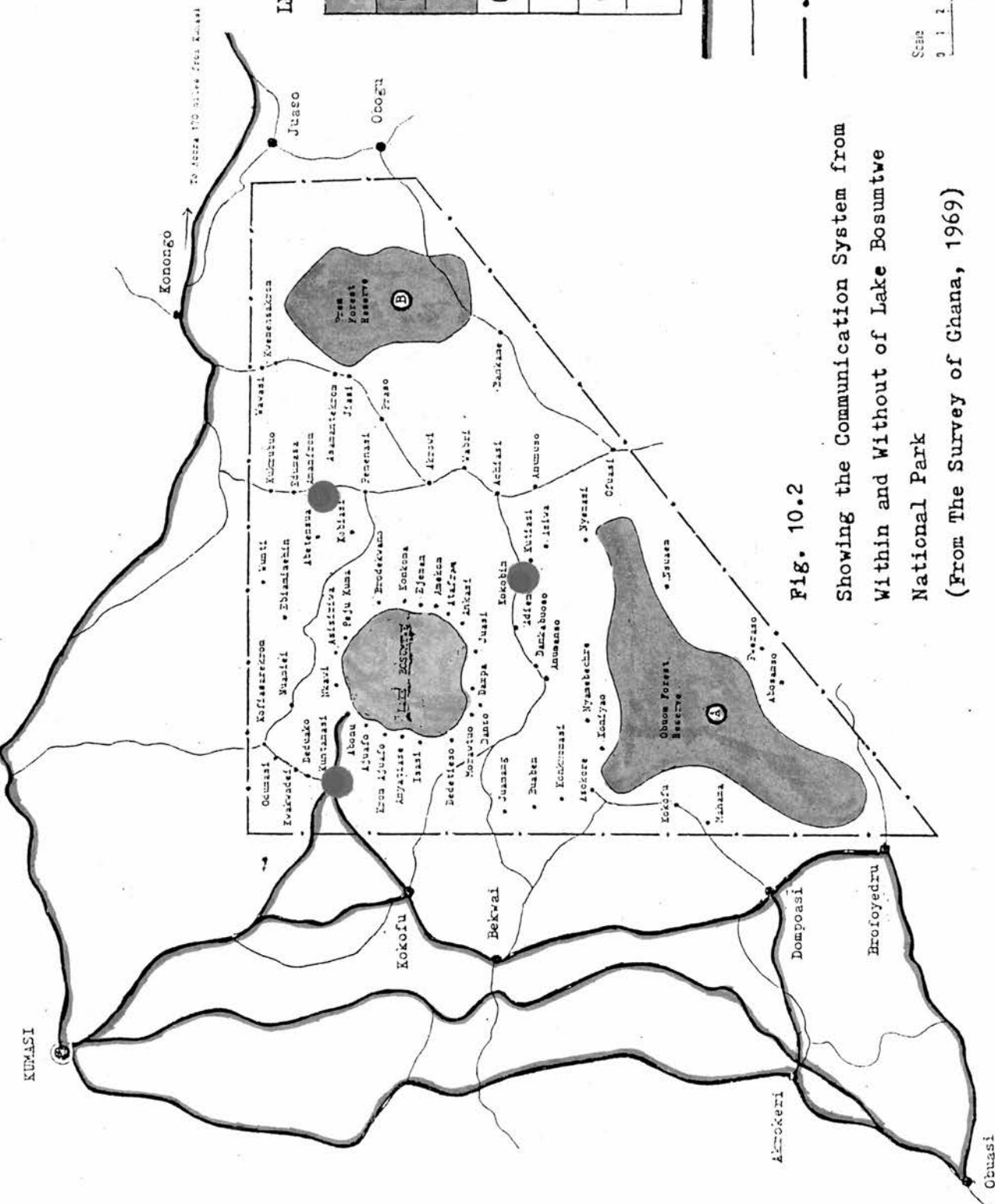
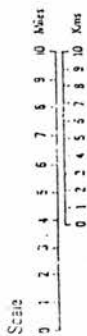


Fig. 10.2

Showing the Communication System from
 Within and Without of Lake Bosomtwe
 National Park
 (From The Survey of Ghana, 1969)

Using Lake Bosomtwe as the main visitor attraction of the Park just as Crater Lake is to Crater Lake National Park, it is of value to consider the communication system of Crater Lake for relevant parallel helpful in the planning of Bosomtwe.

Crater Lake has three main access roads entering the Park: one from the north, the other from the west to the south, and the third from the south-east; and all three are linked to the Crater Rim Drive (see Fig. 10.3) terminating at Crater Rim Lodge (see Fig. 10.3). The idea of the Crater Rim Drive is to allow visitors to enjoy the panoramic views of the Lake from different viewing positions. The Crater Rim Drive was completed in 1918 (Warfield, 1982).

But the Crater Lake Park Service has discovered that for the past 25 years the Lake has lost between 1 and 2 per cent clarity, and among other factors, such as sedimentation, it is believed that pollution from car exhausts might have played a significant role in this; a research has been instituted to find the cause and how to prevent it. Accepting this early warning from Crater Lake, Lake Bosomtwe cannot afford to make such a serious mistake in the management of the Park by constructing a crater rim drive, even supposing such an intrusion could be justified on aesthetic grounds.

The 19 villages surrounding Lake Bosomtwe are linked by footpaths. It is assumed that the Bosomtwe Draft Park Plan does not consider it acceptable to include a crater rim drive for the benefit of visitors driving around to enjoy the Lake from different viewing positions. A lakeside road linking all the existing villages and giving convenient visitor access is ruled out for the same reasons.

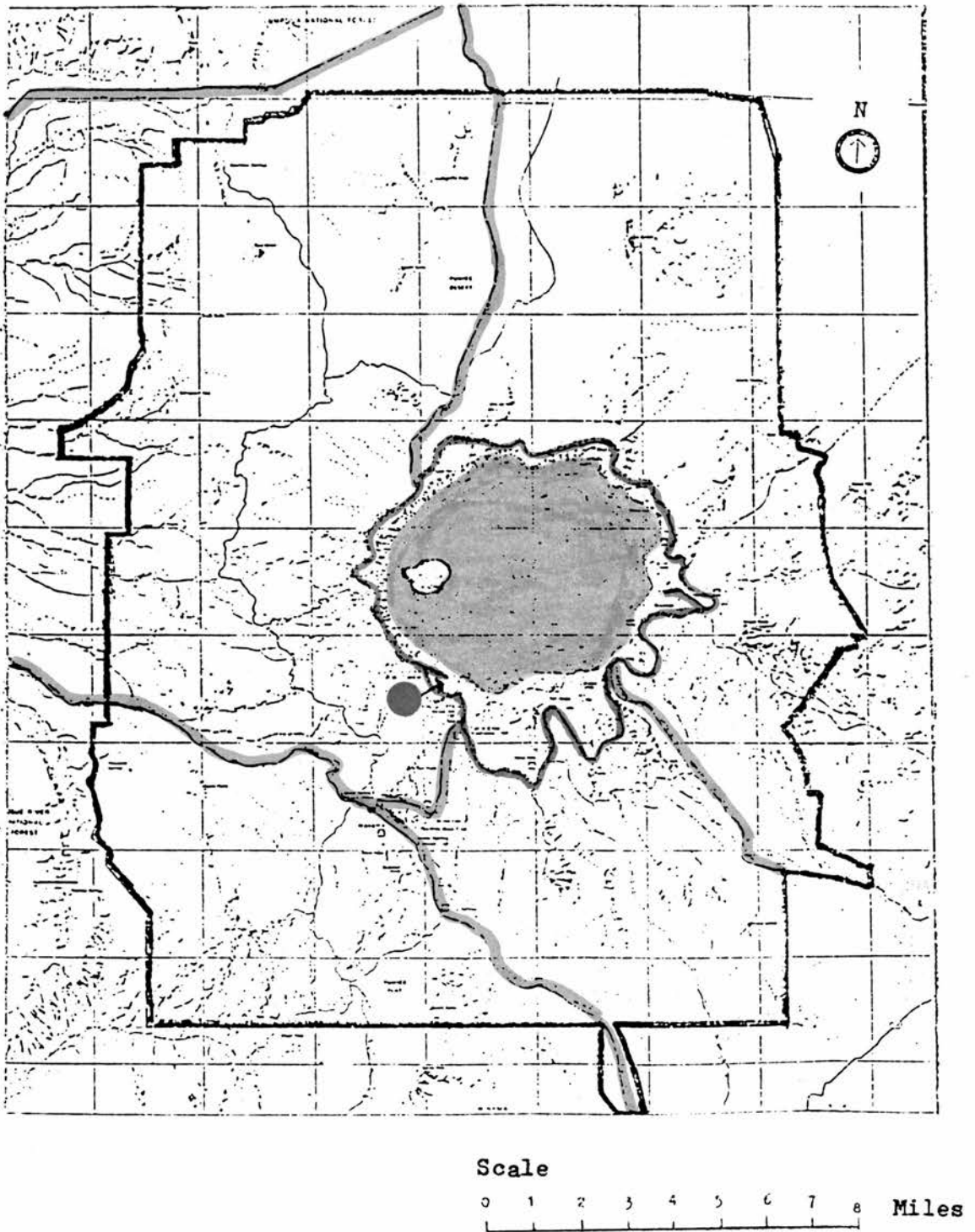





Fig. 10.3 Crater Lake National Park
 Showing Park Boundaries, Crater Rim Lodge,
 Crater Rim Drive and Major Access Roads
 (From Wardfield, 1982)

-  Access Road
-  Crater Rim Drive
-  Crater Rim Lodge

The Bosomtwe Park Authority may therefore have two possible options in improving access for visitors and residents:

1. To have about five small spur node roads, each to serve about four villages, and set back from the crater rim and lake edge.

2. As the Lake can be clearly seen from any point on the crater rim the Authority could improve footpaths that directly lead to the crater rim. This would allow visitors to the crater rim and would exploit the sensation of being suddenly confronted by the beautiful blue of the Lake.

The Obuom Forest Reserve is also free from any road network (see Fig. 10.2). The minor road from Bankame to Obogu passes through the southern part of the Prem Forest Reserve (see Fig. 10.2); but the Draft Plan is likely to recommend that it is not considered as a major threat either to the Park or the Reserve and that therefore the Park Authority will not need to re-route it further south of the Reserve. Instead, the three mile stretch through the tropical rain forest is likely to be maintained since it provides an excitement of its own. The atmosphere of peace and serenity in a tropical rain forest is something that has to be experienced even by those visitors who are less physically active than most; and the Park Authority is likely therefore to use it positively as another tourist attraction of the Park. Forest animals are usually shy and rarely seen, but some visitors along the road will occasionally be lucky enough to see animals such as deer at close range. Potential abuse of the road by loggers and poachers should be easily contained once the park ranger system becomes effective.

No major roads pass through the Park, but one from Kumasi enters the Park for some six miles from the north-west and terminates at Abonu, about half a mile from the Lake shore (see Fig. 10.2). The Kumasi-Abonu road is connected by another from Kokofu which joins it at Kuntanasi (see Fig. 10.2). In order to have uniformity of minor road system within the Park and for the purpose of conservation of the Park's ecosystem, the National Park Authority may consider it necessary to downgrade these major roads inside the Park to the status of minor local access roads.

The Lake Bosomtwe National Park Authority like the Lake District National Park does not own the Park and even if it did it could not modify the road network within the Park without reference to other road authorities. The Ghana Highway Authority which controls the major road network will have to be closely consulted, and so will be the Kumasi City Council and the two other District Councils, Amansie and Adansi-Banka, (see Fig. 9.2) within whose areas Lake Bosomtwe National Park is situated. But all roadworks are subject to approval by the Park Board and their reappraisal accepted as an essential requirement in the setting up of the National Park.

Most of the influx of visitors to the Park is expected to come from Kumasi and Accra, the capital city, which is some 170 miles away from Kumasi (see Fig. 10.2). The National Park Plan may consider it necessary to use in a controlled way that section of the major road from Kumasi which reaches Kuntanasi and Abonu as the main visitor access route to the Park. The Park's minor roads will similarly be controlled to provide additional traffic as secondary visitor access routes particularly in order to avoid traffic congestion at peak seasons in July/August and November/December and to disperse and reduce tear and wear. According to the Ghana Statistical Year Book of 1970, Ghana had 6,000 cars; 1,000 local coaches (called Accra-Body); 600 lorries; 600 pick-ups; 1,600 buses; and 1,000 motor cycles. In the intervening period up to the present, those numbers must have increased very considerably. If it is assumed that one-third of each group will visit the Park during peak seasons, at least once it is clear that traffic management will be of the greatest importance within the Park. The visitor use of the Park's

road network will have to be properly assessed in the National Park Plan and efficiently managed and regularly reassessed by the National Park Authority. The Authority may even propose to upgrade spurs to serve groups of lakeside villages and allow controlled increase of visitor population.

10.5 Land Ownership and Agricultural Land Use

Within the Lake Bosomtwe National Park area, as in Ashanti generally, agricultural land is not sold and almost all farmers own their land through matrilineal inheritance. Land purchase is very exceptional. Tenant farming is commonly practised and in the Park consists of two types. The first is usually associated with close relatives and members of one's family, such as maternal uncles, brothers and nephews, and even aunts and sisters; so that in the real sense absentee landlords do not exist. The second is what may be described as pure tenancy where the tenant farmer is not related (by blood) to the landlord. Both systems operate successfully in Ashanti and in the Park and allow farmers to be dependent or independent of their occupation.

This is in contrast with land ownership in the British Lake District National Park where the National Park Authority, organisations and individuals own and can purchase land (see Chap.9, par. 9.5.1 where it has been discussed); and there are occupier farmers, tenant farmers and absentee landlords; and where the free market is much more evidently an influence in determining ownership.

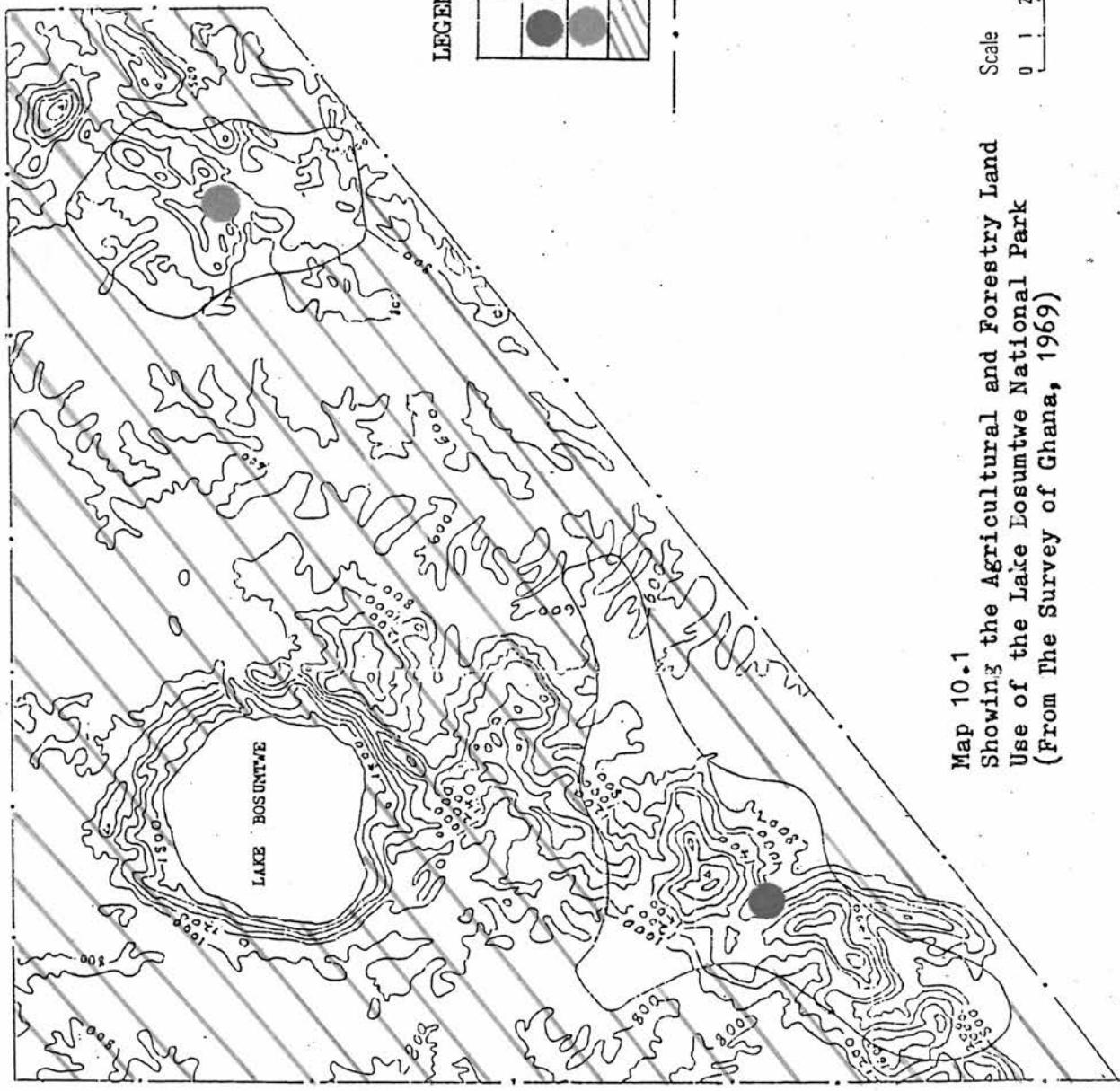
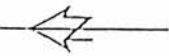
In Crater Lake the land is state owned and much more comparable to Bosomtwe as at present but who can tell whether the system at Bosomtwe will not change? As existing landlords see opportunities for quick profit after the Park has been designated.

In Bosumtwe agriculture occupies about 75 per cent of the parkland. Unfortunately, agricultural land use has not been properly defined and mapped out; but for the purposes of land use and park management Bosumtwe Park Authority will have to give this exercise its priority attention by officially defining the agricultural land use and mapping it out, and that will include the existing farming system consisting of the following: 1. Perennial Plantation Farming; 2. Semi-Perennial Plantation Farming; and 3. Arable Cropping. In the meantime, the author has defined the 75 per cent parkland, including these three areas, simply for 'Agricultural Land Use', (see Map 10.1); in fact, it will be inappropriate for him to distort areas for specific agricultural land use, until they have been properly mapped out by the Park Authority.

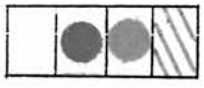
10.5.1 Perennial Plantation Farming

This consists of perennial fruit trees with cocoa (*Theobroma cacao* L.) forming the bulk and occupies about half of the agricultural land of the Park. The cocoa plantations are usually interspersed with other individual stands or small groups of perennial fruit trees such as orange (*Citrus sinensis* (L.) Osbeck); Kola (*Cola acuminata* (Beauv.) Schott & Endl.); oil palm (*Elaeis guineensis* Jacq.); avocado pear (*Persea americana* L.) and mango (*Mangifera indica* L.). This system of interspersed perennial plantation farming is practised by all cocoa farmers in Ghana; although it is not a major economic venture it yields some substantial financial returns.

The soil profile of the Park shows that the parkland is fertile (see Appendix II) and apart from the hills and mountains can support farming.

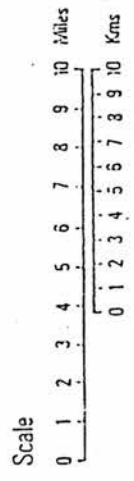


LEGEND



Lake Bosomtwe
 Obuom Forest Reserve
 Prem Forest Reserve
 Agricultural Land Use
 Park Boundary

Map 10.1
 Showing the Agricultural and Forestry Land
 Use of the Lake Bosomtwe National Park
 (From The Survey of Ghana, 1969)



Cocoa accounts for about 60 per cent by value of Ghana's yearly total exports and earns about £80m to £100m per annum depending on the world market (White, 1962). Ghana is the major cocoa producing country in the world, producing about 320,000,000 tons per year (White, 1962). Lake Bosomtwe area produces about 150,000 tons of cocoa per year (estimated by author). The Government of Ghana therefore, hold cocoa farming in high esteem and cocoa farmers are among the richest in the country.

A perennial plantation consisting of a broad leaved crop like cocoa will generally present very little visual impact on the Park. For example, if a cocoa plantation of a about 5 square miles in area is seen from higher ground or a hill-top about a mile away, it presents a panoramic view of a secondary forest vegetation. It is only when the vegetation is seen from a close range or at the plantation floor level itself that it is realised as a cocoa plantation. Other perennial crops, like the oil palm, are easily distinguished and the visual impact is quite distinct. An oil palm plantation is quite outstanding and can be distinguished even from a distance more than a mile away; its palm fronds and lanceolate leaves being very distinctive; and at maturity the palm trees become more cylindrical with a very obtrusive top crown canopy. This will have a considerable visual impact on the Park.

Virgin and secondary forests have been known to possess high soil fertility rate, and are much more preferred for the establishment of perennials, such as cocoa. Within the Park isolated pockets of virgin and secondary forests have been too fragmented so as to be of any meaningful use for the expansion of perennial plantation

in the future, if it is considered that perennials require large forest areas measured in square miles rather than in square yards.

The physical evidence is that perennial plantations as they exist in the Park at present will not expand but will remain stable for some 50 to 80 years more. However, major incidence of some unknown diseases could devastate and reduce the size of these plantations, and change the present perennial agricultural landscape, but so far that catastrophe has not happened and no one expects that to happen.

In all, perennial plantation cropping has some advantages. The trees' foliage strata prevent the sun from desiccating the soil; and also fallen leaves accumulate to form a thick floor carpet which prevents soil erosion and also serve as mulch which replenishes the soil by gradual surface decomposition processes.

If Lake Bosumtwe National Park were to consist only of a single crop plantation like cocoa or oil palm, it would present a very monotonously uninteresting panorama.

10.5.2 Semi-Perennial Plantation Farming

As stated in Par. 10.5.1 under 'Perennial Plantation Farming', it is the priority of the Bosomtwe Park Authority to define the various agricultural units and officially map them out. However, the author estimates that 20-25 per cent of agricultural land use is under Semi-Perennial Plantation Farming.

Semi-perennial plantation crops include plants like pawpaw (*Carica papaya* L.); banana (*Musa sapientum* L.); and plantain (*Musa paradisiaca* L.). They are grown either on their own in small units or in large units as plantation crops. They are also grown as interspersed plants in cocoa plantations. That is, the distribution of semi-perennials is less special and generally common to farming units throughout the forest areas in Ghana. For example, the plantain is a major foodstuff in the diet of the Ashantis and is eaten about three times a day. It has a high premium and there is always a ready market for it locally. The area under cultivation once the Park is established will strictly be limited to serving local need only. Semi-perennial plantation farming is an intensive type of cropping and requires substantial capital investment and regular attention to maintain soil fertility.

10.5.3 Arable Crops

Within the Park, arable cropping is estimated to occupy 20-25 per cent of the agricultural land. And once again the Park Authority will have to define accurately the agricultural land and map out the various agricultural units as a major exercise forming part of the Park's management system.

Arable crops cultivated at Bosumtwe have a wide range and include cereals such as maize or corn (*Zea mays* L.); tubers like cassava (*Manihot utilissima* Pohl); white Guinea yam (*Dioscorea rotundata* Poir); yellow yam (*Dioscorea cayenensis* Lam.); cocoyam (*Xanthosoma sagittifolium* (L.) Schott; and swamp cocoyam (*Colocassia esculenta* Schott). Other crops grown are vegetables such as tomato (*Lycopersicon esculentum* Mill.); garden egg (aubergine) (*Solanum melongena* L.); okro (*Hibiscus esculentus* L.); onion (*Allium cepa* L.); shallot (*Allium ascalonicum*); pepper (*Capsicum annum* L.) and (*Capsicum frutescens* L.); and lima bean (*Phaseolus lunatus* L.). In Ghana most arable crops are cultivated by women and so it is in the Lake Bosumtwe National Park; and there is always ready market for them in the urban areas.

Arable farms are mostly in isolated pockets usually about 4 to 10 acres, and at most about 15 to 20 acres. In a new farm the vegetation is completely cut down and burnt to make room for cropping; and the physical and visual impacts on the Park are enormous. Because of poor agricultural land use, after 5 or 6 years the land becomes impoverished and unprofitable to farm, and it is abandoned altogether. A new farm is then established elsewhere; the old

farm becomes fallow for 5 to 10 years to replenish itself by natural processes of restoring soil fertility; locally this is what is termed shifting cultivation, but many ecologists would regard it as little more than crude clearance and in the worst long-term interest of the Park.

The Lake Bosomtwe National Park Authority will have to control or even stop altogether this unfavourable system of agricultural land use in the Park, and gradually to introduce modern agricultural methods which are more productive to practise and have less offensive physical and visual effects on the landscape of the Park. This will have to be done gradually and tactfully, and with the park wardens playing a careful role in demonstrating the practical benefits to the local people of such improvements.

10.6 Fishing

Up to the present, practically no studies have been carried out to determine, even approximately, the quantity of fish in Lake Bosumtwe and the overall species or how much fish is annually caught.

The common knowledge in Ashanti is that Lake Bosumtwe abounds with fish, and the local fishermen verbally confirm this. But such hearsay evidence must be carefully checked in a thorough and detailed examination of the quality of Bosumtwe's water and its habitat value within a programme of long term research and also for all other life forms within the Park. Local fishermen claim that for more than 600 years Lake Bosumtwe has been the traditional fishing ground of the Ashantis. A strange but apparently well authenticated account tells how Lake Bosumtwe occasionally explodes with a thunderous noise like a bomb accompanied with a thick smell of gunpowder and leaves a huge number of dead fish floating on its surface. It is said that the fish are so numerous that collecting them from the surface takes several days; and that people having heard this tremendous explosion from far-off come from all over Ashanti for the phenomenal harvest. Such a phenomenon last happened in 1918 (Rattray, 1923, p. 67).

There is no evidence oral or documented to testify that such a natural phenomenon had ever occurred in Crater Lake, Oregon, or elsewhere to the author's knowledge. It will need to be carefully investigated and even if proved fantasy may become a useful myth like the 'Loch Ness Monster' in prompting visitor interest.

Whatever the economic viability of Lake Bosomtwe, the nineteen fishing villages surrounding the Lake (see Figs. 10.1 and 10.2), still fish it for their living, using traditional fishing methods which are in compliance with the Lake's taboos and responsive to its sacredness.

The principal fishing taboos are against the following:

1. Baits, lures, lines or iron hooks.
2. Casting nets.
3. Seine nets.
4. Canoes, boats, sails, paddles or poles.
5. Brass or metal pans.
6. Fishing on Sundays (that being the day of the Bosomtwe Lake deity) and (conveniently also that of the Almighty God).

The only method of locomotion permitted on the Lake, other than swimming, is by means of specially shaped and pointed narrow logs (mpadua), on which the fisherman lies face downward and propels himself with his arms, using his feet as rudders. Fish are taken by driving them into fixed nets made of woven reeds.

However, the viability of the Lake as a major economic resource, that is, other than one serving local needs will have to be carefully studied (see Chapter 9). Such a study will need to provide information on the fish habitat: the quantity of fish, the existing species, their feeding and breeding habits, their movement pattern in the deep and shallow areas, and during the day and in the night, and the effect of the climate - dry and raining seasons - on them.

By coordinating this information to an approved degree of exploitation, the Plan will then be able to outline a management strategy which will determine whether the Lake can be more fully exploited. The Park Plan should meanwhile protect against such exploitation. Among other matters, the Plan must also determine whether the taboos of the Lake should be relaxed or whether even stricter controls and limitations will be introduced in order to safeguard the ecosystem.

In reaching these decisions the Park Authority will no doubt draw usefully upon the experiences of Crater Lake National Park, Oregon, and the Lake District National Park, Cumbria.

10.7 Forestry

The only outside body which owns land in Lake Bosumtwe National Park is the Forestry Department which operates the two Forest Reserves: Obuom and Prem (see Map 10.1 and Fig. 10.2). As it is recommended for the mapping of agricultural land use (see Pars. 10.5.1, 10.5.2 and 10.5.3) the Park Authority should also, in addition to Obuom and Prem forests, map out isolated pockets of rain and secondary forests within the Park as part of the Park's management programme. Obuom and Prem forests represent about 5 per cent of the parkland (see Map 10.1), and isolated pockets of rain and secondary forests about 10 per cent.

The Department of Forestry may have the intention to harvest or exploit Obuom and Prem Forest Reserves as long term resources for their timber. Should harvesting be contemplated it will need some systematic management either selectively or by very carefully shaped coup, clear felling and replanting to produce carefully recycled cropping of these forests without damaging their habitat value, and this poses real opportunity for useful research of benefit to other tier-two national parks.

The other exploitation of the forests, though illegal, is poaching; local residents illegally hunt the forests for venison, but those arrested are prosecuted in the law courts. There are forest guards who patrol the reserves to protect them from intruders; but as in the British Lake District occasionally illegal hunting is carried out usually at night. In Bosumtwe's thick rain forests it is extremely difficult to track down and arrest such poachers; but a coordinated warden system and greater control of access

under the Park Authority should bring these activities to heel.

The Park Authority with the Department of Forestry could organise annual culling of some species whose numbers threatened the equilibrium of the animal population and feeding. When the grazing of such animals is in conflict with local farmland controlled killing will be needed.

Culling is accepted as an efficient method of controlling animal population and is practised in most national parks throughout the world; for example, the British Peak District National Park practises culling of deer annually. Even large animals like elephants are culled in some African National Parks; for instance, in Zimbabwe's Wankie National Park, an average of 500 elephants are culled each year in an effort to keep their population in balance (Douglas-Hamilton, 1980, p. 597). This has a very beneficial effect on growth and reservation rates of their browsing plants. The meat is cut into pieces and dried, then marketed as a cheap source of protein (see Plate 10A). In Lake Bosumtwé National Park if culling becomes necessary, it is likely that local residents will be permitted under licence to do so as in many East African National Parks. This not only provides food and income but also helps to instil a better understanding of the long-term goals of conservation.

On the whole the present relationship between the Department of Forestry and local residents is very cordial. The two forests, Obuom and Prem are strictly reservation areas and no unofficial exploitation is permitted within them; but at least during culling this law will be relaxed.

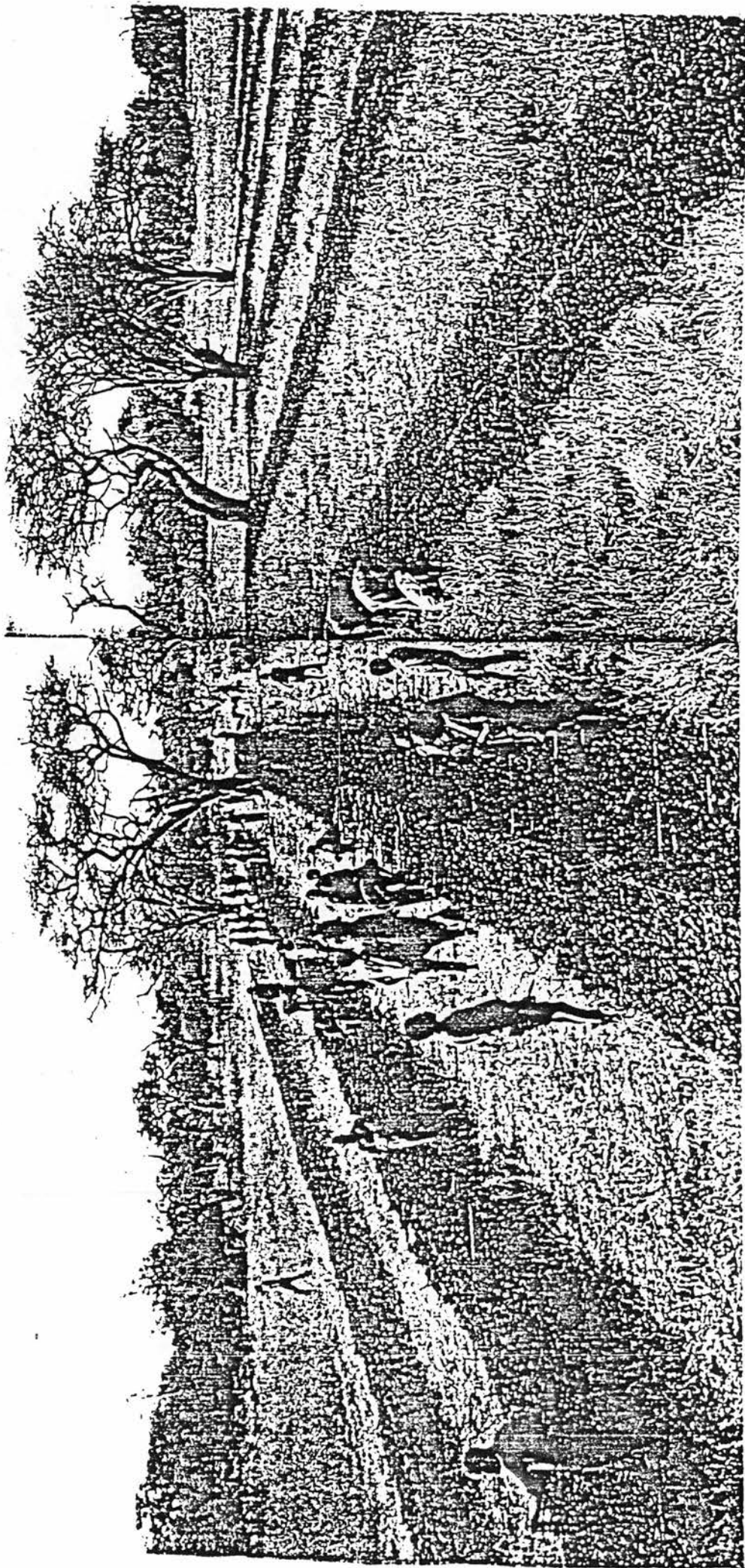


Plate 10A Elephant meat striping the fields of
Wankie National Park in Zimbabwe

(From National Geographic, Vol. 158, No.5, Nov., 1980)

In order to avoid any possible conflict in the future between the Forestry Department and the Lake Bosomtwe National Park Authority, the Authority intends to negotiate to take over the ownership and management of Obuom and Prem Forest Reserves from the Forestry Department. The Park Authority will also negotiate for the transfer of the forestry staff to be absorbed into its management system; or in the absence of any possible transfer of staff, it will seek its own fresh appointments to manage the reserves; of course, in either case, it will increase its annual budget allocations. This will ensure the permanent safety of those reserves since their management will be solely the responsibility of Lake Bosomtwe National Park Authority. The Park Authority intends to preserve them as they are in a managed climax formation as a natural resource, as a gene-bank for rare and medicinal plants, as a sanctuary for animals and birds, and at least representative of the original vegetation of the area; and also as a visitor attraction (see Chap. 8).

10.8 Employment

Local employment is the key to the balance and maintenance of the resident population, and is perhaps the most sensitive issue in any proposed tier-two designation. At Bosumtwe agriculture is a local occupation which reflects high incidence of self-employment with about 90 per cent of the local residents engaged in farming; and farms are family concerns with very little prospects of any increase in their employment capacity from outside, because employment for farming is largely organised from within the family labour force.

Fishing in Lake Bosumtwe, like farming in the Park, offers self-employment to individuals, groups of people or families. It has to be taught right from youth because of complex taboos and superstitions as regards the sacredness of Lake Bosumtwe, which have to be strictly observed by every fisherman. It is estimated that about 3 per cent of the local population is engaged in fishing (author's own observation).

The Forestry Department does not offer much in terms of employment to the local population. Each of the two forest reserves, Obuom and Prem (see Fig. 9.2) has about 20 employees (estimated) consisting of a forest officer, about 5 forest guards and the rest labourers. It is likely that the Park Authority will need to at least double the number of guards and that they will be trained as wardens rather than as guards.

It is presumed that the administration of the Park by a graded staff will offer some employment opportunities on a competitive basis to successful local applicants both from within and without the Park. (The staffing structure of the Lake Bosumtwe National Park is discussed in Chapter 12).

One fundamental requirement of all employment within the Park will be to instil an attitude that the human population is part of the balance of all resources within this tier-two designation.

The biggest change in the present population balance in the park area is likely to be prompted by recreational developments. These, and demands for a higher farming population are the two pressures likely to be most critical in the successful management of the Park.

10.9 Housing and Building Generally

Housing in any community in Ghana is to large extent a political issue and has to be handled carefully. Provision for housing within the Park area is at present an individual or family effort without any financial assistance from the Government, and is likely to remain so after the Park's designation.

The character of existing housing within the Park is very much rural. From about 1900 to 1930 they were typically of wattle-and-daub and from the 1930s 'mud houses' walled in a clay-sand mix have tended to replace those of wattle-and-daub. The local mud is in fact an extremely versatile and strong material, and offers little difficulty in constructing a two-storey building (Denyer, 1972, p. 93).

Aesthetically and also from an ethnological point of view it is extremely desirable that the Park Plan should try to protect and enhance the present very attractive character of the traditional mud and thatch villages. But in the Park there are already cement block houses, about 5 to 10 in each of the three small towns - Kuntanasi, Kokobin and Pemenasi (see Fig. 10.2).

Housing regulations in Ghana do not permit mud houses to be built in urban areas, so that in the cities and large towns cement block houses and burnt brick houses are most common. As villages grow and expand into towns, cement block houses are thus preferred both by individuals and by the Housing Corporation and gradually the mud houses are phased out.

Ghanaians, on the whole increasingly prefer cement block houses to mud houses and 70 per cent of the country's houses are built of cement. Even in villages the public preference for cement block houses is very strong indeed, and one which the Lake Bosomtwe National Park Authority is unlikely to be able to oppose among the village communities within the Park. Regulation will only bring confrontation unless it can be shown that the mud houses have sound practical advantages and this seems very unlikely.

Assuming that all the villagers within the Park decide to build cement block houses there is very little or probably nothing the Park Authority can do about this. In the first place it is a matter of individual preference; and secondly, the Park Authority realistically has little power to refuse anyone residing in the Park from improving his standard of living. It may (in passing) be observed that there are very few mud houses in the Lake District or in any British or American National Parks.

Of course, the Authority has power to impose reasonable building regulations so that both mud houses and cement block houses are designed to merit the Authority's approval; and also building plans will have to be approved by the Authority.

A system of incentive grants will probably need to be applied in administering the necessary planning and building controls and the Park Authority will need to take a clear initiative in setting standards easily understood and followed.

10.10 Summary and Conclusions

Population control underlies the ultimate success of Lake Bosumtwe National Park as a newly tier-two designated Park. The Park's population is estimated at 10,000, but with increases at the present national average at 3 per cent drastic curtailment will be necessary if the Park is to survive.

An equilibrium of 8,000 to 10,000 population might be fairly reasonable to maintain within a parkland of 428 sq. miles. The National Family Planning and Birth Control Programme is unlikely to be a reliable ally, and the Park Authority may need to curb population increase by very active intervention in the pattern of employment opportunity, particularly in farming.

The settlement pattern within the Park is very uniformly distributed. The 19 villages surrounding the Lake, which grew out of fishing in the Lake, and 40 surrounding villages reflect the even and balanced way in which the land has traditionally been managed. In all, there are 3 small towns and 60 villages within the Park, linked by major and minor roads and footpaths. A management programme will have to be planned by the Authority to downgrade all major roads into minor roads which will create uniformity in circulation and contribute towards enhancing the natural beauty of the Park and reducing development processes. Many of the existing footpaths will have to be improved and properly designated as they are the only means of access to settlements both for residents and visitors.

A controlled balance of perennial and semi-perennial plantation within the Park seems to be the ideal type of farming, with acceptable physical and visual impact on the character of the Park. Arable farming needs some modernisation and particularly shifting cultivation with its entailing despoliation of land use and vegetation must at least be strongly controlled under licence and probably stopped altogether.

The Obuom and Prem Forest Reserves, the most important rain forest in the Park are considered to be among the major visitor attractions in the Park. There is limited scope for treating other areas in the Park in a similar fashion.

The sacredness of Lake Bosomtwe puts the judicious exploitation of the Lake very much in doubt at present, but it is hoped that in the future any conflicts on this issue will be resolved amicably by the Park Authority and Asantehene himself, King of Ashanti and owner of Lake Bosomtwe. Recreational development of the water resource must be treated with great caution.

Local employment in farming and fishing is very much a family affair and there is no scope for expansion in the immediate future. Other avenues of employment exist in the urban areas like Kumasi and Obuasi, each about 20 miles away from the Park; and this encourages the youths to drift to seek employment in those areas. The Park Authority will have to study this drift and its implications.

There are no industries in the Park, and while this is good for the conservation of the Park's natural resources, it is not so good for local employment. The Park Authority must prevent the introduction of any such employment within the Park area until it has very sure grasp of all its implications.

Housing in the Park is an important aspect which imposes problems partly because it is a political issue. It probably has to be accepted that existing residents should have the right to improve their houses; but the controls over such improvements must be effective, and strict measures taken to control the number, kind and location of all new buildings.

Change is likely to be gradual and with careful control the impact on the natural beauty of the Park should not be noticed at all. The Park Authority in applying these controls should endeavour to persuade by example and with the incentive of grant support.

CHAPTER XIBOSUMTWE CASE STUDY :
HUMAN RESOURCES RELATED TO VISITORSContents :

- 11.1 Introduction
- 11.2 Existing Situation
- 11.3 Visitor Pressure
- 11.4 Accommodation Facilities : Existing Situation
in Lake Bosumtwe National Park and Management
Plans for the Future
- 11.5 Tourism
- 11.6 Tourism from Overseas: Overseas Visitors
- 11.7 Summary and Conclusions

CHAPTER ELEVEN : BOSUMTWE CASE STUDY : HUMAN RESOURCES
RELATED TO VISITORS

11.1 Introduction

The Lake Bosomtwe National Park is the only Park in Ghana very close to a capital city like Kumasi, Ghana's second capital city. In such a situation Bosomtwe becomes very vulnerable to the pressures of large numbers of visitors; and much of the influx of visitors could come from Kumasi itself, surrounding and outlying villages, towns and cities. Accra the capital city of Ghana is only some 170 miles from Kumasi and within easy day reach of Bosomtwe.

Visitor characteristics and recreational patterns such as visitor influx and pressure, and visitor accommodation are here discussed in relation to existing conditions in some National Parks in Ghana, Kenya, Britain and the United States. Experience which could help the management of Bosomtwe in these instances is singled out, particularly where it is relevant to Bosomtwe's proposed tier-two designation. Finally, this Chapter concludes with a discussion on tourism as a long-term economic resource which could be usefully exploited in relation to particularly tier-two national parks.

11.2 Existing Situation

It is anticipated that the visitor pressure on Lake Bosomtwe National Park will come from its surrounding towns and villages, and other towns and villages in Ashanti, particularly from Kumasi city itself; and also from other parts of the country and even from the capital, Accra. Even without foreign visitors it may be anticipated that the overall visitor pressure on the Park will increase at least in proportion to the country's present annual population growth of 3 per cent; and this poses great difficulties.

The Lake Bosomtwe National Park is surrounded on its eastern side by three towns (see Fig. 10.2); with each having at present the following population estimated (by author) from Ghana's population census in 1970: Konongu, 15,000; Juaso, 5,500; and Obogu, 4,800. Beyond the western boundary of the Park there are six other towns (see Fig. 10.2) with present estimated populations as follows: Kokofu, 2,500; Bekwai, 16,000; Akrokerri, 4,500; Dampoasi, 3,500; Brofoyedru, 500; and Obuasi, 40,000. The population of Kumasi in 1970 was 260,286 and 350,000 in 1984. The population of Ashanti was 1,481,698 in 1970 and at 2,089,683 in 1984. The population of Accra, Ghana's capital city in 1970 was 903,447 and 1,420,006 in 1984. Such growth in such a short time poses great uncertainties and likely difficulties for the Park management.

11.3 Visitor Pressure

In general user studies of British and American National Parks, almost without exception, confirm that the number of visitors to their various Parks has increased steadily since designation. Accurate visitor population figures needs to be part of the statistical information collected regularly each year to assist management; and this is an important exercise that the Lake Bosomtwe National Park will have to undertake, as soon as possible, in the management of the Park. The difficulties of collecting and coordinating such data should not be underestimated in countries like Ghana.

In Britain, we have the Lake District National Park stating that: 'The volume of visitors to the Park is considerable with approximately 3,000,000 staying visitors and many more day visitors (Lake District Special Planning Board, 1980, p.91). In Pembrokeshire Coast National Park about 100,000 day-visits are made each year, and 600,000 holiday staying visitors for an average of about 12 nights (Pembrokeshire Coast National Park, 1977, p. 98). Peak District National Park without quoting any figures of visitors to the Park only stresses that visitor pressure arises when vast number of visitors come to the Park 'to get away from it all' in an area of superb scenery and to enjoy the peace and quiet and relative solitude of the area (Peak District National Park, 1976, p. 25). Northumberland National Park confirms that, 'the volume of visitors to the Park as a whole is modest by comparison with some of the other National Parks, although in certain localities visitor pressure

can be intense' (Northumberland National Park, 1977, p. 57).

The management of all these Parks has been greatly affected by the visitor population and as they are all in effect tier-two Parks, even allowing for cultural and climatic differences, there is much in them to be learnt which Bosumtwe may profit from making necessary allowances for cultural differences.

Sandford (1974) in the 'Report of the National Park Policy Review Committee' states that there is general agreement about the main factors which have led to this visitor increase in British National Parks. In the first place the population has increased. The population of England and Wales itself increased by approximately 11 per cent between 1951 and 1971. People in Britain now have more time for visits to the countryside, though the actual number of working hours has not diminished dramatically. And finally, recreational opportunities developed within the Parks have themselves stimulated visitor increase.

All of these factors are present in Ghana and are bound to influence visitor pressure on Bosumtwe.

In 1970 Ghana adopted the five day week working system, by changing from six day week from Monday to Saturday to five day week from Monday to Friday. The new working system allowed people to have more time for other activities at the week-ends including outdoor recreation. In response, for example, Aburi Botanical Gardens, the most popular park (not a national park) in Ghana, just 24 miles north-east of Accra, the capital city, recorded an increase in the number of visitors to the Gardens, which although, never properly substantiated by the Department of Parks and Gardens,

responsible for the Gardens, was nevertheless in the author's opinion very clearly apparent.

Further, all grades of employees in the public and private sectors in Ghana now enjoy annual holidays of four weeks instead of three weeks before 1970. The extended holidays allow individuals to spend more time in their home towns and villages and thus enjoy the countryside. Ghanaians are particularly proud of the countryside and it is a matter of pride for one to be able to trace one's ancestry to a small town or village.

In Ghana most people take their annual holidays in December so that the whole month and Christmas will be enjoyed uninterrupted. This is a very distinctive difference from the pattern of holidays in, for example, Britain and America, and offers possibilities of simplifying park management. It clearly reflects the country's almost totally Christian religious beliefs. Moslems account for only about 0.5 per cent; with the remaining 0.5 per cent consisting largely of non-believers. The schools, colleges and universities' long vacation from July to September is on the other hand very similar to the British and American vacational terms.

Cultural and traditional festivals throughout Ghana are celebrated in villages, towns and cities in August during the agricultural major food harvesting season of the year, so that there will be plenty to eat. It is a week long celebration in mid-August starting from Monday to Sunday, with the principal activities of singing, drumming and dancing, and pageantry on Friday and Saturday; and most workers prefer to return to their

home towns and villages for these exciting celebrations. As part of the Ashanti homelands Bosomtwe has always and must continue to respond to the cultural demands of these celebrations.

Sandford (1974) in his study also confirmed that the visitor population in British National Parks had become much more mobile during the preceding decade as a consequence of the immense growth in the numbers of private cars in Great Britain, having increased¹ some fivefold between the years 1951-71.

No statistical data is available for the number of vehicles in Ghana in 1986, but in 1970 there were: 68,000 cars; 1,529 buses; 941 passenger trucks (including coaches and semi/mini coaches); 587 lorries; 593 pick ups; and 2,000 motor bikes, totalling 72,709 in all (Ghana Central Bureau of Statistics, 1970). Since then it is reasonable to assume that there has been substantial increase in the number of cars and car ownership in Ghana in 1986.

If we assume that of some 70,000 vehicles in Ghana about one-seventh, that is 10,000 vehicles are owned by private individuals in Kumasi, it is very likely that many of these car owners will wish to make regular visits to the Park. The conclusive evidence is that the city of Kumasi is bound to exert immediate visitor pressure on the Park. It may also be reasonably estimated that some 1,000 visitors may wish to come at least once a year by motor bikes or push bikes or even hitch hike; and a further 1,000 by directly walking to the Park especially those from nearby areas. On regional and national levels

¹ In Britain there were in 1968, 14,805,000 private cars; 17,394,000 in 1975; and 18,070,000 in 1978 (HMSO, 1980, p.75).

it is therefore anticipated that private car ownership and the use of vehicles will exert significant visitor pressure on the Park.

Sandford (1974) finally concludes that a further factor of considerable importance which has influenced the British public's use of national parks has been the coverage given to recreation and to countryside matters by the mass media, particularly television; and that the latter by reason of its wide audience and vivid presentation has had an undesirably great influence on public tastes and attitudes (Sandford, 1974, p. 49).

So far as the author can recall, Ghana Television by contrast has never publicised any Ghana National Park. It may be argued that this is good for Bosomtwe's protection, but it does really avoid facing the problems of tier-two status?

The Park Plan will probably imply that the Park Authority is given the chance to introduce itself gradually through its own information service to the public so that visitor pressure may be gradual and anticipated.

Like the British National Parks, but even more so the popularity of American ones continues to grow year after year as the result of economic growth, increase in the number of private cars, and people having more time for the pursuit of leisure such as outdoor recreation in national parks. 'In early days the major problem was how to provide sufficient facilities to encourage enough people to the Parks; while to day the major problem is how or perhaps whether in the face of such an overwhelming tide of visitors the National Parks can survive' (Everhert, 1972, p. 39).

For example, in Crater Lake National Park from 1975 to 1980 the volume of visitors ranged between 500,000 and 600,000 (Storr-Gillmore, 1983, p. 23). In Yosemite National Park the total number of visitors to the Park ranged from 2,300,000 in 1968 to 3,000,000 in 1977 (Yosemite National Park, 1978, p. 49). The trend of visitors to the 39 American National Parks has been one of annual increase (see Fig. 11.1).

It is noteworthy that the National Park Service neither foresees nor plans for any future decline in the number of visitors to American National Parks. In its Report on 'Public Use of the National Parks, 1975' it predicts that:

'With increasing incomes, higher levels of education, and greater mobility, coupled with the relative young age structure of the current population, it is almost certain that the National Parks will experience continued high rates of growth in visitation'.

The conclusive evidence from Sandford's analysis, and from the British and American experiences is that National Parks are bound to observe visitor increase and subsequently visitor pressure. And it will be a matter of time for National Parks in countries less developed, including Ghana and particularly Lake Bosumtwe National Park, to experience the same situation. Tier-two status accepts the challenge of such pressure in managing natural resources like Bosumtwe.

Visits to U.S. National Parks,
1964-1975

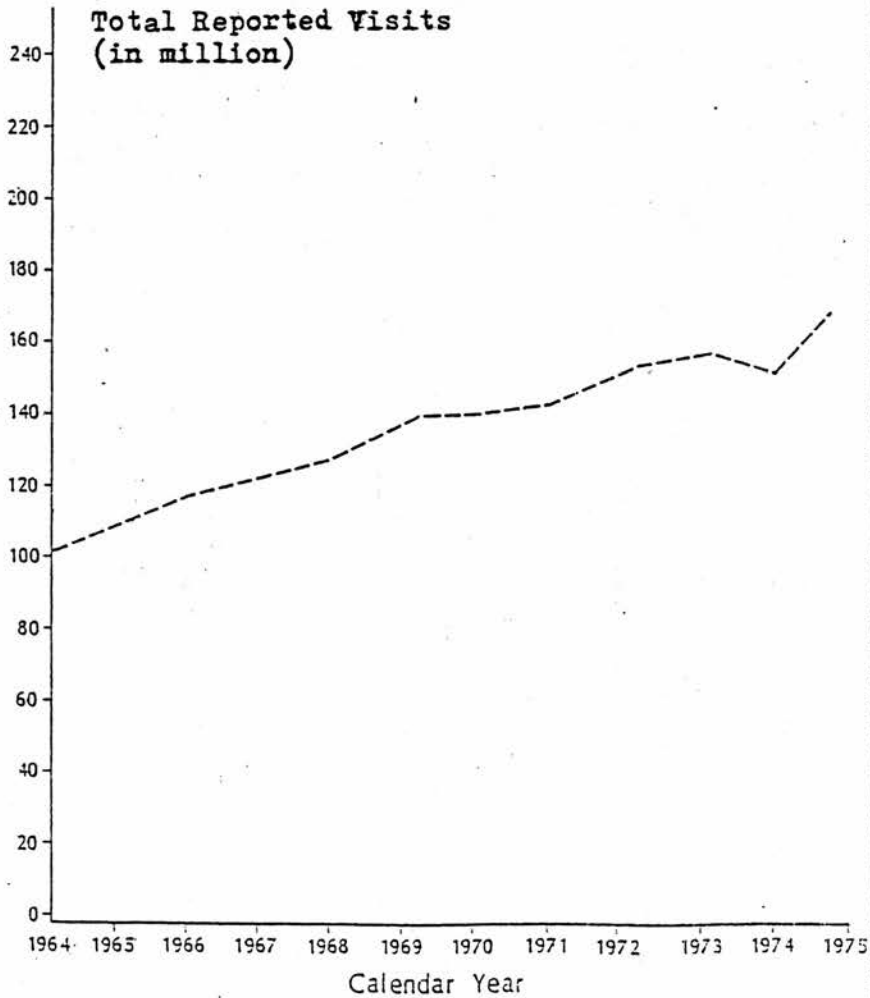


Fig. 11.1 Visitor trend in U.S. National Parks

Source: National Park Service, 1975

11.4 Accommodation Facilities : Existing Situation in Lake Bosumtwe National Park and Management Plans for the Future

The assumption is that Bosumtwe is a newly designated tier-two National Park and that there are no accommodation facilities in the Park at the present time. The Lake Bosumtwe National Park Authority has the option either to provide accommodation facilities in the Park if it considers it necessary and desirable to do so, or to abandon the whole idea if it is anticipated that it will fundamentally disrupt the balance of the Park's resources. This latter option attempts to manage the Park simply as a day visit National Park, as it prevails in Nairobi National Park in Kenya (this is discussed on the next page).

However, it is assumed that the Lake Bosumtwe National Park Authority has decided to provide accommodation facilities in the Park realising that it will not disrupt the management of the Park. Hence, the Authority has therefore studied the accommodation programmes in Ghana National Parks, and in some Kenyan, British and American National Parks for ideas.

Out of Ghana's five existing tier-one National Parks (see Fig. 8.5) namely: Mole, Digya, Bui, Nini-Suhien and Bia only Mole National Park which has accommodation and catering facilities. It has a restaurant and guest-house accommodation for 100 staying visitors at a time. There are plans to provide the remaining four Parks with accommodation and catering facilities.

Kenya's attitude to such resources has been chosen for discussion here because its National Parks are considered to be among the best and best managed in Africa (Curry-Lindahl, 1972, p. 114).

Therefore, seven of Kenya's thirteen National Parks were studied, namely:-

1. Aberdare National Park.
2. Amboseli National Park.
3. Mount Kenya National Park.
4. Meru National Park.
5. Mount Elgon National Park.
6. Nairobi National Park.
7. Tsavo National Park.

Out of these seven Parks only Nairobi National Park is without accommodation facilities. The reason being that Kenya's capital city Nairobi (giving its name to the Park) is only four miles away from it; and the Nairobi Hotel in the city provides, close at hand, first class facilities for visitors including overseas visitors. The Nairobi National Park, therefore, has the status of a day visit Park and staying visitors are not permitted. Each of the remaining six National Parks has accommodation facilities including hotels, guest houses (lodges) and camp sites. For instance, Aberdare National Park is world famous for its Treetops Hotel (where the British Queen, H.R.H. Elizabeth II, usually stays when she visits the Park); and the Park is also famous for its Ark Lodge (see Fig. 11.2). Aberdare National Park is about 120 miles from Nairobi.

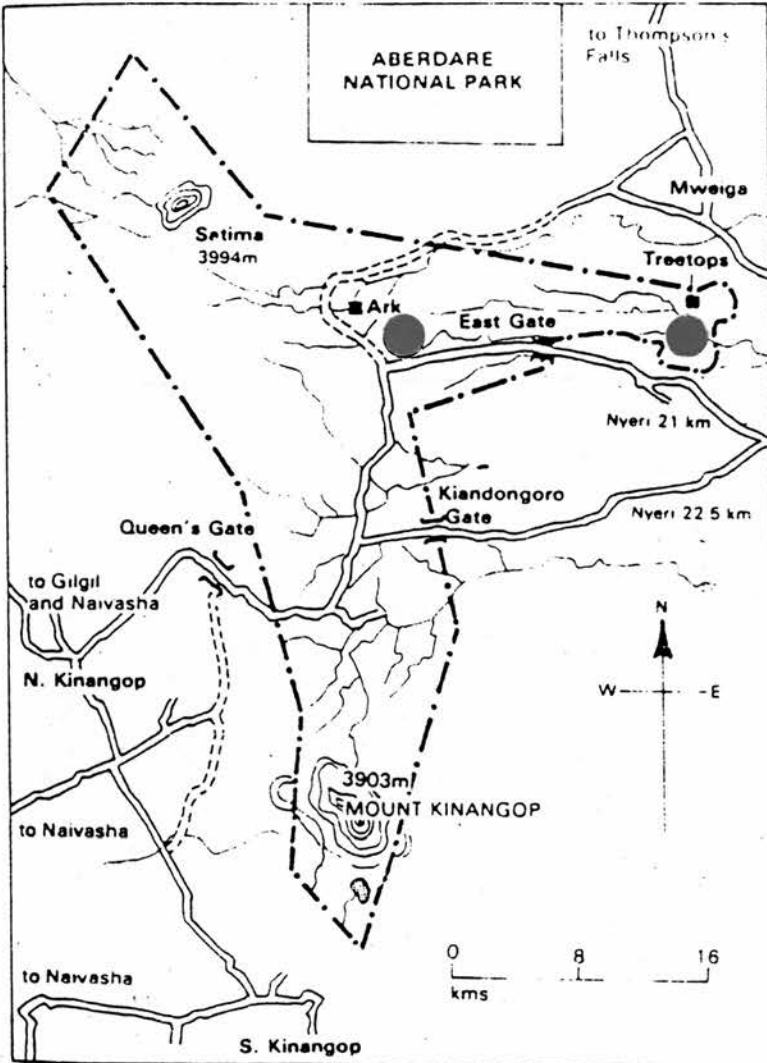


Fig. 11.2 Aberdare National Park
(From Williams, 1983)

In British National Parks, holiday accommodation is generally more diverse and more sophisticated than that in Africa. For example, in the Lake District National Park the visitor has a choice of staying in a wide range of hotels, guest houses, farm houses, hostels and camp sites, both self-catering and serviced. Will it ever be conceivable that Botswana develops such a range?

The Lake District National Park has about 4,000 tent pitches (Taylor, 1978, p. 131), and these are used by individuals or groups like the Scouts and the Guides. Camping wild by backpacking is also significant in British National Parks; and several locations, for example, on the fells in the Lake District National Park, are regularly used by individuals and groups.

British National Parks also provide caravan sites or pitches for static and touring caravans.

Self-catering accommodation includes purpose-built holiday accommodation, for example, chalets and holiday flats. Youth hostels are a special type of visitor accommodation between serviced and self-serviced categories.

Serviced accommodation includes hotel, guest house, bed and breakfast and Field Study Centres. Apart from a Field Study Centre which might be operated by a National Park Authority, the rest are privately owned and privately managed, mostly by local residents within the Parks because the Parks are tier-two designated. It is noted that this type of local entrepreneurship in British National Parks including the Lake District has been very successful indeed.

The expectations of visitors to the Lake District National Park, as an example of that in British National Parks, are of ^a complex and highly sophisticated nature, as compared to that of Bosomtwe, with its relatively simple social life and much more rural in character. Hence, it will be inconceivable that the Bosomtwe Park Authority should even need to adopt anything like the whole of the British National Park accommodation system. For example, British bed and breakfast accommodation is quite alien to the Ghanaian way of life. Caravan accommodation too, either static or touring, forms no part of Ghanaian or African tradition; and Bosomtwe may safely ignore it.

However, the Bosomtwe Park Authority will need to provide for three of those kinds of accommodations commonly found in other National Parks, namely:- hotels, guest-houses and at least some tent camping.

Kenya has successfully operated these three in its National Parks, for example, in Aberdare National Park (see Fig. 11.2); and Ghana, as we have seen, also has a hotel in Mole National Park. Tent camping will be aimed at providing cheap accommodation for the youths, and school and college groups.

But the Lake Bosomtwe National Park having learnt from the mistakes of other National Parks might well locate its hotel or guest house accommodation outside the Park, as at present being replanned in the United States Yosemite National Park.

In the study of the accommodation system in American National Parks, the Yosemite National Park offers useful long-term comparison, because its accommodation system is of a much larger scale, serving an influx of visitors principally from Los Angeles and San Francisco, California.

Visitors to Yosemite National Park can choose among several types of lodging facilities such as: tents in camping sites, tent cabins, frame cabins, motels and hotels which are situated in various areas within the Park.

However, it has been observed that most of the accommodation and catering systems within the Park are in conflict with the preservation of the natural beauty of the Park and that the Yosemite National Park Service has plans to remove most of them to the periphery of the Park. This has been fully discussed in Chapter 4. The Lake Bosumtwé National Park Plan will need to study such proposals critically to see whether it would be in its interest to adopt or adapt part or all in relation to local conditions.

No such proposals have yet been made for the Crater Lake National Park, but this is probably because its visitor population is much smaller. Crater Lake at present receives some 600,000 visitors annually and Yosemite 3,000,000 visitors yearly. Accommodation facilities at Crater Lake are very similar to those found at Yosemite.

However, one major mistake which the author observed while he was on a research/study trip to Crater Lake National Park was the location of the Crater Lake Lodge, completed in 1915, a hotel which caters for more than 500 visitors at a time, and served by the

Crater Rim Drive completed in 1918 (Warfield, 1982, p. 45).

The Lodge is only about 160 yds. from the south-west of the Crater Rim (see Fig. 11.3) and (see Plate 11A).

In Yosemite National Park and Crater Lake National Park, as in all American National Parks, accommodation facilities are operated by a concessioner whose management is supervised by the National Park Service. Whereas in the British National Parks, accommodation facilities are managed by individuals as part of the local economic structures, and the National Park Authorities have no intention of competing in this field.

If Bosumtwe goes ahead with its hotel and guest house accommodation plan, it will have to determine whether it is privately managed or part of the Park's management system. It would be highly desirable for such facilities to be financed and coordinated with government money but it is unlikely that they will be provided without considerable help from private enterprise.

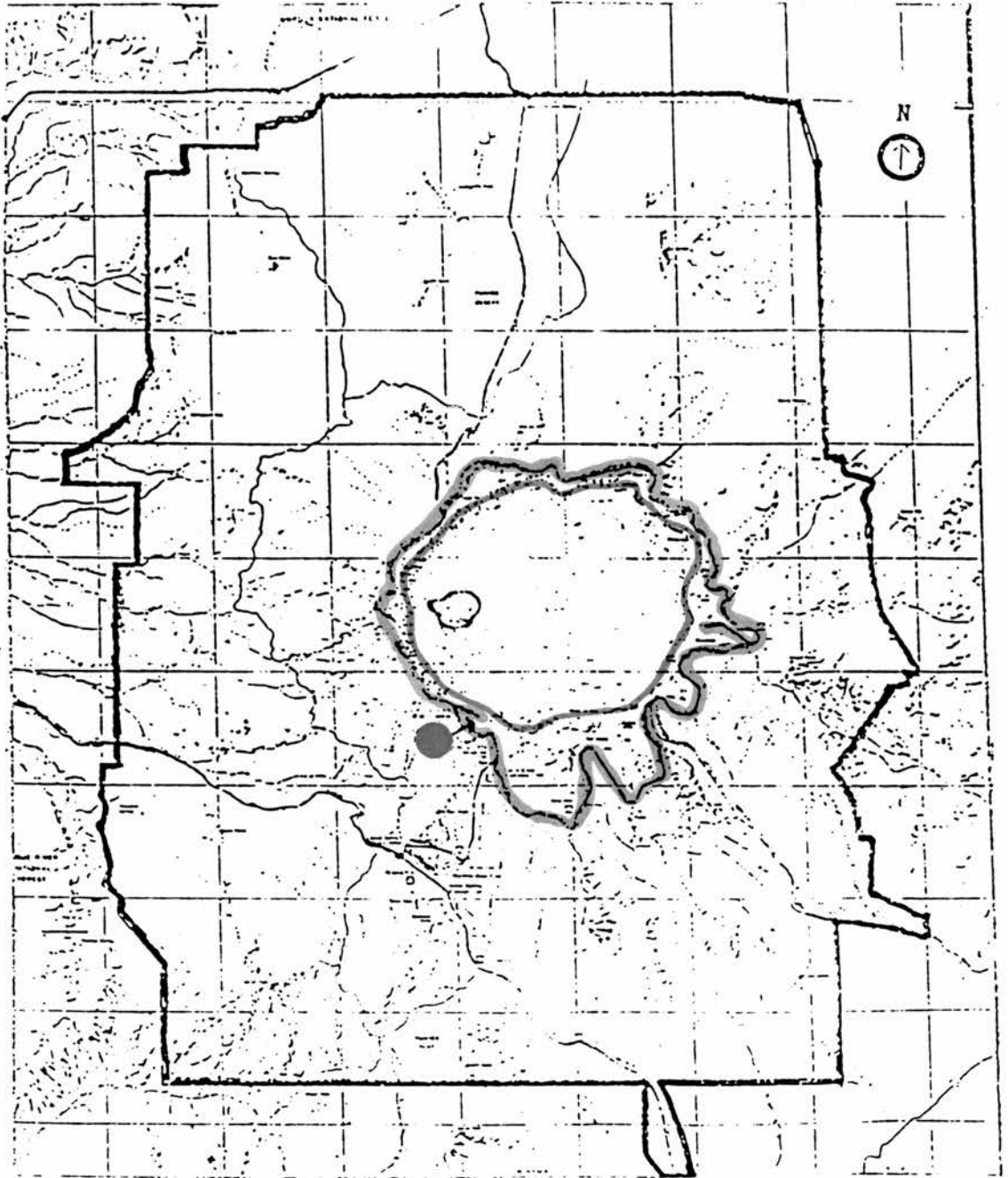
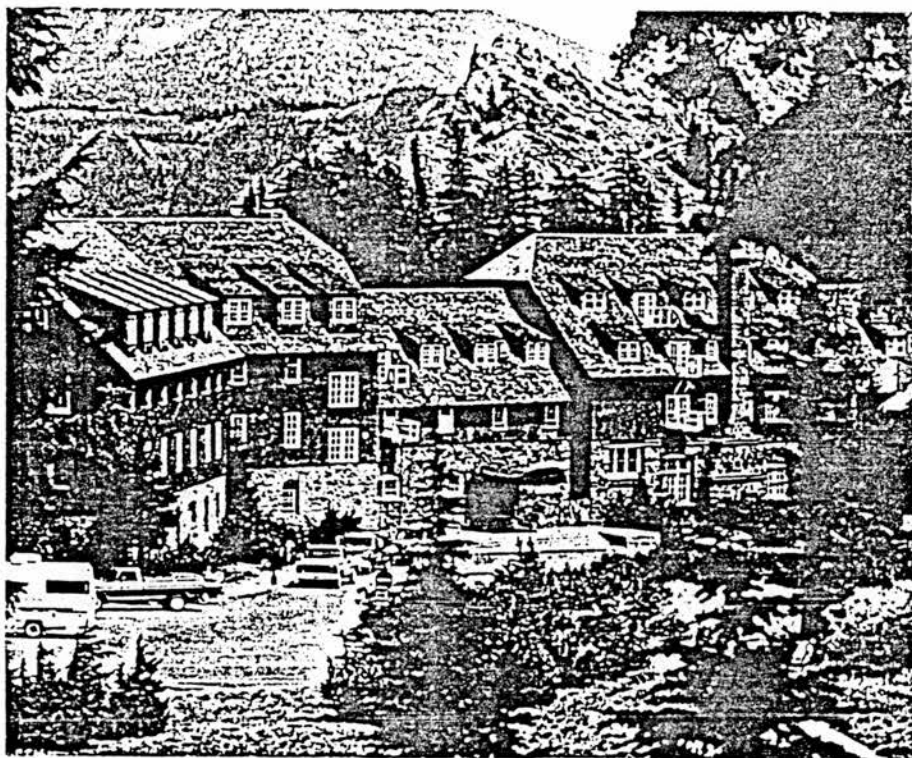


Fig. 11.3 Crater Lake National
Park
(From Warfield, 1982)

Scale

0 1 2 3 4 5 6 7 8 Miles

- The Crater Rim.
- The Crater Rim Drive.
- The Crater Lake Lodge.



Crater Lake Lodge

Plate 11A **The Crater Lake Lodge**
(From Warfield, 1982)

(The Lodge was innocuous enough at the time it was built in 1915, but now an unwanted pressure point within the Park)

Visitor pressure at Bosomtwe must clearly be anticipated and dealt with as the public develops its interest in outdoor recreation in the Park. A Draft Park Plan unsupported by accurate records can do little except defined general policy.

But it will suffice to say that useful attempts have been made in some British and American National Parks to solve some of these visitor problems. For example, the Goyt Valley Traffic Scheme developed in the British Peak District National Park in 1970-71 was intended to prevent one part of the Park being overused by motorists.

The Goyt Scheme provided that all valley roads were closed during peak holiday times and visitors were to 'park and ride'. Visitors were able to abandon their cars and enjoy walking along the traffic-free roads and waymarked paths, or enjoy riding on the Park's mini-buses provided for the scheme. It has proved popular with visitors (see Fig. 11.4; and Plates 11B 11C and 11D). And it has certainly restored much of the peace and quiet of the valley. Whether Ghanaians would accept such restrictions is questionable.

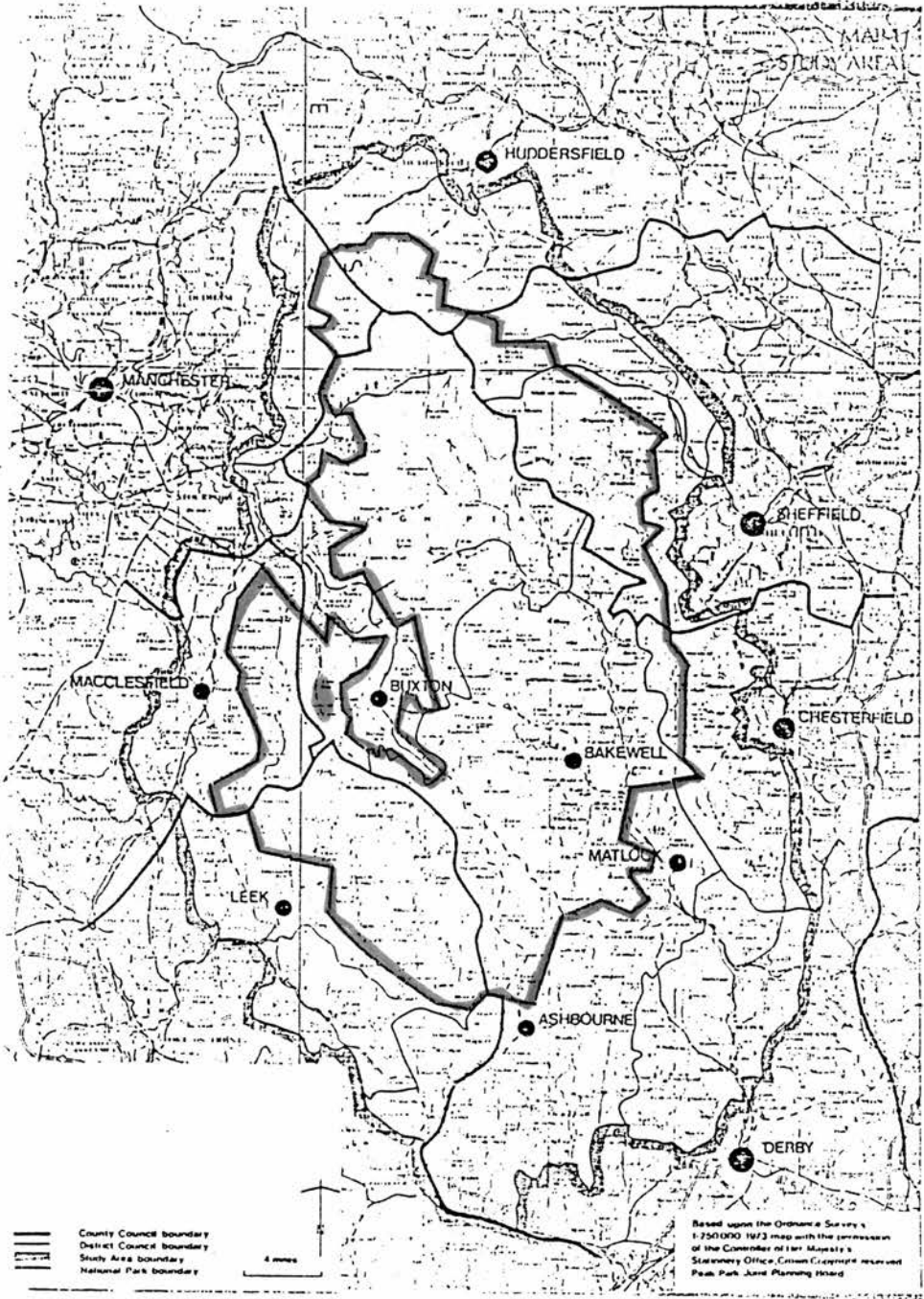


Fig. 11.4 The Peak District National Park showing the Goyt Valley Area (From The Peak District National Park, 1980)

———— Park Boundary
 ■ Goyt Valley Area

(The Goyt Valley is within easy motoring reach not only of Buxton but of the dense surrounding conurbations. Bosumtwe is never likely to suffer such pressure)



Plate 11B

Plate 11C

Goyt Valley in the Peak District, before and after traffic restrictions were imposed - minibuses now take visitors through the valley.

(From Paul Bolt et al., 1973)



Plate 11D Visitor setting out on foot from one of the Goyt Valley car parks
(From Bolt et al., 1973)

As mentioned in Chapter 4, the Yosemite National Park now has quite drastic plans to modify management of the Yosemite Valley, the focal point of the Park, by controlling visitor pressure in the Park. The redevelopment concentrates on removing man-made resources in the valley such as some accommodation facilities and car parks to the periphery of the Park. The Park also runs ^a shuttle bus service in the Valley to ease traffic congestion and no private transport is allowed on the shuttle bus routes (see Figs. 11.5 and 11.6) and (Plates 11E and 11F). If car born Americans will accept such restrictions perhaps Ghanaians will also.

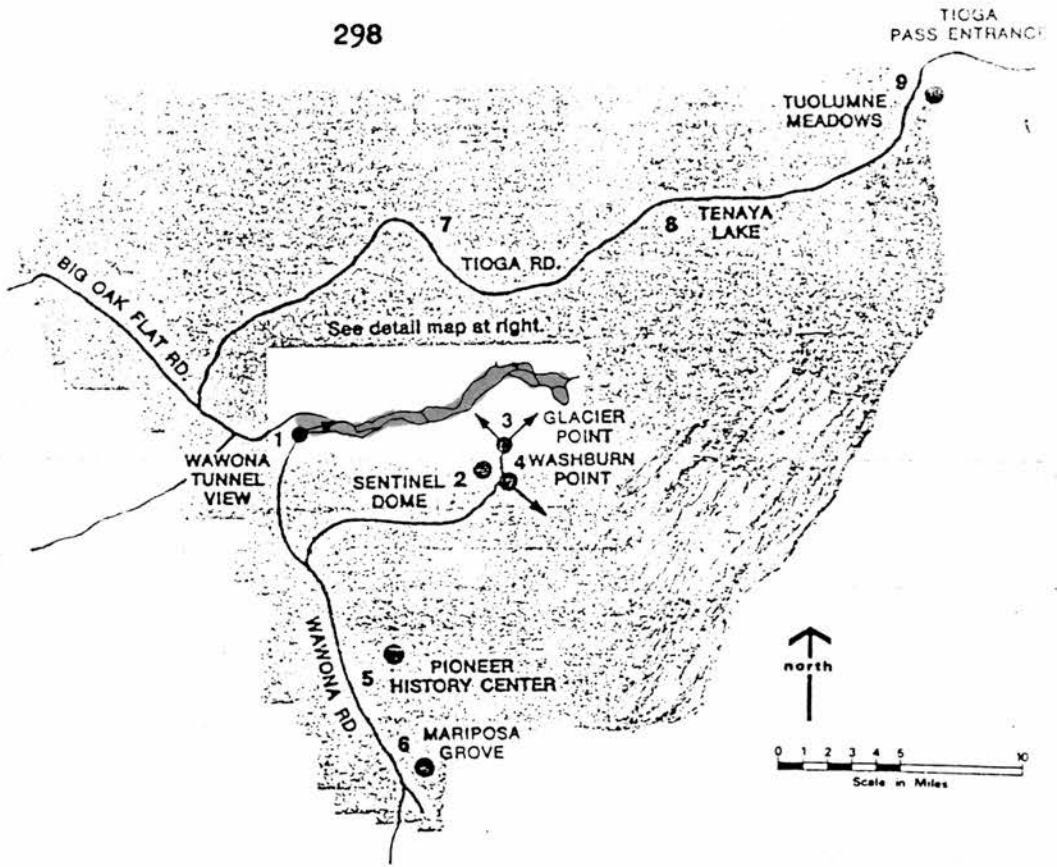


Fig. 11.5 Showing Yosemite Valley (From Yosemite National Park Service)

Yosemite Valley

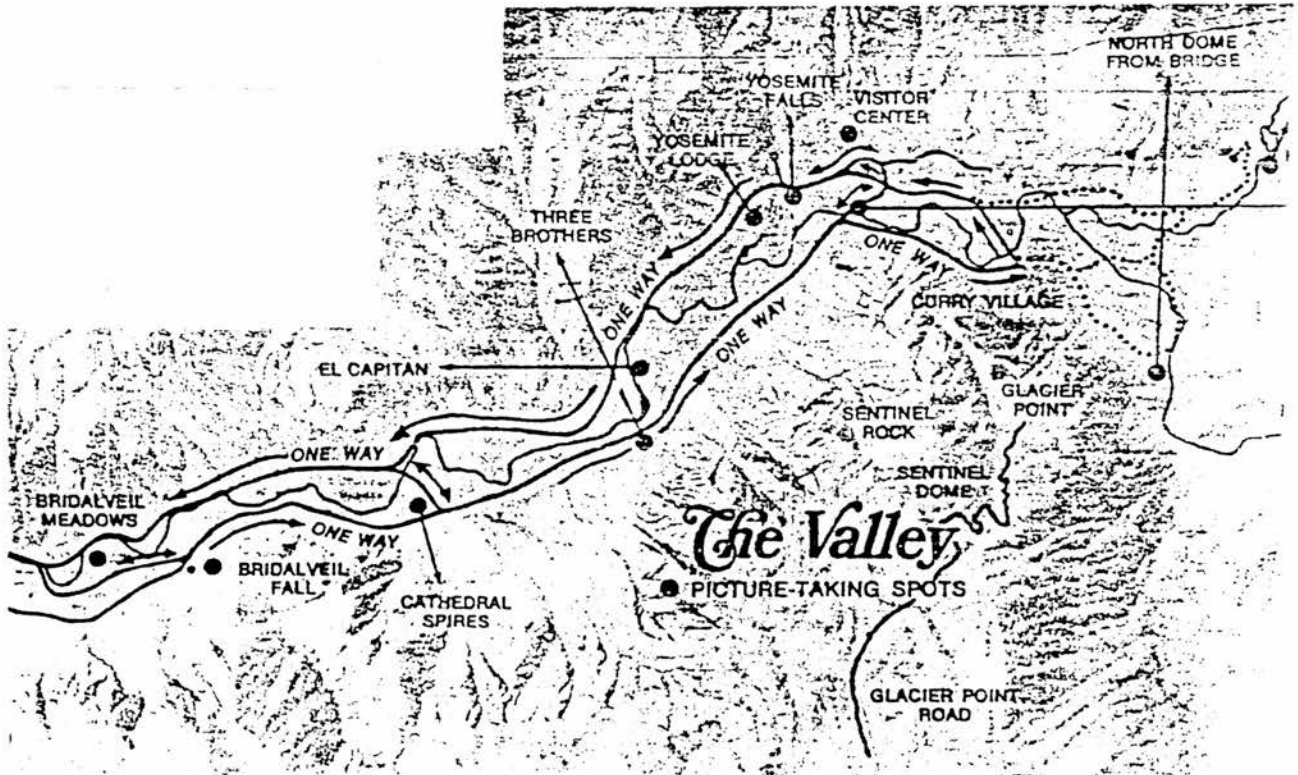


Fig. 11.6 Showing Yosemite Valley and the Shuttle Bus route (From Yosemite National Park Service)

→ Yosemite Valley Shuttle Bus Route

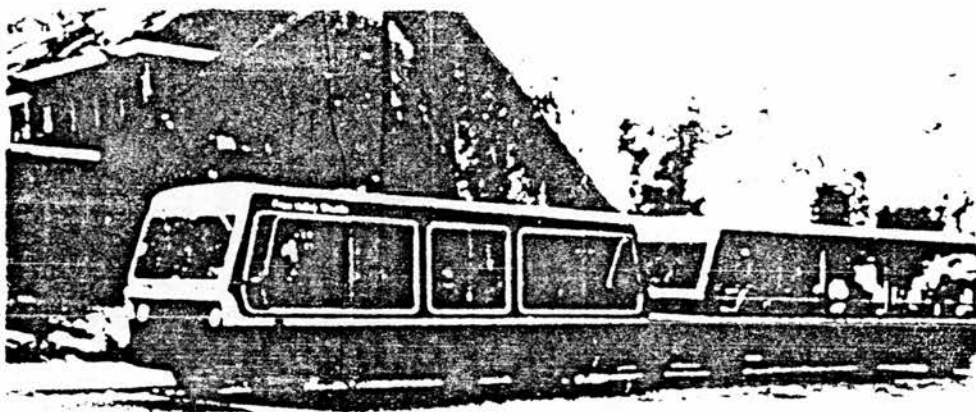


Plate 11E Yosemite single deck shuttle bus
(From Yosemite National Park Service)



Plate 11F Yosemite double deck shuttle bus
(From Yosemite National Park Service)

11.5 Tourism

Tourism is not a primary objective, in fact it is not even considered, in the designation of a national park; nevertheless an instinctive sympathy with Nature and need for contact with it has always been close to the heart of man; and governments have provided facilities for this natural contact by man in national parks as part of what is loosely referred to as the enjoyment of outdoor recreation.

However, as visitor interest in national parks increases year by year, tourist agencies may be tempted to commercialise this interest. The outstanding natural beauty of Lake Bosomtwe National Park will not long escape the interest of the Ghana Tourist Corporation.

11.6 Tourism from Overseas: Overseas Visitors

Abrahams (1983) asserts that, 'Tourism today is the world's second largest industry in terms of international trade, second only to oil and just edging out the manufacture of arms for second place. Conservative estimates tell us we are speaking of an industry that generates some \$95 billion annually, worldwide'. Harmonisation of the economic interests of tourism with those of nature conservation through national park policies has become a major economic drive of most third world countries, especially those with enormous national park resources in Africa.

However, there is a much mistaken belief that national parks are primarily intended for tourism (Puscariu, 1972, p.226). But the basic purposes of a national park are twofold: firstly, as we have seen, it is for the conservation of nature, and secondly for provision of outdoor recreation to the public, now and in the future. Tourism has developed out of national parks' conservation of nature, largely because of man's inherent desire to be as close to nature as possible. Tourism in national parks has gained such a hold that tier-two designation allows the two interests to be properly reconciled, whereas tier-one designation often continues to avoid facing this issue. Most African governments support this latter view because of their precarious economic position and the need to earn foreign currency by all means possible.

The temptation will therefore always be for governments to abuse and degrade the status of tier-one national parks by encouraging their over exploitation by tourism. It is to be expected that tier-two designation like Bosumtwe will encourage them to face and balance the problems of such exploitation.

Today, the overseas tourist industry in East African countries, based entirely upon the existence of national parks, is one of the most important sources of their national revenue. Kenya perhaps gives the best example of the importance of such revenue (Curry-Lindahl, 1972, p. 113). The total number of 'overseas visitors' to Kenya increased from about 12,000 in 1960 to a staggering 232,000 in 1970; and over that period foreign exchange earnings from tourists visiting Kenya were as follows¹:

1960	US \$ 19,200,000
1964	US \$ 25,200,000
1967	US \$ 28,800,000
1968	US \$ 44,000,000
1969	US \$ 47,392,000
1970	US \$ 53,249,700

In Kenya, tourism competes very closely with coffee as the single most important source of hard currency. In Tanzania tourism ranks as the sixth most important industry². There are other countries in Africa, particularly in West Africa, Ghana being a very good example, which could very substantially develop their tourist trade by exploiting their national parks.

¹ Curry-Lindahl K. (1972). Africa, National Parks, habitats, biomes and ecosystems. World National Parks (ed. Richard van Osten), Hayez, Brussels, p. 113.

² Ibid. p. 114.

To take a cue from Kenya's example, most African governments, especially West African governments, are beginning to realise that the designation and proper management of areas of outstanding natural beauty, including the remaining few tropical rain forests, as national parks, have long-term economic benefits which far outweigh their present exploitation and destruction for short-term economic gains such as timber production and agriculture.

Another important long-term benefit is that the further establishment of national parks here could undoubtedly help to stop the advancement of the Sahara Desert southwards into the tropical forest zones of the continent. The Sahara has so far extended as far as the Southern Sahel Region of West Africa (see Fig. 11.7). It is creeping inexorably southwards and urgently calls for a concerted international holding operation (West Africa, 13th February, 1984).

The Bosumtwe National Park Authority has the opportunity to develop tourism as part of Bosumtwe's tier-two status. In doing so the Authority has an important role to play in convincing the Ghana Government of the long-term economic benefits in the designation of more tier-two status national parks as a means of preventing the present exploitation and destruction of the remaining areas of outstanding natural beauty and particularly those which are rain forests.

The Authority must at the same time accept the challenge of the need to control tourism strictly by efficient planning and management to forestall any abuse, overuse and despoliation.

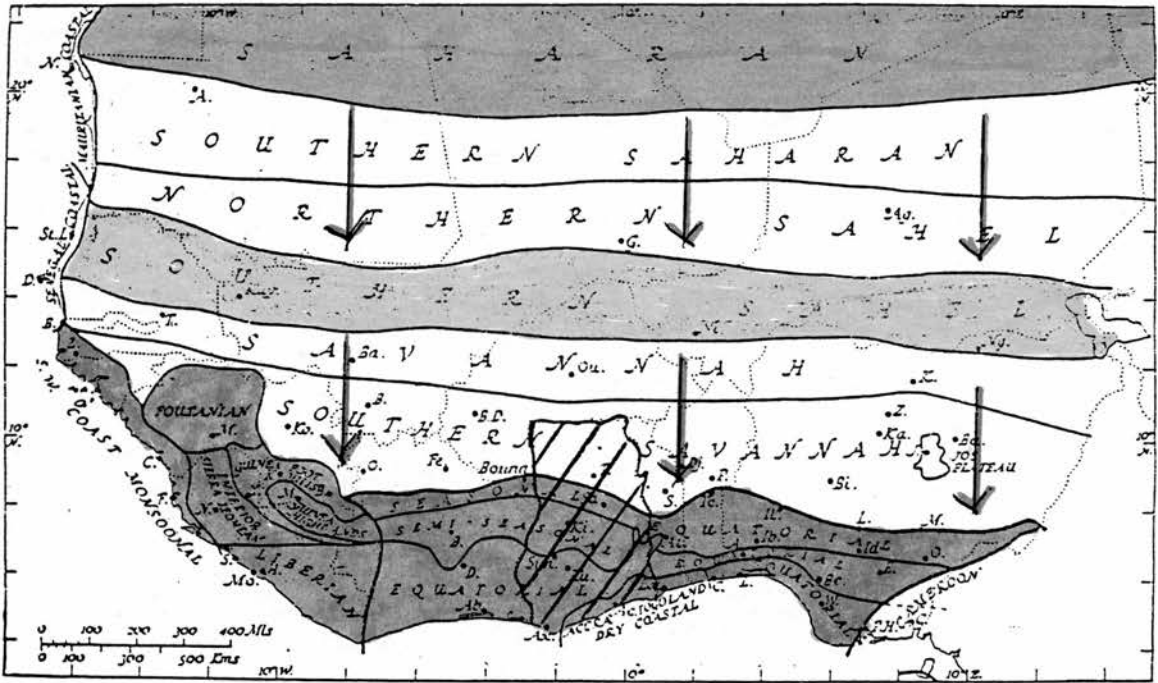






Fig. 11.7 The Sahara extending southwards to the South Sahel Region and even threatening the Equatorial Forests of West Africa (From Church, 1980, p.43)

LEGEND

	Sahara
	South Sahel Region
	Equatorial Forest
	Ghana

11.7 Summary and Conclusions

In making provision for people to visit Bosumtwe as a tier-two National Park, the Park Authority has two options. Firstly, it can choose to make Bosumtwe a day visit Park, similar in status to Nairobi National Park in Kenya. But while Nairobi Hotel which caters for day visitors is only 4 miles from the Park, the Kumasi City Hotel which might cater for visitors to Bosumtwe is 21 miles away. Is this too far or is it within acceptable reach? Secondly, Bosumtwe could establish accommodation within the Park.

It is also assumed that Bosumtwe has hotel and guest house accommodation facilities to cater for the 500 people at a time, provided outside the Park, and similar to Yosemite's redevelopment programme to reduce visitor pressure in the Park. It is also assumed that Bosumtwe has tent camping facilities to provide some cheap accommodation for youth groups.

It is further assumed that as the popularity of Bosumtwe grows, and as people become more interested in outdoor recreation in the Park, and while people have more time for leisure and have means of transport, the number of visitors to the Park will increase and consequently put visit pressure on the Lake Bosumtwe National Park.

To forestall the visitor pressure, Bosumtwe could draw upon the British and American experiences by relieving the Park of private cars and by asking visitors to park their cars in defined car parks along the park edge; and they will be encouraged to use

the Park's own transport or walk. The success of the method at Yosemite and also Goyt Valley is worth noting by the Bosomtwe Park Authority.

Tourism can be exploited by Bosomtwe by contributing to the national economy, based on long-term economic policies, aimed at earning much needed foreign currency for Ghana; and the more tier-two national parks are designated the better this position will be.

African Governments, particularly those in West Africa, by making concerted efforts to establish tier-two national parks may not only help save their ailing economies by boosting tourism but may even contribute usefully to the longer term conservation which underlies all national parks' designation. Who can say that such effort will not, for example, help to arrest the progressive extension of the Sahara?

CHAPTER XIIBOSUMTWE CASE STUDY :
THE NATIONAL PARK'S ADMINISTRATIVE PROCESSESContents :

- 12.1 Introduction
- 12.2 Staff Structure
- 12.3 Planning and Management Division
 - 12.3.1 Lake Bosomtwe
 - 12.3.2 Agriculture
 - 12.3.3 Wildlife
 - 12.3.4 Forestry
- 12.4 Information Service
- 12.5 Warden Service
- 12.6 Administration and Finance
- 12.7 The Financial Systems of Ghana, British and American National Parks
- 12.8 Summary and Conclusions

CHAPTER TWELVE : BOSUMTWE CASE STUDY : THE NATIONAL PARKS
ADMINISTRATIVE PROCESSES

12.1 Introduction

The assumption of this thesis has been that Lake Bosumtwe National Park should be a tier-two Park and that the management structure should specifically reflect this designation. That is, the Park Authority has an obligation to manage the Park to balance the various interests within it namely, those of the resident indigenous population, of the visitor population, and of nature conservation.

This Chapter, therefore, addresses itself to these proposals, outlying and discussing a possible management structure for the Park.

12.2 Staff Structure

The likely future staff structure of Lake Bosumtwe National Park is shown by Table 12.1. It is defined in three main groups essentially based on the British and American National Parks as follows:

1. Planning and Management.
2. Information and Warden Services
3. Administration and Finance.

12.3 Planning and Management Division

The Planning and Management Division will be headed by a Landscape Architect (see Table 12.1), as it is the case in Yosemite National Park, which post had been previously held by planners but they had not been successful; the present Head, Mr Donald Fox¹, a Landscape Architect, is credited with much success. The Planning and Management Division of the Park promotes the two fundamental statutory objectives of the Park: the preservation of the natural beauty of the Park and the provision of outdoor recreation for the enjoyment by public; and thus practically initiating and establishing almost all aspects involving the development of the Park from the planning of development programmes to their accomplishment and management.

¹ The Author met Mr Donald Fox in Yosemite National Park, California, during his study trip to the United States in August, 1983, and he obtained much help and information from Mr Fox.

LAKE BOSUMTVE NATIONAL PARK STRUCTURE

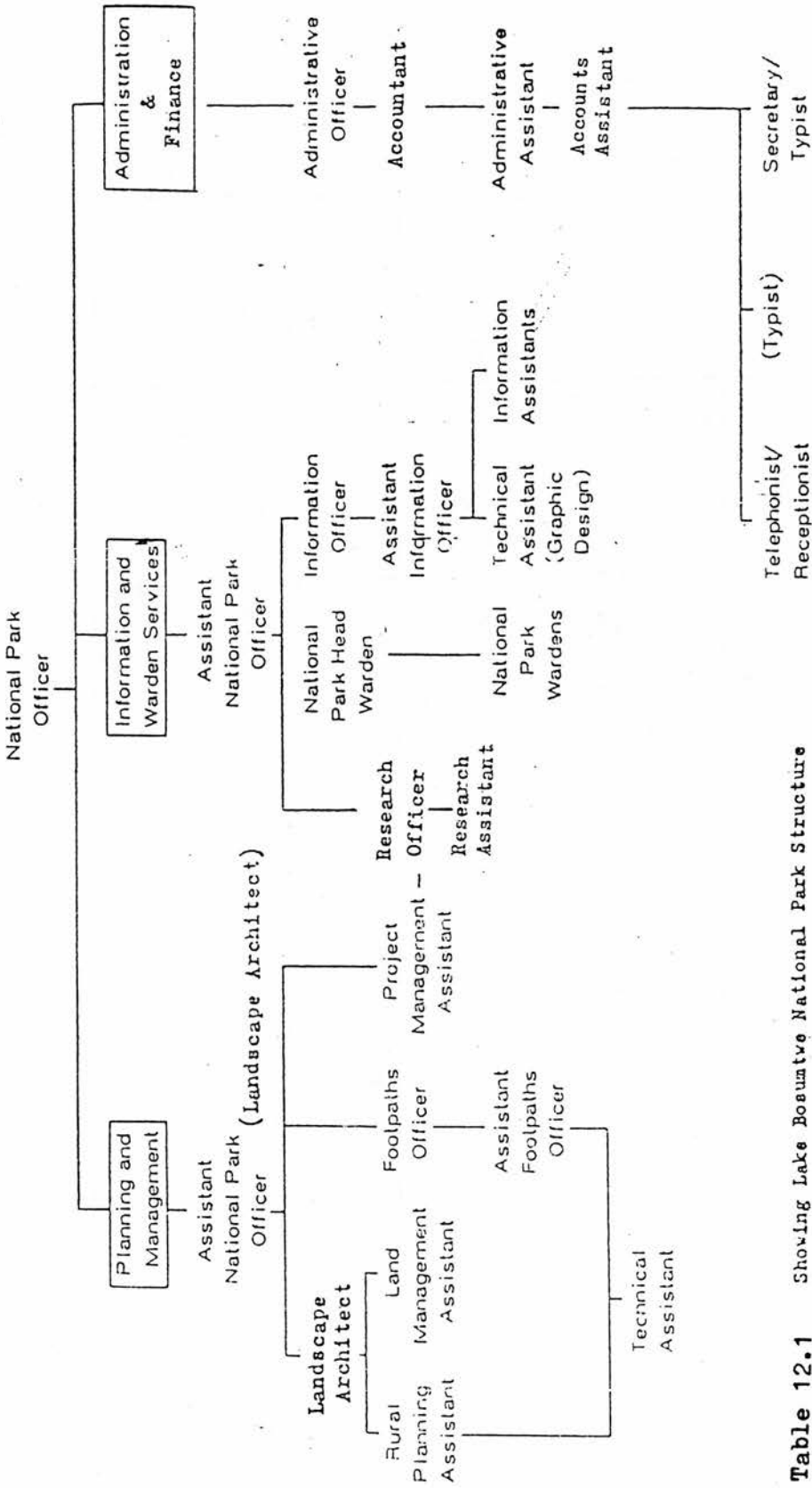


Table 12.1 Showing Lake Bosumtve National Park Structure
(Source: By Author)

12.3.1 Lake Bosomtwe

As Lake Bosomtwe belongs to Asantehene, the King of Ashanti, it is assumed that the King with the Asanteman Council, the official counselling body of the King, will accede to the National Park Authority's request to manage the Lake on his behalf and to submit an annual report to the King.

The King and the Council will also need to give the Park Management special authority permitting the purchase of land and property within the Park. It is believed that this arrangement will satisfy some aspects of the management prospects by the National Park Authority.

12.3.2 Agriculture

At present, the Lake Bosomtwe National Park Authority does not own any land within the Park (see Par. 12.3.1), but as the Park is developed the Authority should be able if necessary to buy land and own property within the Park (see Par. 12.3.1); as for example, has been the case in the British Lake District National Park since its designation in 1951. This may also give Management the option, as a last resort, to compulsorily purchase land, but lack of funds will in reality curtail the use of this option.

The Bosomtwe parkland includes relatively intensively farmed areas and those of limited agricultural use, consisting of

individual farms and plantations respectively; and thus producing a farming landscape characteristic of farming in the forest zone of Ghana.

The farming landscape of Bosumtwe is, of course, totally different from that of the Lake District National Park. There are no pastures, cattle or sheep farms; and individual farms have not been fenced with dry stone walls, hedgerows or barbed wire fences; in fact there are no fences at all.

For example, in Lake Bosumtwe National Park, a diagrammatic 20 acre farm is represented by Fig. 12.1A, and each square represents an acre (4840 yd^2) and numbers 1 to 8 showing the locations of 8 trees. Fig. 12.1B shows the representative 20 acre farm land and the locations of the 8 trees forming the boundaries. No walls or fences exist and the boundaries are only imagined as straight lines from one tree to the other. Fig. 12.1C shows the locations of the 8 trees; and Fig. 12.1D shows the fenceless or wall-less farm land. When a tree used as a boundary marker dies it has to be replaced immediately, but land owners sharing the same boundary must agree on the replacement.

The same system applies to the demarcation of boundaries of farms of few acres to plantations or forests of square miles. In addition to trees physical features like streams, rivers, hills and mountains are used in demarcating boundaries. Individuals and families often have their land privately surveyed and mapped against any future land disputes and litigation; in fact there had been instances of boundary disputes litigated upon in law courts and in traditional courts. However, a country walker can walk the whole length and breadth of without coming across a country wall or fence.

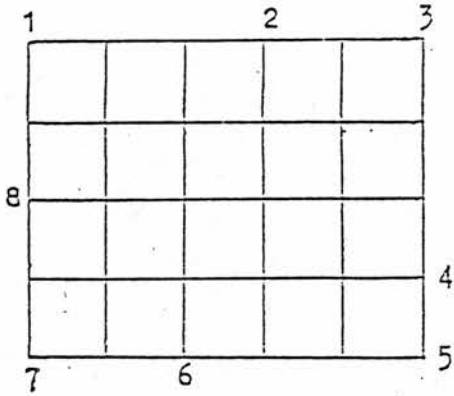


Fig. 12.1A A diagrammatic 20 acre farmland showing the locations of 8 trees.

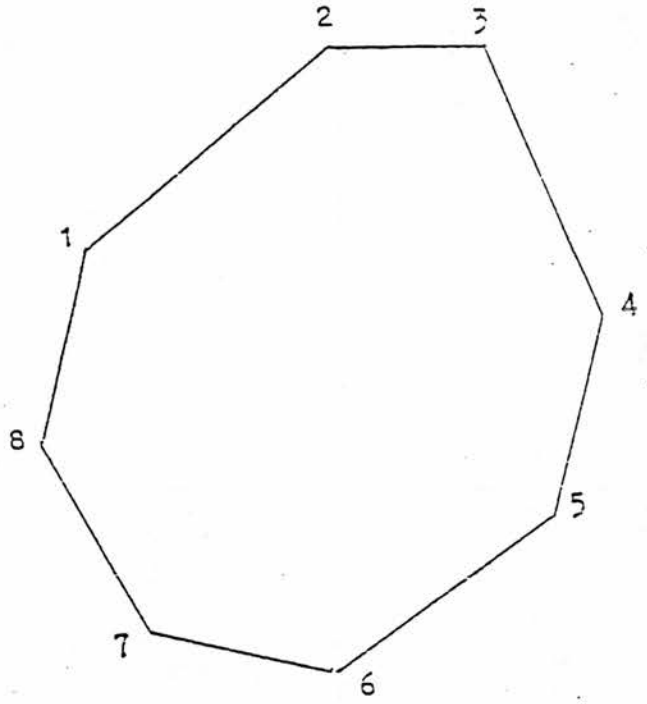


Fig. 12.1B A representative 20 acre farmland showing the locations of 8 trees and imaginary boundaries.

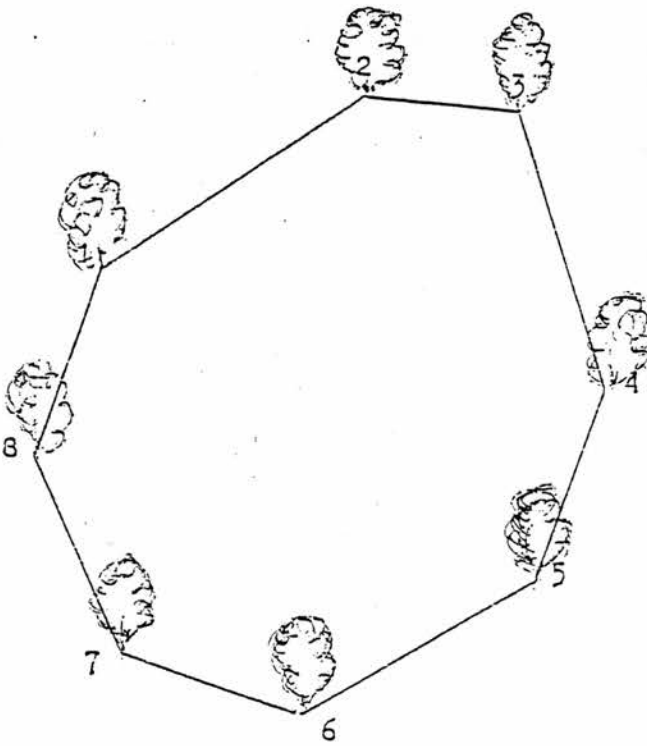


Fig. 12.1C A representative 20 acre farmland showing the locations of 8 trees and imaginary boundaries.

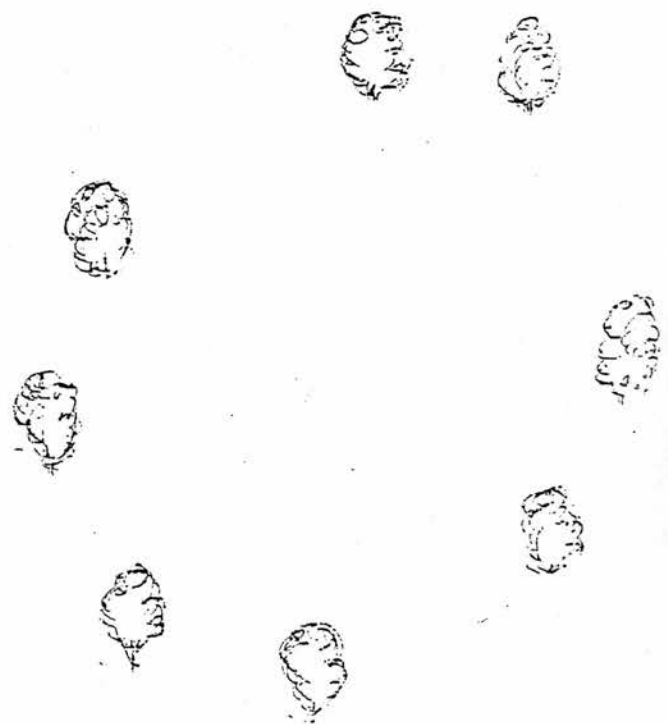


Fig. 12.1D A representative 20 acre farmland.

12.3.3 Wildlife

The ecological value of aquatic and terrestrial habitats of the Park provide sanctuaries for different species of wildlife. However, specific areas, probably apart from the Obuom and Prem Forest Reserves, will be mapped out and principally for more protection to be given to the wildlife resources of the Park; and for an increase in the number and range of habitats principally managed for the maintenance and enhancement of their wildlife value.

The management objectives will be to help conserve wildlife and in particular to increase the level of protection afforded to the characteristic wildlife habitats of the Park.

In plantations and farms species of wildlife which have been studied and known to be destructive to crops and vegetation will be trapped or hunted to reduce their population; and one such type is the grasscutter (*Thryonomys swinderianus*), a rodent, which breeds prodigiously through the whole year, and it is a major source of protein to farmers in the forest zone of Ghana.

12.3.4 Forestry

The National Park Authority will be involved in the acquisition of total ownership of existing forest types within the Park, particularly Obuom and Prem Forest Reserves. The Management Division of the Park will increase the extent of forest cover by planting suitable areas. Initially, it will be involved in specialist studies and projects. For example, it is observed

that there are no other agencies operating in the Park apart from the Department of Forestry which owns Obuom and Prem Forest Reserves (see Chap. 8). The Lake Bosomtwe National Park Authority will officially seek the transfer of ownership of Obuom and Prem Forest Reserves from the Department of Forestry.

The intention will be to eliminate any possible conflicts that may arise between the Department of Forestry and the Park Authority as regards those two reserves. For example, whilst the Forestry Department may, in future, wish to exploit the reserves commercially, the Park Authority may want to retain their luxuriant climax form as a resource to the Park for their scientific and nature study, since these reserves are the only two of major significance in the Park.

To solve the administrative implications of the transfer, all the Forestry personnel of the Reserves will be absorbed by the Authority and included in 'Land Management' under the Division of Planning and Management (see Table 12.1).

In relation to forestry, the Lake Bosomtwe National Park Authority has the following objectives: To protect existing forests in the Park from any commercial exploitation, promote their ecological value; and to safeguard natural features which contribute to variety in the forest landscape and the richness of its wildlife.

12.4 Information Service

This is of vital importance in Bosomtwe as a tier-two Park, and as it is the chief means of communication of the Park's purposes. In Bosomtwe, the Service will be headed by an Information Officer, assisted by Information and Technical Assistants (see Table 12.1).

The primary role of the Bosomtwe Park's Information Service will be to help visitors to enjoy and appreciate the Park and to provide their good conduct. The Information Service's role is not to attract visitors to the Park, that role will be adequately carried out by the Ghana Tourist Board in particular. Most of the Information Service's work will be interpretative, that is, it will seek to broaden the visitors' understanding of the Lake Bosomtwe National Park to stimulate interest and to modify existing attitudes.

The Lake Bosomtwe National Park Information Service will be organised simply and directly on the British pattern, particularly that of the Lake District National Park, rather than on the more sophisticated American system, as both have been visited and studied by the author. However, that will be complemented with some aspects of information experiences from the American Yosemite and Crater Lake National Parks.

In fact, in Bosomtwe the Park's Information Service will give information about almost every aspect of the Park, and about what really the Park does and the facilities available to visitors for their enjoyment. All that will be printed in English, the official language of Ghana, as well as in other major Ghanaian languages already established such as Akan, Ga and Ewe by the country's

Department of Information to satisfy about 70 to 80 per cent of the population.

In Bosumtwe the Information Service intends to allow schools and colleges to play an important role in its information programmes. For instance, the Service will organise information programmes in schools and colleges, and also in camp sites for youth groups.

The interpretative aspect of information is an example taken from those which have been developed at Yosemite Valley Centre in Yosemite National Park, California; at Crater Lake Centre in Crater Lake National Park, Oregon; and at the Lake District National Park Centre, Brockhole, in the Lake District National Park, Cumbria. For example, Brockhole opened in 1969, was the first National Park Centre to be established in Britain and it is widely recognised as a pioneer of National Park interpretation. The basic aim of the Centre is educational and it draws in around 180,000 visitors a year, ranging from individuals and families on holiday to school parties and students (Taylor, 1978, p.138). The Centre offers a series of interpretative displays, lectures and publications, which are designed to further visitors' understanding and enjoyment of the Park. Bosumtwe will adopt and adapt this system initially on a small scale and will gradually expand it as the Park's Information Service's functions expand.

12.5 Warden Service

The British National Park Warden Service and the American National Park Ranger Service have essentially similar functions, their only significant difference being in the British National Parks' use of the term 'Warden' and the American of 'Ranger'. For instance, the British Lake District National Park Warden Service is headed by a Head Warden, supported by ten Wardens. In summer about fifty weekend Wardens are employed during peak usage of the Park; and there are also over 300 voluntary wardens.

At Lake Bosomtwe it will be suitable for the Park Authority to use the term 'warden' in order not to confuse the term 'ranger' already in use by the Ghana Forestry Department. The Lake Bosomtwe Warden Service, like that of the Lake District, will be headed by a Head Warden under whom about eight warden will work. But the advance manpower requirements of the Park's Warden Service will be reassessed at the time of annual budget as and when the need to carry out additional duties arises.

The Lake District National Park Warden Service like the American Ranger Service of Yosemite National Park, or that of the Crater Lake National Park, has a number of functions mostly field operations and cover almost all aspects of conservation methods of the various resources of the Park as well as facilities provided for public enjoyment. For instance, it is responsible for the general landscape maintenance and improvement work in the Park, the maintenance of footpaths and trails, and the collection of litter. It organises various courses and guided walk programmes.

For example, in Lake Bosumtwe National Park, there are no well defined trails, but there are major footpaths that link up one village with another; in the end trails are formed which by their local use have to pass through villages. On the other hand a trail in the Lake District National Park, by its recreational use, does not necessarily have to pass through a village.

In Bosumtwe these trails and major footpaths are maintained by clearing the sides of overgrown bushes and filling holes by using organised village communal free labour in every three months. One significant aspect is that in the rainy season the bushes on both sides of the paths are left to grow in order to check water run-off and erosion.

The Lake District National Park Warden Service's functions are stated as:

1. To give help and advice to visitors.
2. To promote safety measures.
3. To do general estate maintenance work.
4. To enforce the Park's bye laws and other laws concerned with the conservation of the Park.

Relating the application of the above four functions to Lake Bosumtwe National Park, it is true to say that visitor/s to the Park for the first time will want to see the crater and the Lake before anything else and particularly to enjoy the panoramic views of Bosumtwe. Those visiting for the second time or more may be tempted to explore further. Both groups of visitors are helped by the wardens who should be able to advise and direct unobtrusively.

For example, sometimes wardens may organise walks to the Lake's shores to watch the local fishermen at work; or visiting Obuom and Prem Forest Reserves to observe the birds and butterflies. Visitors may even be persuaded to walk some distance up the mountains of Obuom, Prem, Ntibo and Beposei. They can enjoy the unique vegetation of the cocoa plantations, see how the pods are harvested, how the beans are fermented and dried. These are but a few of the Park's many attractions.

The major safety precautions of the Park Plan will be to protect the various ecosystems of the Park. The latter will have been carefully mapped out and protected against public misuse; they include the Lake shore ecosystem; forests, mountains and hill's ecosystems; and plantation and farming practices such as the application of fertilizers and chemicals, and even burning of cleared bushes.

The general maintenance work includes all practical field operations concerning every aspect of the Park, such as maintenance of footpaths, the control of soil erosion, the removal of accidental road blocks like fallen trees; and advising visitors of the maintenance of the Park all for their enjoyment.

The enforcement of the Park's bye-laws is related to the human habitation factor within the Park and local residents will be required to observe, for instance, the submission of building plans for approval; by instituting the use of local materials in building, in compliance with the preservation of the natural beauty of the Park as much as possible.

12.6 Administration and Finance

This Division will consist of two sections, Administration and Finance, headed by an Administrative Officer and an Accountant respectively (see Table 12.1).

The Administrative Officer will be assisted by an Administrative Assistant, Secretary/Typist and a Telephonist/Receptionist (see Table 12.1). The Section will administer the general administrative functions of the Park.

The Accountant, assisted by an Accounts Assistant, will control the financial operations of the Park: the preparation and payment of salaries and allowances, the payments of purchases made on behalf of the Park, and the preparation of the annual budget of the Park.

12.7 The Financial Systems of Ghana, British and American National Parks

Ghana's existing five National Parks are tier-one designated Parks; that is, none of them has human habitation within its boundaries. And these five Parks receive their approved annual budget allocations from the National Treasury.

Lake Bosomtwe National Park having been designated on the assumption of being a tier-two Park is totally different from any of those five Parks; that is, there is human habitation within the Park. Because of Bosomtwe's peculiar situation it is assumed that the Government of Ghana has two possible options within which it could settle the Park's annual budget.

Firstly, the Government of Ghana might opt to financially support the Park by catering for all its annual budget allocations through the Ghana National Treasury, and that would be a straight forward matter. Secondly, the Ghana Government might choose to support the Lake Bosomtwe National Park by some form of annual financial grant which would be somewhat difficult to administer than the first.

Let it be assumed that the Ghana Government has decided on the second option by offering to give the Lake Bosomtwe National Park Authority a National Park Supplementary Grant of about 75 per cent of the Park's annual budget. The Authority has therefore to find the remaining 25 per cent of its budget. At this stage it would be necessary to very carefully consider the possible roles of private enterprise and how these have been exploited by other long established tier-two parks like those in Britain.

For example, we may note that following the financial allocations introduced by the British Government on 1st April, 1974 based on the Local Government Act, 1972, the expenditure on British National Parks is met from three sources, namely:

1. Income from charges and the like paid by the public.
2. National Park Supplementary Grant (NPSG).
3. County Council contributions.

British National Parks derive some income from their properties and operations such as car parks, boat parks, entrance fees, camp sites, caravan sites and so on.

The main National Park financial issue was settled in the Local Government (Finance) Act, 1974 which provided for a National Park Supplementary Grant (NPSG) to be paid to the county councils separately from the local authority Rate Support Grant (RSG). That is, the National Park Committee's expenditure is financed by the county council or councils for their estimated net expenditure. The Department of the Environment pays NPSG to the county councils whose areas include the whole or part of a Park in respect of their estimated net expenditure. The aggregate amount of the NPSG is determined in the context of the general Rate Support Grant negotiations and usually equals 75 per cent of the estimated expenditure as the Secretary of State considers it is appropriate to take into account. The Department of the Environment then divides the aggregate grant among the National Parks and the county councils concerned after consultation with the Countryside Commission. The remainder 25 per cent of the expenditure has to be found by the county councils out of their own funds basically the rates and Rates Support Grant.

The above has much significance to the Lake Bosomtwe National Park because it is situated within three different administrative areas consisting of Kumasi City Council, Amansie District Council and Adansi-Banka District Council. Lake Bosomtwe itself belongs to Asantehene, the King of Ashanti and that the King and the Asanteman

Council, the King's counselling body, have some significant control over the Park.

The assumption, therefore, is that it is likely that these four bodies will have to contribute more of the Park's 25 per cent annual budget deficit. A very appropriate apportionment of this burden might be as follows:-

Asanteman Council	10%
Kumasi City Council	8%
Amansie District Council	4%
Adansi-Banka District Council	3%
Total	<u>25%</u>

It is assumed that the Lake Bosomtwe National Park Authority confirms that the adoption and application of the British National Park financial system very much suits and fulfils its local conditions.

The United States National Parks are all tier-one designated Parks under the National Park Service within the Ministry of Interior. The National Park Service's annual budget including that of the National Parks is submitted by the Secretary of State to Congress for approval and when approved it is operated by the National Treasury. This is similar to that of tier-one National Parks in Ghana discussed earlier in this Chapter. That is, the annual budget for tier-one Parks in Ghana is submitted by the Minister for Agriculture to the Ghana Parliament for approval and when approved it is operated by the Ghana National Treasury.

The only thing which is different about the United States National Parks' annual budget is that it is prepared, submitted and approved three years in advance. However, there is provision to cover inflation within the three year lapse, from the time of approval to the time of actual application of the budget. For example, the annual budgets for Yosemite National Park and Crater Lake National Park for 1986 were submitted and approved by the Congress in 1983; and that for 1989 will be submitted for approval this year, 1986.

The United States does not have any tier-two National Parks. The National Park Service's experience based on a tier-one financial system does not offer much help to the Lake Bosumtwe National Park model.

12.8 Summary and Conclusions

The Lake Bosumtwe National Park is headed by a National Park Officer who is directly assisted in the management of the Park by sectional heads of the three main divisions of the Park, namely: Planning and Management; Information and Warden Services; and Administration and Finance.

The management of the Park relies very much on the British system, particularly that of the Lake District National Park, which is also intended to consolidate Bosumtwe's position as a tier-two designated Park.

The principal aspect has been to adopt and adapt some major and minor issues to reflect the local significance of the Lake Bosumtwe National Park.

PART IV

CHAPTER XIII

SUMMARY OF OVERALL
ARGUMENTS, DISCUSSIONS AND CONCLUSIONS

SUMMARY OF OVERALL ARGUMENTS, DISCUSSIONS AND CONCLUSIONS

The conceptual approach and the subsequent arguments and discussions of this thesis are governed by the fact that national parks are designated on two basic principles internationally accepted as being: the preservation of a nation's areas of outstanding natural beauty and the provision of outdoor recreation of such areas for the enjoyment by a nation's population.

This thesis has examined critically the existing concept of the national park since 1872 and particularly since 1969 when it was formalized as an international concept by the International Union for the Conservation of Nature and Natural Resources (IUCN), an agency of the United Nations.

The examination has included reviewing the historical background of some national parks and in particular the differences between British and American National Park in developing the central argument of this thesis.

In so doing, it has considered whether the existing IUCN type of national park has partly outlived its usefulness, and how inadequacies identified might be forestalled by the provision of a new concept, the application of which might particularly suit currently prevailing circumstances in Africa.

The thesis has argued that the existing national park concept wherever possible is still very desirable; but it is becoming increasingly less practicable as human population pressures exert ever increasing demands upon land, and including land of outstanding natural beauty.

The study proposes a tier-two concept and argues that such a concept is not particularly new because a form of it has been in practice at least in British National Parks since 1951; and in effect also elsewhere, for example, in upgraded African game reserves with indigenous population before redesignated as national parks. What may be new about it may be its wider acceptability and applicability in the future.

The research also warns of the danger of shortsightedness where a country might be tempted because of short-term benefits to downgrade some of its old national parks to tier-two national parks; and also the temptation that once such a precedent is set it will be very difficult to regulate acceptably. Hence, the study advises that tier-two designation should only be applied to new identified areas of outstanding natural beauty where there exists some form of human habitation at odds with a tier-one designation.

To test the wider validity of such a concept the thesis then proposes a hypothetical test case by which Lake Bosomtwe an inhabited area of outstanding natural beauty in Ashanti, Ghana, might be designated as a tier-two National Park.

Comparisons are made particularly between Lake Bosomtwe and Crater Lake in Oregon, United States, and the Lake District National Park in the United Kingdom. The comparative study is

sustained in that the two Lakes, Lake Bosumtwe and Crater Lake, share close physical similarities.

The assumption is that for the test purposes for this thesis Lake Bosumtwe is selected and designated as a tier-two National Park, with relevant adaptations of British and American practice. The Lake Bosumtwe National Draft Park Plan, the official document for the management of the Park, is modelled to draw upon the experiences of the management of the British tier-two National Parks, particularly the Lake District National Park. Equally important experiences of other British National Parks, such as the Peak District National Park, and the American Crater Lake and Yosemite National Parks are relied upon and used.

The five main sections of the Lake Bosumtwe National Draft Park Plan consist of the following:

1. Natural Physical Resources.
2. Natural Living Resources.
3. Resident Population and Social Characteristics.
4. Visitor Recreation; and tourism.
5. Administrative Procedure, Staffing and Finance.

Apart from Section One which is treated in Appendix II, each Section is discussed and in relation to its overlapping interest with other Sections. The main theme of discussions throughout these fourr sections of the Draft Park Pan has been to consolidate the viable application of the tier-two designation of Lake Bosumtwe National Park.

Chapter 9 which deals with Section 2 of the Draft Park Plan confirms that the Natural Living Resources which depend on the Natural Physical Resources for survival, form the ecological characteristics of the area and contribute immensely to the natural beauty of the Park. Chapter 9 therefore sets the guidelines for the management of the aquatic and terrestrial nature of Bosomtwe in relation to the existing local conditions in the Park.

Chapter 10 discusses Section 3, the social and economic aspects of the Park and their contribution to the well-being of the local residents within the Park. This Chapter attempts to eliminate the adverse social and economic impacts which may distort the natural beauty of the Park. In so doing, this Chapter established in the Lake Bosomtwe National Draft Park Plan the management principles considered favourable and acceptable to all the parties concerned, namely: the local communities, the Asantehene, King of Ashanti and the Bosomtwe National Park Authority. It is established that there are no and will be no industrial developments within the Park, and that their absence is a likely precondition for the conservation of the natural beauty of the Park.

Chapter 11 deals with Section 4, the Visitor Resources of the Park and tourism. The Chapter again draws on the British and American experience. It then develops in the Bosomtwe National Draft Park Plan management principles for visitor resources considered suitable to local conditions in the Park. Tourism in the Park aims at a long-term economic interest based principally on overseas visitors as a means of earning foreign exchange, much needed by the Government to prop its ailing economy, as is the case, for example, in Kenya.

Chapter 12 discusses Section 5, the administration, staffing and finance of the Park. A greater part of this study has been derived from the experience of the British National Park system; and discusses in the Lake Bosomtwe National Park Plan the best possible means of implementation by adopting and adapting the system to suit local conditions in the Park.

It is assumed that the Lake Bosomtwe National Draft Park Plan has been approved by Ghana's Minister of Agriculture, responsible for National Parks in Ghana, as the official document for the management of the Park for the next years, that is from 1986 to 1996, and subject to review in every five years. And that upon official approval, the Draft Park Plan is now to be called "The Lake Bosomtwe National Park Plan".

It is, therefore, concluded that the two national park concepts: the existing one as the old, and the new one which this thesis advocates, do not come into conflict with each other; but both can co-exist, each functioning independently of the other, but with the same objectives of preserving natural areas of beauty and providing outdoor recreation for the enjoyment by the public. The thesis does not advocate that the old concept should be abolished or changed in any way; it should operate on its own level as the first or tier-one level of the national park concept, and the new concept as the second or tier-two level of the national park concept.

The application of the tier-two new national park concept will help establish more national parks than otherwise will be the case; particularly in Africa where the population growth is explosive, between 2.5 and 4 per cent annually, and with an insatiable demand for more agricultural land. It also confirms that most areas of outstanding natural beauty seem to contain some form of human existence.

It testifies that though for the purposes of this research the designation of Lake Bosumtwe as a tier-two National Park is a hypothetical test case, underlying it is a sense of reality which the author intends to explore by advocating the cause and by mounting a national campaign for the designation of Lake Bosumtwe as a tier-two National Park to demonstrate the validity of the new national park concept.

It is hoped that the Bosumtwe Park's promulgation will be effected as soon as possible by the Government of Ghana; and which also prove the validity and the applicability of the tier-two system of the new national park concept.

The future success of Lake Bosumtwe National Park will, it is hoped, convince other African countries to accept it as a companion to the existing national park concept; and on its continental success the IUCN will see it as a threshold to an international concept which cannot be simply ignored but formalized as second or alternative to the existing national park concept.

APPENDIX I

THE DELIMITATION OF REGULAR AND IRREGULAR PARKS' BOUNDARIES

In Ghana the British Government established many forest reserves in several parts of the country from 1900 to the 1940s; and its five National Parks were originally forest reserves before their conversion into Parks by Ghana Parliamentary National Park's Act, between 1971 and 1976 (see Fig. 1).

The shape of each forest reserve was determined by the extent of forest vegetation at a particular area and how much of it was needed for reservation. The promulgation of Ghana's National Parks' Act was based on the IUCN criteria (discussed later in this Appendix) and the conversion of those five reserves into National Parks was also based on the IUCN criteria which rather do not make any distinctions between the two sets of criteria, that for Park selection and those for the determination of Park boundaries.

Ghana's five National Parks are namely: Mole National Park, 1900 sq. miles; Digya National Park, 1200 sq. miles; Bui National Park, 800 sq. miles; Nini-Suhien National Park, 63 sq. miles; and Bia National Park, 30 sq. miles (see Fig. 1).

These five Parks are all irregularly shaped (see Fig. 1), unrelated to Ghana's National Survey Grid System based on (1) the Universal Transverse Mercator (UTM) grid and the (2) the specific Transverse Mercator Projection (TMP); (The UTM and TMP are further discussed in this Appendix. The UTM refers to a network of two families of uniformly spaced straight parallel lines intersecting at right angles as system of squares on a map (see Fig. 2) where such squares are clearly indicated on a Map of Ghana showing 'Wildlife Conservation Areas'.

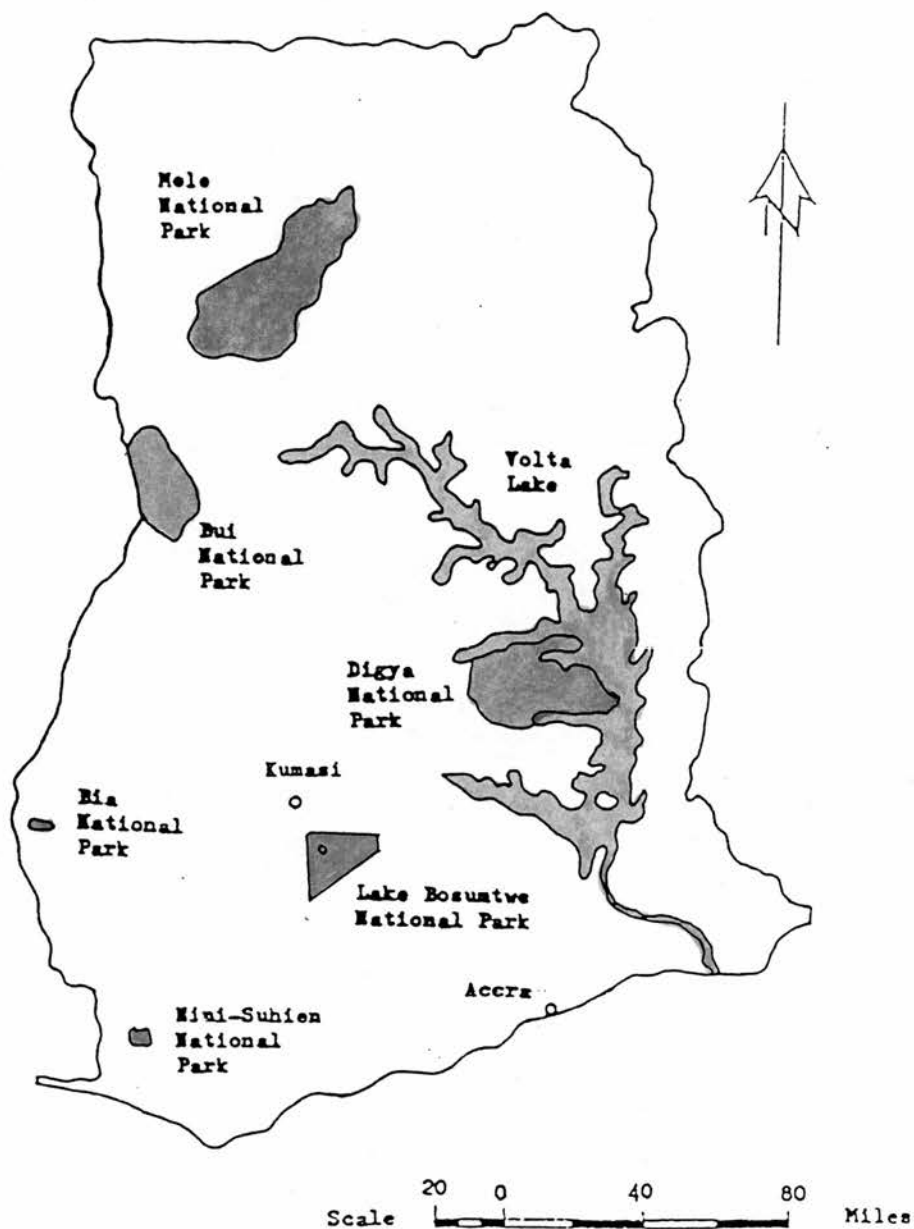


Fig. 1 The National Parks of Ghana: Mole, Digya, Bui, Nini-Suhien and Bia, and the proposed Lake Bosumtwe National Park (From The Surveys of Ghana, 1979)

GHANA - WILDLIFE CONSERVATION AREAS

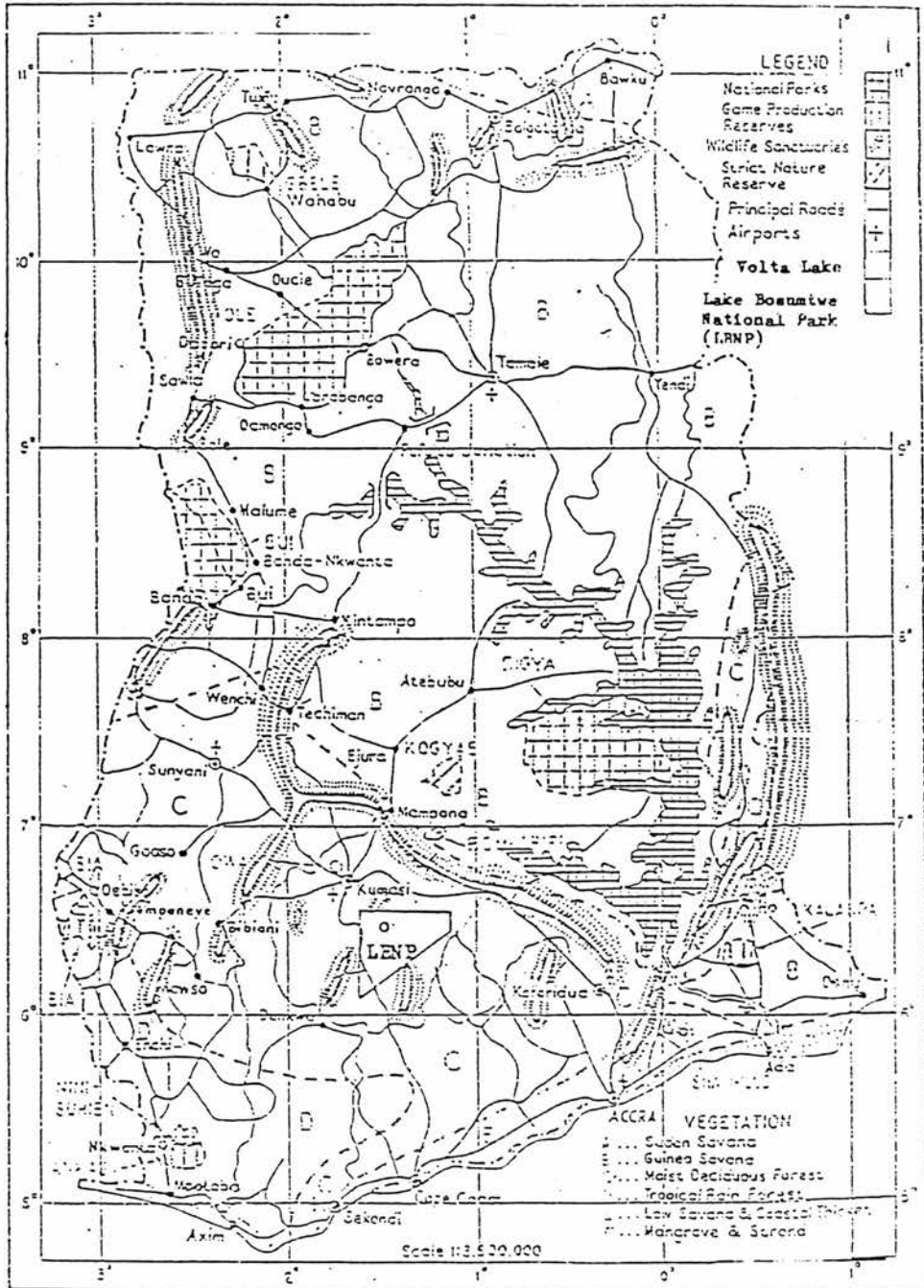


Fig. 2 Showing Ghana's National Survey Grid of square formation; the country's existing five National Parks and Proposed Lake Bosomtwe National Park (LBNP) (From The Survey of Ghana, 1979)

So far as the author is aware these five National Parks' boundaries have not caused any conflicts, for example, in land ownership and land use and probably never will. It also shows that these Parks do not necessarily need regularly shaped boundaries related to the National Grid to survive. Again it shows that these Parks could have taken other boundaries either regularly shaped related to the National Grid or regularly shaped unrelated to the National Grid without causing any problems in land ownership and land use. It is assumed that the application of the latter has been used in this case. However, the end product that the Bosumtwé Park boundaries are regular and geometrically shaped have to be proved and justified that other countries have regularly shaped park boundaries.

Figures 3 and 4 show the National Grids of Kenya and Tanzania (in Africa) respectively. The sheet lines of these two National Grids are based on latitudes and longitudes showing the application of the Universal Transverse Mercator (UTM) grid, and the Transverse Mercator Projection (TMP). Both the Universal Transverse Mercator (UTM) and the Transverse Mercator Projection (TMP) can be used in defining accurately any types of boundaries, for example, in straight, parallel or irregular lines (Harley, 1975); as shown in the national boundaries of Kenya and Tanzania (see Figs. 3 and 4).

1:250,000 TOPOGRAPHICAL MAPS (Y503)

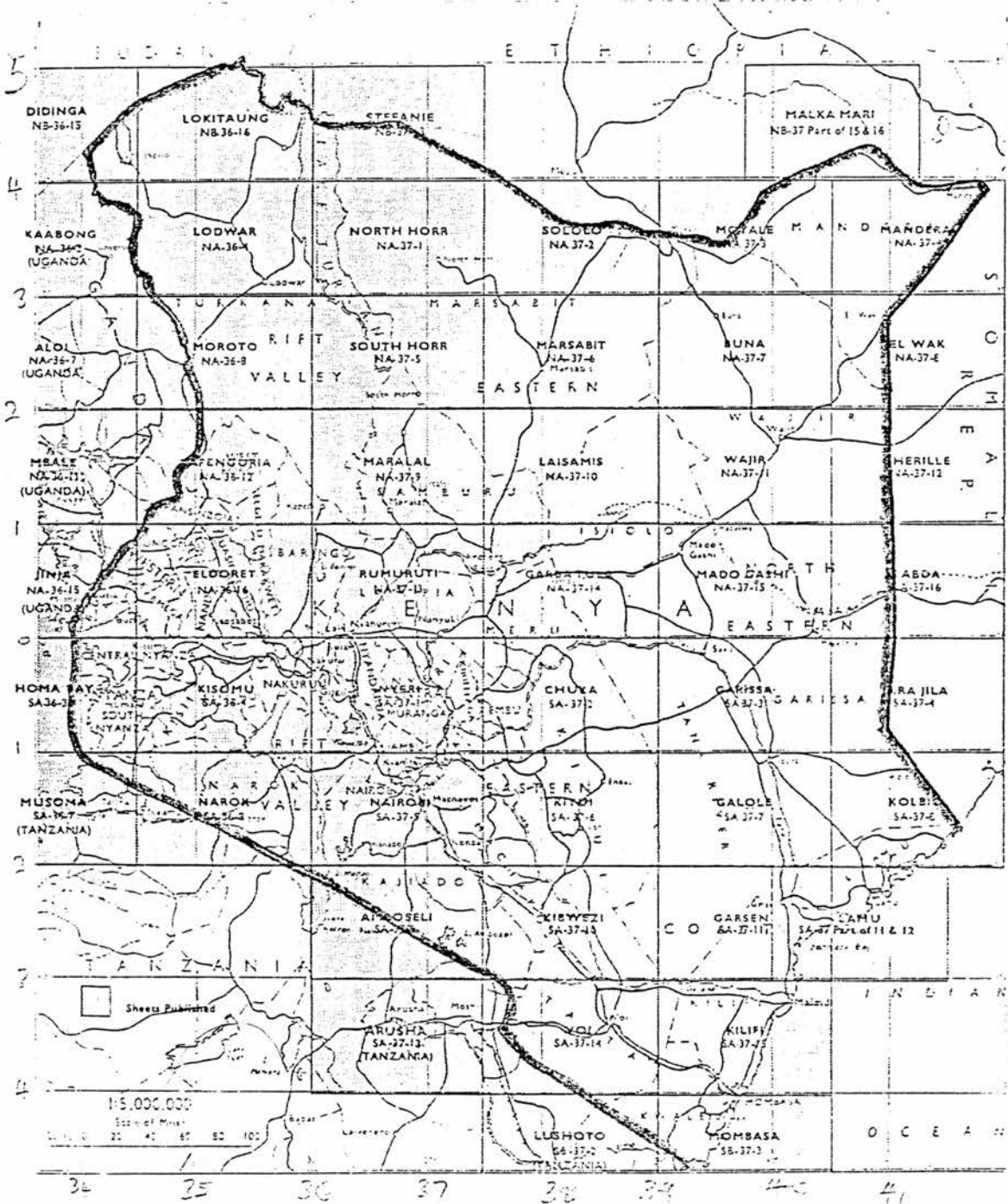


Fig. 3 Map of Kenya, showing the country's National Grid, and the national boundaries in straight and irregular lines
(From Kenya Catalogue of Maps, 1976)

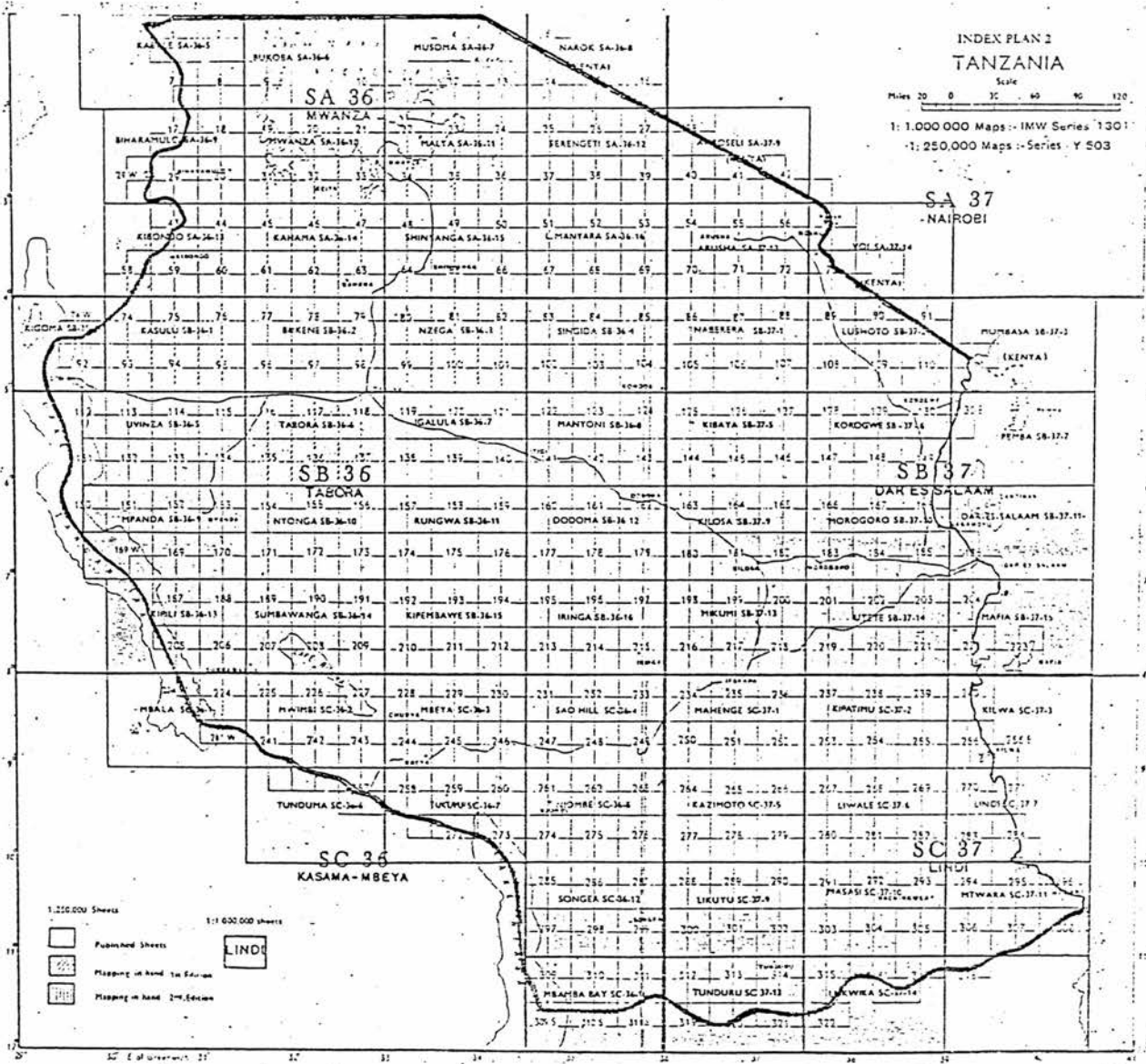


Fig. 4 Map of Tanzania, showing the country's National Grid, and the national boundaries in straight and irregular lines (From Tanzania Catalogue of Maps, 1983)

In Africa, Kenya and Tanzania (see Figs. 5 and 6), have some national parks and nature reserves whose boundaries have been demarcated in straight lines, such as follows:

KENYA

Amboseli National Park (see Fig. 7).

Aberdare National Park (see Fig. 8).

Masai Mara National Reserve (see Fig. 9).

Marsabit National Reserve (see Fig. 10).

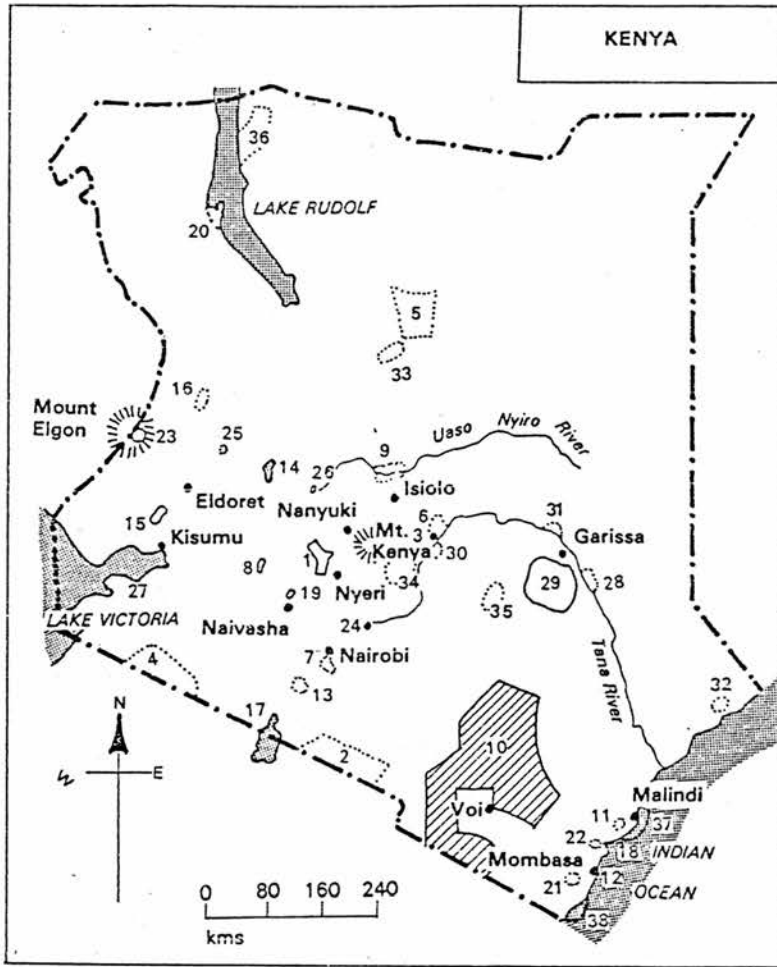
TANZANIA

Tarangire National Park (see Fig. 11).

The description of the natural living resources of these parks and reserves show that Amboseli consists of plains, swamps and marshes; Masai Mara has rolling plains; and Marsabit is a desert wilderness with Marsabit forest standing in the centre of the reserve as oasis; and Tarangire also consists of open plains; and of course they are all game parks and reserves. Unfortunately, no information is available for the criteria upon which these parks and reserves were selected, and neither is there any information available for defining the criteria for selecting their boundaries. From the author's point of view, in a desert area or open plains, it is much easier to demarcate the boundaries of a park or reserve in straight lines without much difficulty or hindrance, and probably that might have been the reason in these cases. However, these parks and reserves have all been published in the United Nations List of National Parks and Equivalent Reserves (1971); and thus showing that they had satisfied the IUCN criteria for their designation and hence giving them the prestigious recognition officially and internationally in

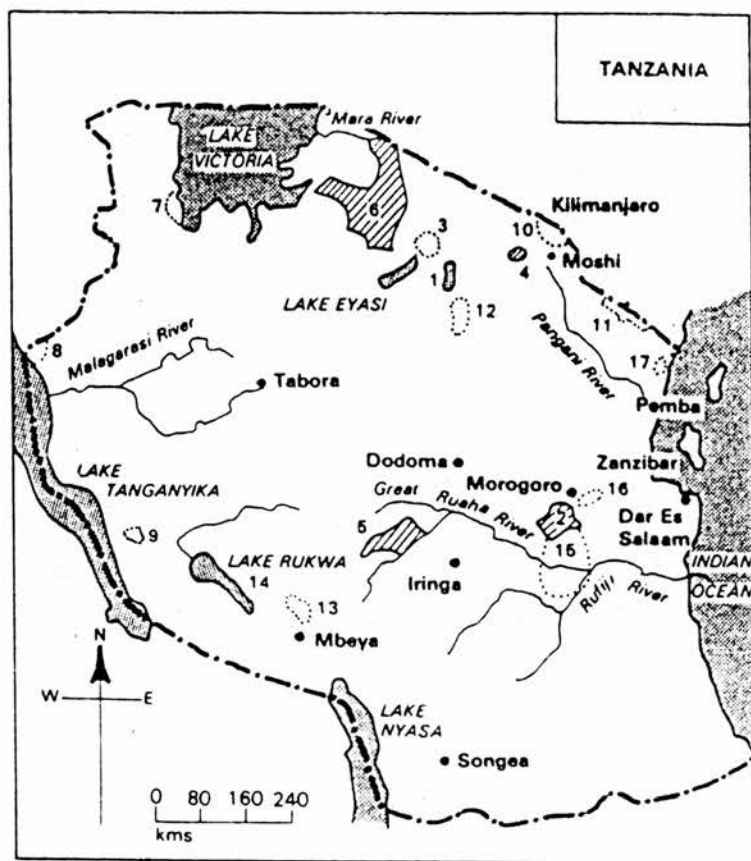
the U.N. List of National Parks and Equivalent Reserves.

However, it is abundantly clear that the management of the resources of all of these Kenyan and Tanzanian Parks again and again bears little relation to their demarcated boundaries, and indeed calls into question the whole idea of even attempting to such boundaries. And of course, the more management has to contend with problems of human settlement the more contentious such fringed boundaries become. Nevertheless, this is more than in British National Parks.



- | | | | | | |
|----|----------------------------------|----|-----------------------|----|-------------------------------|
| 1 | Aberdare NP | 14 | Lake Baringo | 28 | Arawale GR |
| 2 | Amboseli NP | 15 | Kakamega Forest | 29 | Boni GR |
| 3 | Mt Kenya NP | 16 | Kongelai Escarpment | 30 | Kora GR |
| 4 | Masai-Mara GR | 17 | Lake Magadi | 31 | Rahoie GR |
| 5 | Marsabit NR | 18 | Mida Creek | 32 | Dodori NR |
| 6 | Meru NP | 19 | Lake Naivasha | 33 | Losai NR |
| 7 | Nairobi NP | 20 | Ferguson's Gulf | 34 | Mwea NR |
| 8 | Lake Nakuru NP | 21 | Shimba Hills NR | 35 | Ngai Ndethya NR |
| 9 | Samburu-Buffalo Springs-Shaba GR | 22 | Sokoke-Arabuku Forest | 36 | Sibiloi NR |
| 10 | Tsavo NP | 23 | Mt Elgon NP | 37 | Malindi and Watamu Marine NPs |
| 11 | Gedi NP | 24 | Oi Doiyo Sabuk NP | 38 | Kisite-Mpungut Marine NP |
| 12 | Fort Jesus NP | 25 | Saiwa Swamp NP | | |
| 13 | Olgorgesailie NP | 26 | Lake Bogoria NR | | |
| | | 27 | Lambwe Valley GR | | |

Fig. 5 Map of Kenya showing its National Parks and Nature Reserves
(From Williams, 1981)



- | | | |
|-------------------|-------------------|-------------------------------|
| 1 Lake Manyara NP | 7 Biharamolo GR | 13 Poroto Mountains |
| 2 Mikumi NP | 8 Gombe Stream GR | 14 Rukwa Valley |
| 3 Ngorongoro CA | 9 Katavi Plain GR | 15 Selous GR |
| 4 Arusha NP | 10 Kilimanjaro NP | 16 Uluguru mountains |
| 5 Ruaha NP | 11 Mkomazi GR | 17 Eastern Usambara Mountains |
| 6 Serengeti NP | 12 Tarangire NP | |

Fig. 6 Map of Tanzania showing its National Parks and Nature Reserves
(From Williams, 1981)

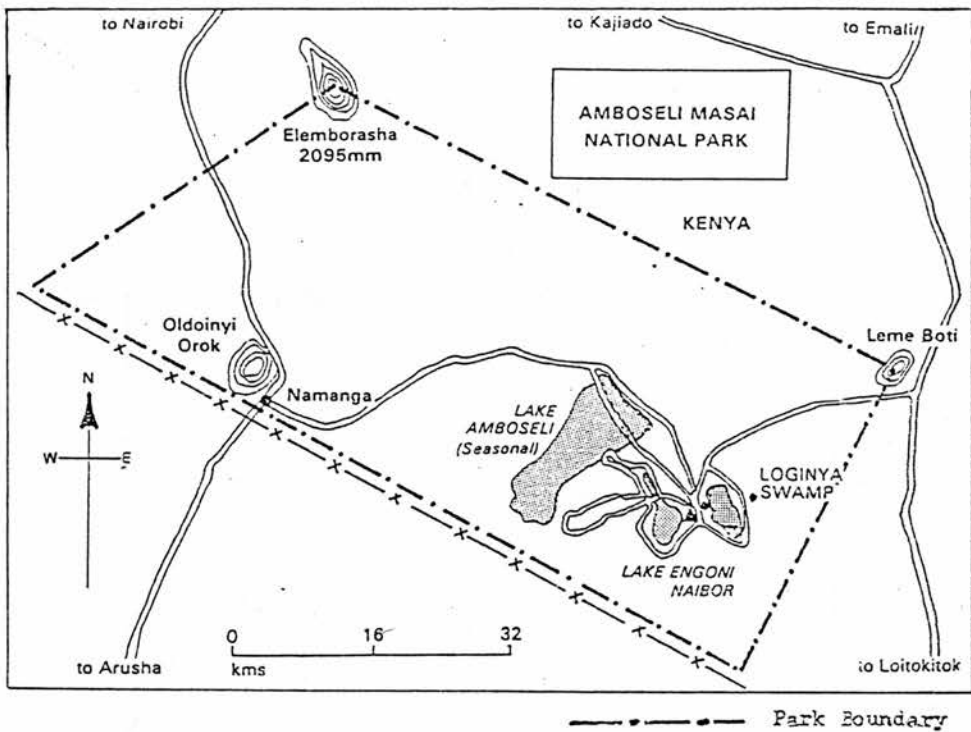


Fig. 7 Amboseli Masai National Park is a quadrilateral (From Williams, 1981)

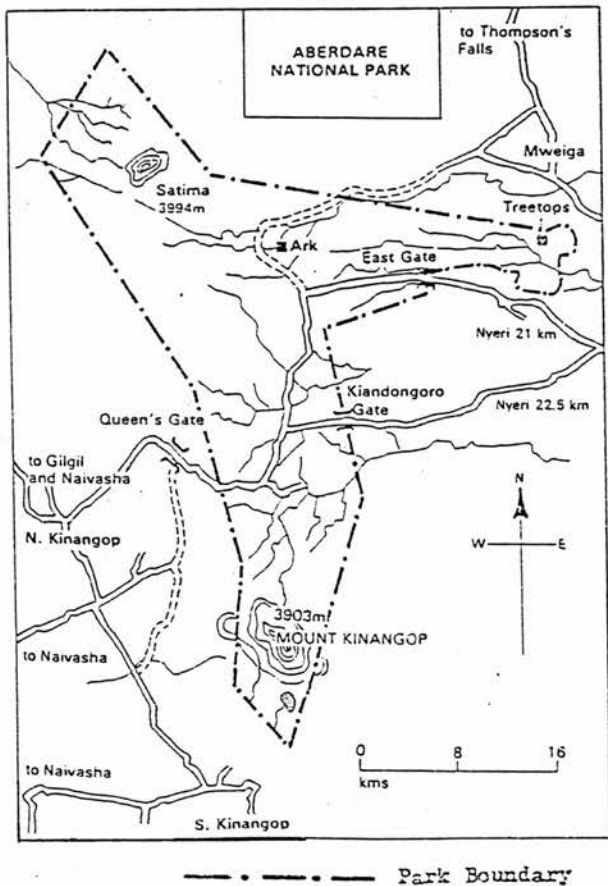


Fig. 8 Aberdare National Park The Boundaries are almost straight lines (From Williams, 1981)

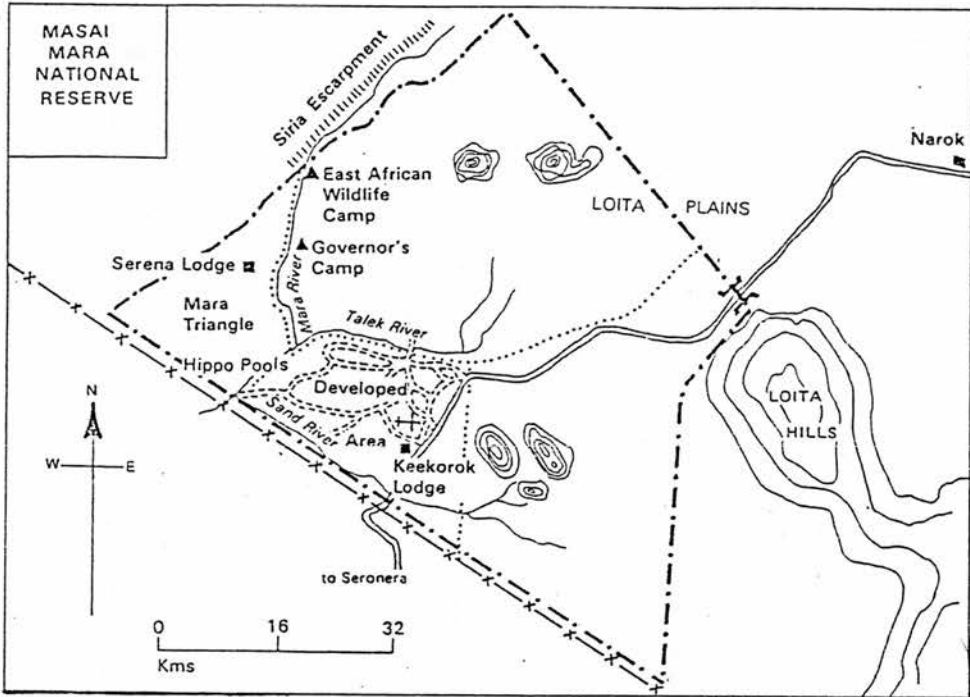


Fig. 9 Masai Mara National Reserve
 Nearly all the Park boundaries are in straight lines
 (From Williams, 1981)

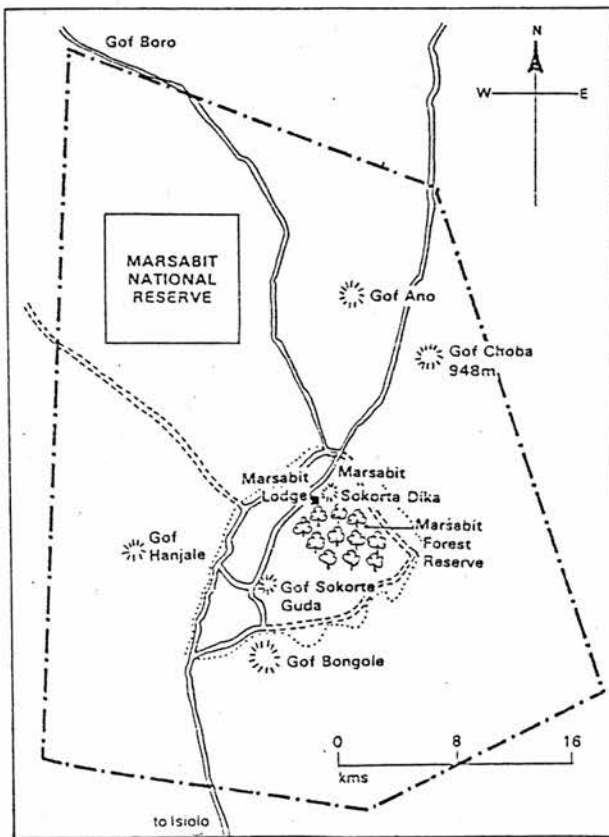


Fig. 10 Marsabit National Reserve
 It has regular octagonal boundaries
 (From Williams, 1981)

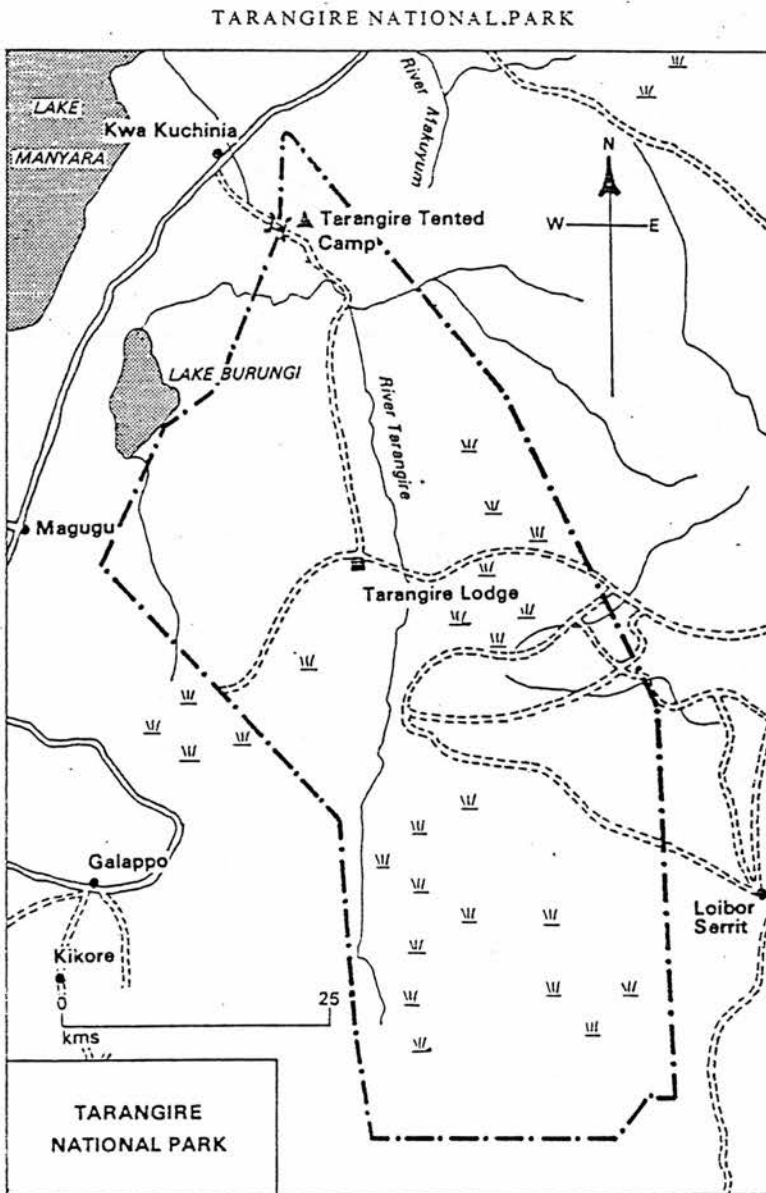


Fig. 11 Tarangire National Park
 The boundaries are in straight lines
 (From Williams, 1981)

In Britain, the Dower Report on 'National Parks in England and Wales, 1945' which is often referred to as the first comprehensive document on British National Parks did not establish separate criteria for the selection of a National Park and the delimitation of a park boundary; but the same criteria are used for both.

Dower (1945) states that "the task of selecting and delimiting areas which are to be established as National Parks must rest on adequate and disinterested survey and investigations of all areas which are in any way suitable, and it must take into account a wide range of factors, including landscape beauty, wild life, suitability for rambling access, popularity, existing and potential land utilization, existing or threatened disfigurements, transport and accommodation facilities, and financial and administrative strength and weakness of the local authorities concerned. It must be consistent with other nationally determined allocations of land, and must be integrated with all relevant national plans for land utilization, including the development of agriculture and forestry, the location of industry, the groundwork of transport and the use of water resources, as these are progressively determined by the Ministry of Town and Country Planning and other Departments".

Dower, therefore, in his Report uses the above criteria, for both functions; selects 10 areas of outstanding natural beauty as 'Division A', simultaneously delimits their boundaries, and recommends them as possible National Parks including the Lake District (see Figure 12). And all are ipso facto tier-two designations as his criteria admit the fundamental importance of human settlement.

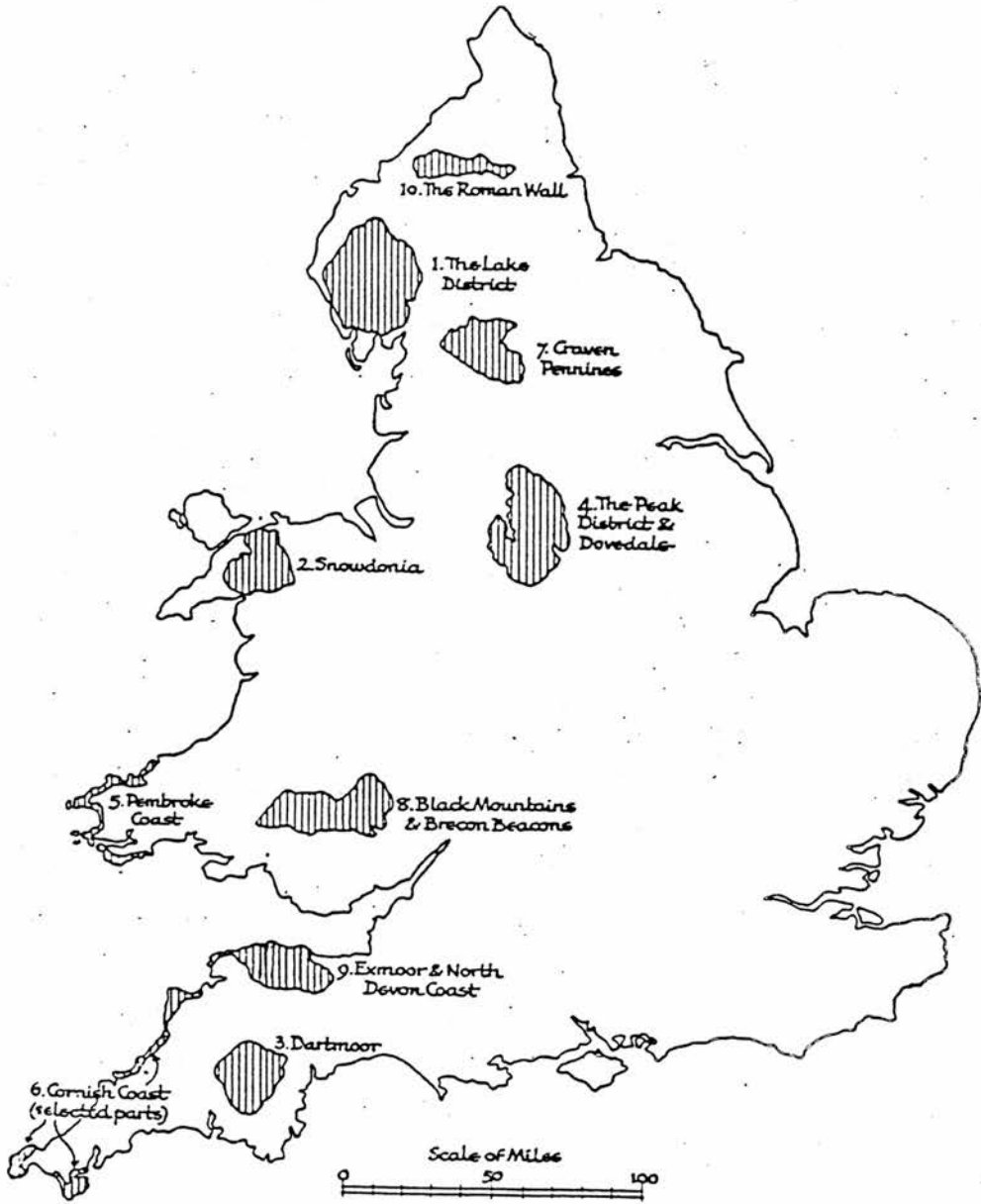


Fig. 12 Areas Recommended and Demarcated by Dower for the first 10 National Parks in England and Wales.

Source : Dower Report on 'National Parks in England and Wales, 1945'.

The Hobhouse 'Report of the National Parks Committee' (England and Wales) 1947, which was more or less a development of the 'Dower Report 1945', and upon which the selection and designation of the existing 10 National Parks (see Fig. 13) were finally based, used a set of criteria specifically for the delimitation of the Park boundaries. The Committee, having made a number of surveys (survey tours) to areas proposed as National Parks, stated that the following considerations should in its opinion, be taken into account in the precise definition of National Park boundaries.

1. The first criterion should be the inclusion of areas of high landscape quality.
2. Wherever possible an easily distinguishable physical boundary should be chosen, both for administrative reasons and for the convenience of the visiting public. Roads and railways frequently provide such a boundary.
3. Where County, District and Borough boundaries follow suitable lines, it may be administratively convenient to adopt them. In the majority of cases, however, they are unsuitable, since they follow no defined physical features, may be subject to alteration and seldom conform for any considerable distance to the limits of landscape value.
4. Towns and villages should not normally be cut in two by a National Park boundary. The inclusion or exclusion of a marginal town or village should be dependent on its character and beauty and its present or potential value for the accommodation of visitors.
5. Unsightly development on the edge of a National Park should generally be excluded, but the possibility of its modification or screening should not be overlooked where the immediately surrounding country claims inclusion.

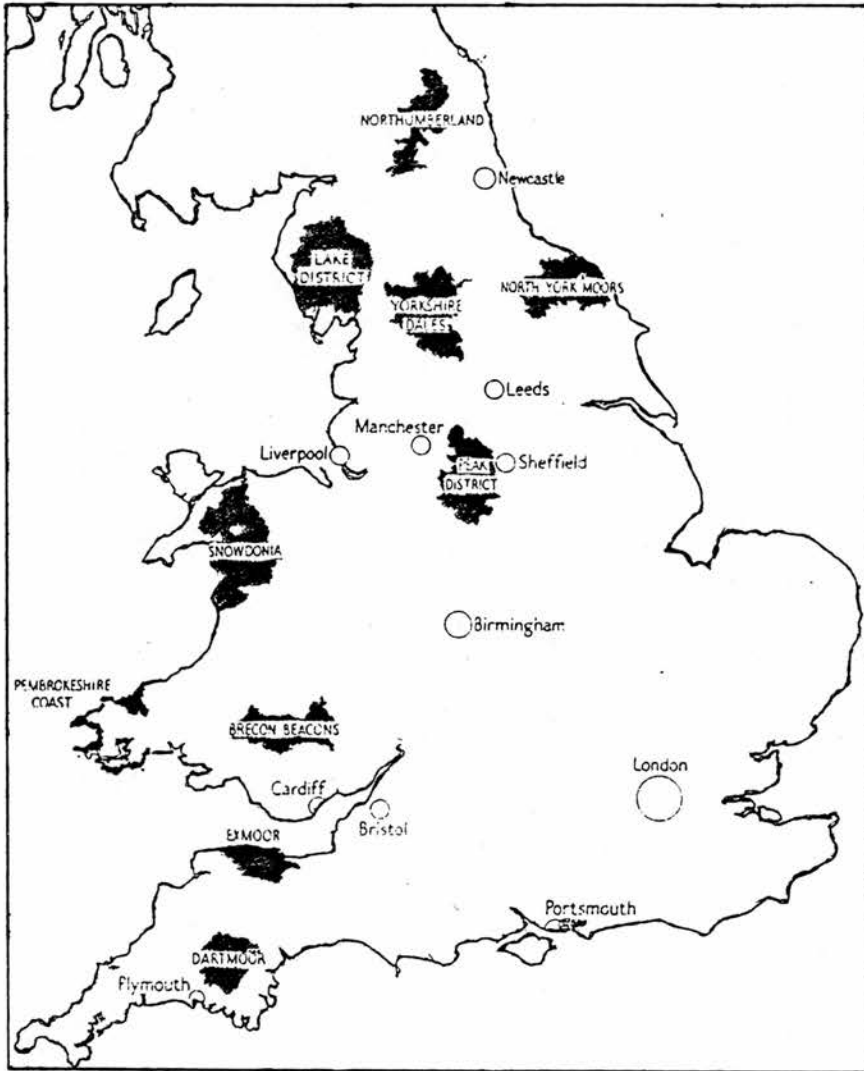


Fig. 13 Britain's Ten National Parks
(From Abrahams, 1959)

6. Quarrying and mining of important deposits on the margins of a National Park, which could not, in the national interest, be strictly controlled, should normally be excluded from the Park, except where the deposits are likely to be worked out within a reasonable time and surface restoration seems practicable and desirable.
7. Features of scientific, historic or architectural value (e.g. Nature Reserves, important archaeological sites and Ancient Monuments) which are situated on the margins of a National Park should be included where practicable.
8. In general, boundaries should include, as far as possible, any features which are part of the rural economy and community life within the Park, and should normally exclude areas where the needs of urban or industrial development conflict with, or outweigh, the essential value of the Park. The boundary of a National Park should not however, be regarded as sharp barrier between amenity and recreational values within, and disregard of such values outside.

In comparing the two sets of criteria, whilst Dower combines the criteria for the selection of a National Park with that for the definition of a National Park boundary, Hobhouse on the other hand, categorises and specifically states the criteria for the delimitation of a National Park boundary, and thus makes a clear distinction between the two.

But the practical delimitation, surveying and mapping of the ten British National Parks, by the application of the Hobhouse two sets of criteria, were based on the National Grid which developed from the Transverse Mercator Projection that replaced the Cassini projection.

In Britain the Cassini projection introduced in 1745, was first used by the Ordnance Survey in the Old Series one-inch maps of England and Wales (1805-73), and thereby following the practice of several other national survey such as those of France and Austria. Its most important property is that the scale along its central meridian, and east and west at right angles to it, is true. But the projection distorts the scale in a north to south direction, and by an amount which varies as the square of the distance from the central meridian; the greater the longitudinal extent, the greater the error and less suitable is the Cassini projection likely to be (Harley, 1975, pp. 17, 18 and 19).

Harley (1975) states that the Cassini projection was rejected in Britain for three reasons. First, there was no simple way in correction for distortion on this projection could be made. Second, even a 0.1 per cent distortion was sufficient to affect the calculation of areas from the published maps. Third, in areas of maximum distortion, the accuracy of minor instrumental surveys, which had to be related to detail on existing Ordnance Survey maps, was likely to be affected to an extent where it became difficult to reconcile positions fixed by survey with detail on published maps. The adoption of a single Cassini projection could have created greater difficulties than it overcame.

The possibility of using a conformal projection was investigated and the Transverse Mercator, a conformal or orthomorphic version of the Cassini projection, and especially suitable for a country which has its greatest extent in a north-south direction, was accepted as the best alternative (Harley, 1975, p. 19).

Along its central meridian scale is true and the amount of distortion, equal in an east and west as well as in a north and south direction, varies with the square of the distance from it. Meridians and parallels always intersect at right angles. The main difference, therefore, as compared with the Cassini, was that the projection stretched the topography equally in all directions, rather than only in a north-south direction, and this gave it the property of conformality or orthomorphism, in which there is a sinful distortion of shape over small areas and the scale, although it varies throughout the projection as a whole, is likewise equal in all directions at any one point; and these attributes are especially valuable.

Beginning in 1931 with the Fifth Edition, the 1 :63,360 map of Great Britain was redrawn on the Transverse Mercator which, by that date, had also been successfully used in a number of colonial surveys (including those in Africa), (Harley, 1975, p.19).

The relationship over Great Britain of the lines of the National Grid to the Transverse Mercator Projection graticule (representing lines of latitude and longitude) is indicated in Figure 14.

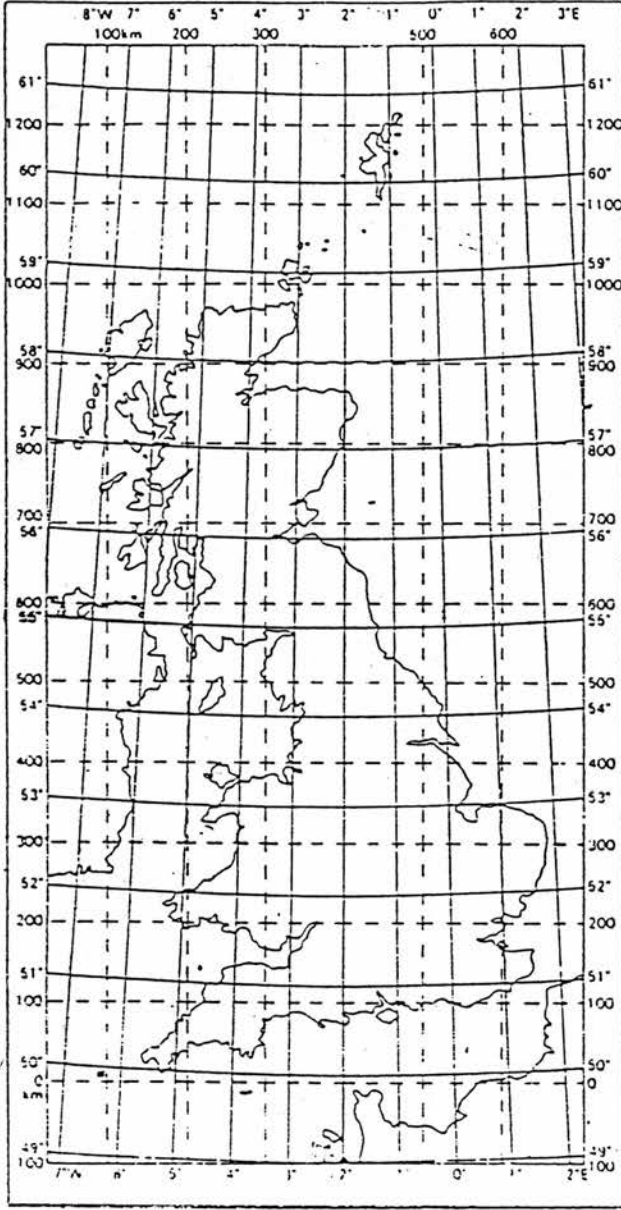


Fig. 14 Transverse Mercator Projection graticule representing lines of latitude and longitude (From Harley, 1975)

In the United States, in August, 1916, Congress established the National Park Service as the official body responsible for the management of National Parks, and declared that its main purpose was 'to conserve the scenery and historical objects and wildlife therein, and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for future generations' (National Park Service Act, 1916).

In fact, before the establishment of the National Park Service, many National Parks had already been designated by Acts of Congress; for example, Yellowstone, the first National Park in the world, in 1872; Yosemite in 1890; Crater Lake 1902; Wind Cave in 1903; and Rocky Mountain in 1915.

For instance, Yellowstone National Park Act of March 1st 1872, states:

That the tract of land lying near the headwaters of the Yellowstone river is hereby reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States, and dedicated and set apart as a public or pleasuring-ground, for the benefit and enjoyment of the people; and all persons who shall locate or settle upon or occupy the same, or any part thereof shall be considered trespassers and removed therefrom.

2. The said public park shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be, as soon as practicable, to make and publish such rules and regulations as he may deem necessary or proper, for the care and management of the same. Such regulations shall provide for the preservation, from injury or spoliation, of all timber, mineral deposits, natural curiosities, or wonders within the said park, and their retention in their natural conditions.

The Yosemite National Park Act, 1890 set aside reserved forest lands to be controlled by the Secretary of the Interior. As in the Yellowstone National Park Act, 1872 from which much of this Act was copied (Ise, 1961), the Secretary was to make and publish rules and regulations providing 'for the preservation from injury of all timber, mineral deposits, natural curiosities or wonders and their retention in their natural condition. The Secretary of the Interior was to provide against the wanton destruction of fish and game found within said reservation, and against their capture or destruction, for the purposes of merchandise or profit.

The Crater Lake National Park Act, 1902 states that:

The tract of land in the State of Oregon, and including Crater Lake, is hereby reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States, and dedicated and set apart forever as a public park or pleasure ground for the benefit of the people of the United States to be known as 'Crater Lake National Park' (U.S.C., Title 16, Sec. 121).

That the reservation established by this Act shall be under the control and custody of the Secretary of the Interior, whose duty shall be to establish rules and regulations and cause adequate measures to be taken for the preservation of the natural objects within said park, and also for the protection of the timber from wanton depredation, the preservation of all kinds of game and fish, and punishment of trespassers, the removal of unlawful occupants and intruders, and the prevention and extinguishment of forest fires (U.S.C., Title 16, Sec. 122).

These three Congressional Acts establishing the National Parks of Yellowstone, Yosemite and Crater Lake defined them as areas of natural curiosity and wonder and of recreational interest (and also implying their scientific, archaeological and architectural interests) to be preserved for the enjoyment by the nation.

The criteria for their selection appear to have been substantially the same used in the delimitation of their boundaries; and similarly for Parks, selected, delimited and designated after 1916; for example, the Grand Canyon in 1919; Great Smoky Mountains in 1926; and the Arches 1971.

It is not uncommon to have National Parks' boundaries demarcated in straight lines and in geometrical shapes in some parts of the world, including Africa particularly in Kenya and Tanzania, and especially in the United States (see Figs. 15, 16, 17 and 18), where the land boundaries are mostly in straight lines and often based on the 'National Survey Grid'.

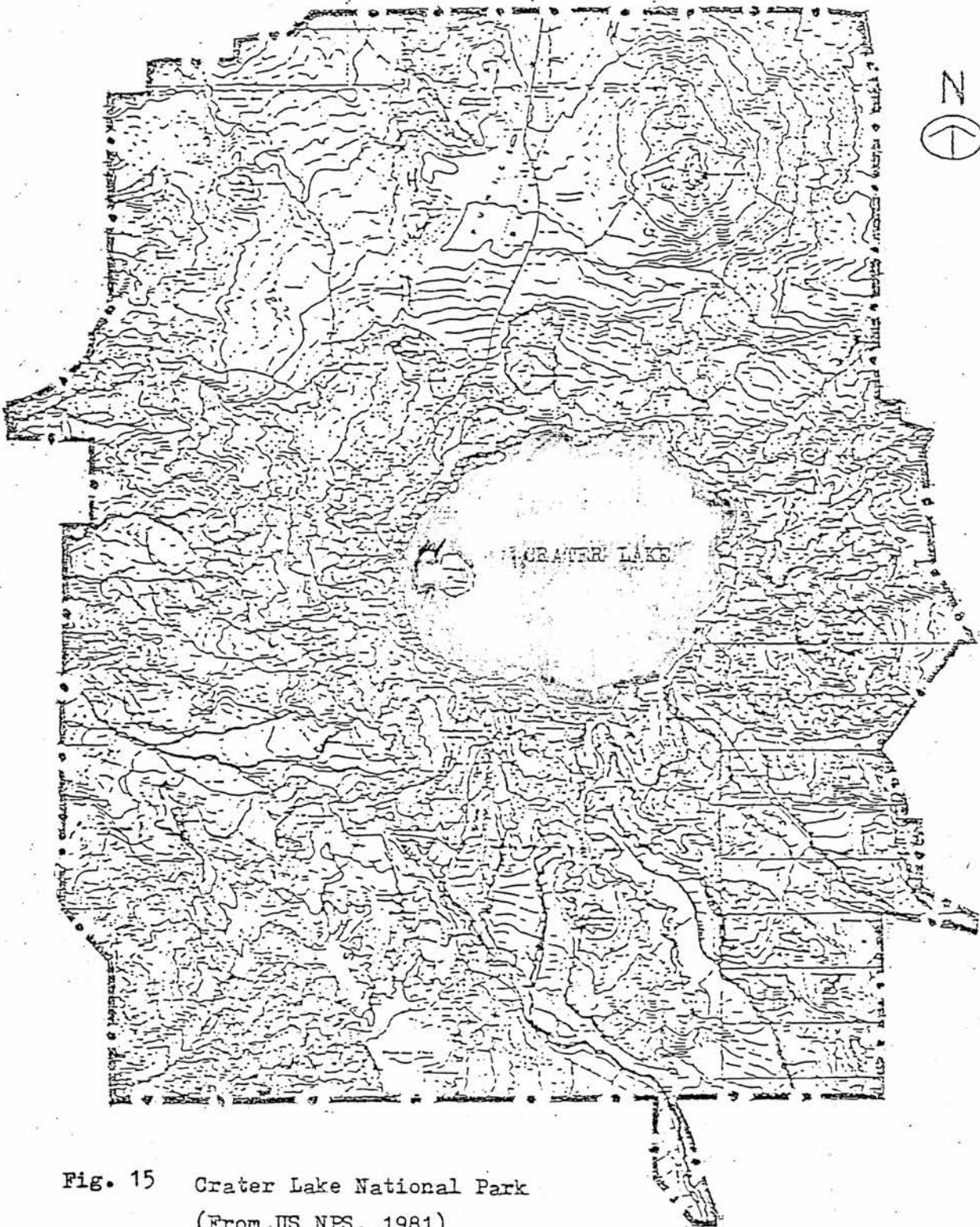




Fig. 15 Crater Lake National Park
(From US NPS, 1981)

KEY

-  National Park Boundary
-  Crater Lake

Scale 0 1 2 3 Miles

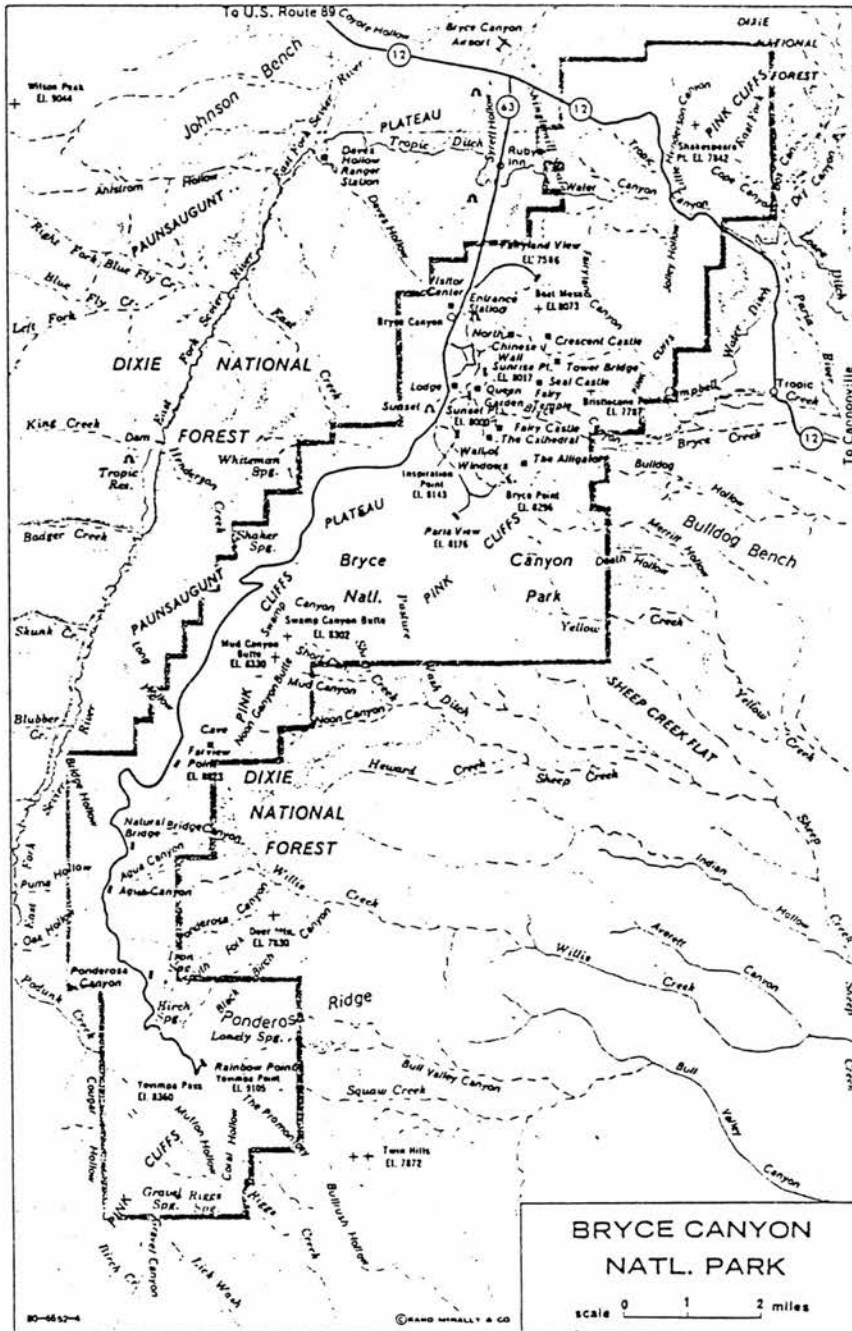


Fig. 17 Bryce Canyon National Park
(From Frome, 1980)

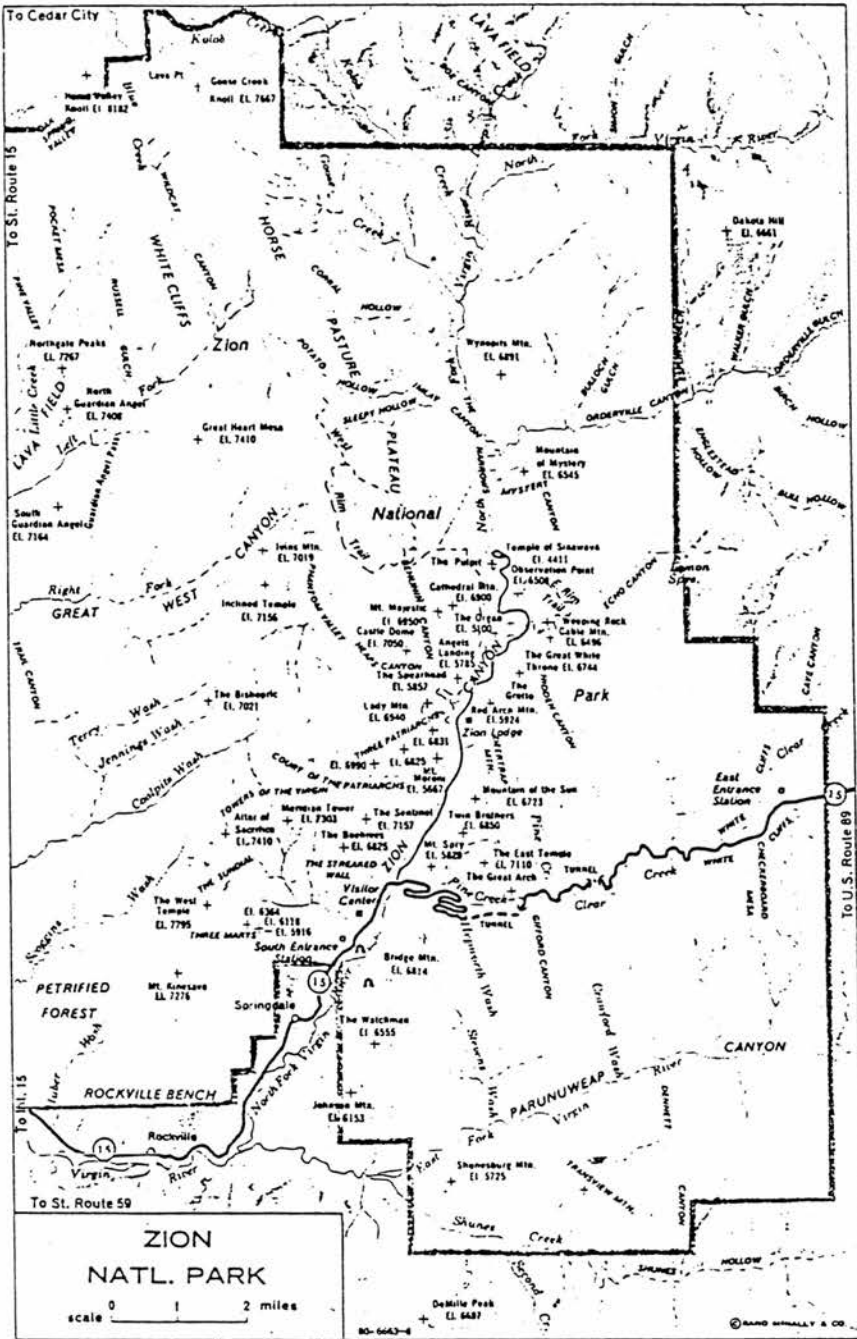


Fig. 18 Zion National Park
(From Frome, 1980)

The U.S. Rectangular Survey System as the National Survey Grid was officially established by Act of Congress on 20th May, 1785 as the 'Land Ordinance of 1785' (Cazier, 1976, p.15); and immediately called for the survey of public lands to begin, and was first applied by four boundary surveyors - David Rittenhouse, Andrew Porter, Andrew Elliot and Joseph Neville '..... on the River Ohio at a point that should be found to be due north from the western terminus of a line which has been run as the southern boundary of the State of Pennsylvania (Ibid. p.15), (see Figs. 19 and 20).

In the surveys executed under the 1785 Land Ordinance, sections are numbered from 1 to 36 with Section 1 located in the south-eastern corner of each township; in these areas, the numbers run from south to north in each of the sections (Johnson, 1976, p. 58), (see Fig. 21A). In 1796, the system of numbering sections was changed to the system now being used, where Section 1 is fixed in the north-eastern corner of the township to comply with the baseline as northerly located and set southerly (Ibid. p.58), (see Fig.21A).

The General Land Office in 1835 established the method that became standard: after every fourth township, or twenty four miles, a correction line (a new baseline) is established from which meridians are shifted and run straight north to correct excess or deficiency of measurement caused by convergency and accumulated error (Johnson, 1976, p.58), (see Fig. 21A). Each township measures 6 miles by 6 miles and consists of 36 sections (see Figs. 21A and 21B); and each section measures 1 mile by 1 mile (see Figs. 21B and 21C).

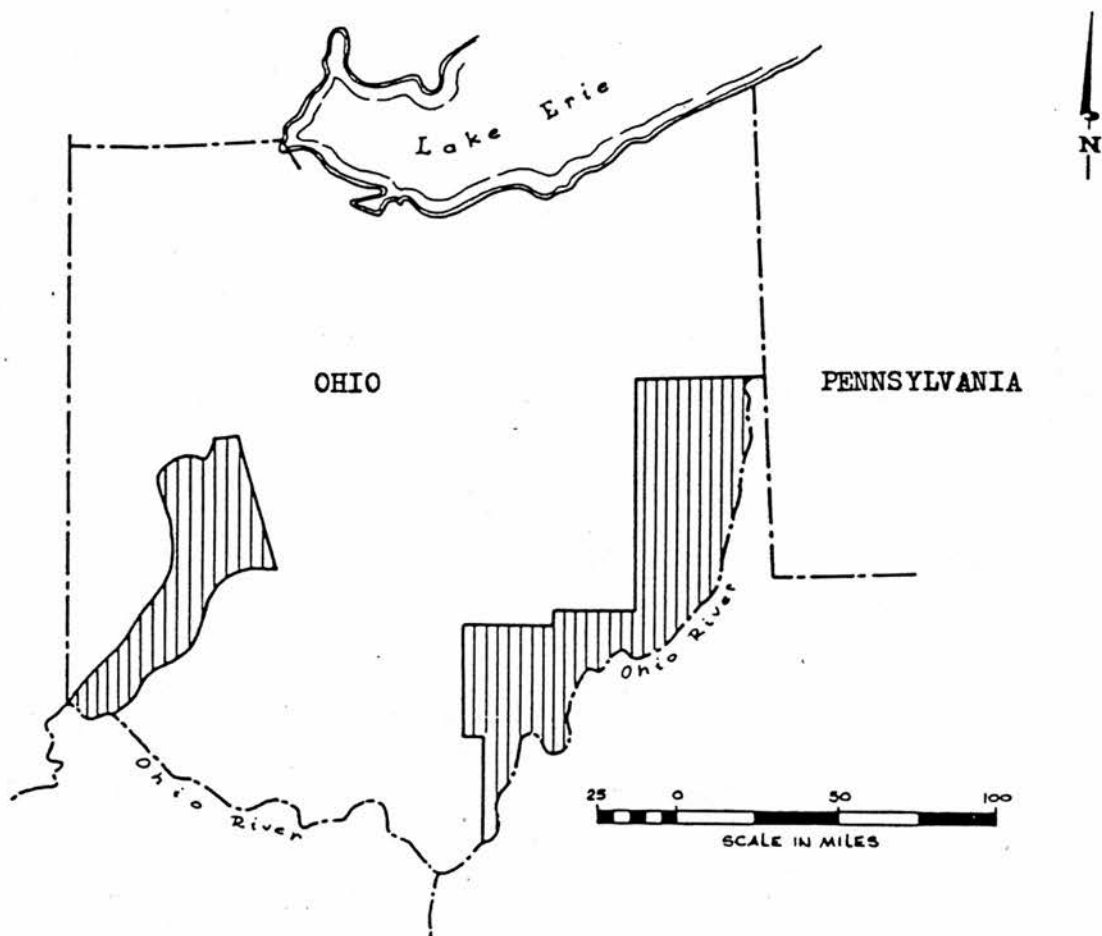


Fig. 19 Areas in Ohio where Public Lands were first numbered in the United States in accordance with the Ordinance of 1785
(From Cazier, 1976)

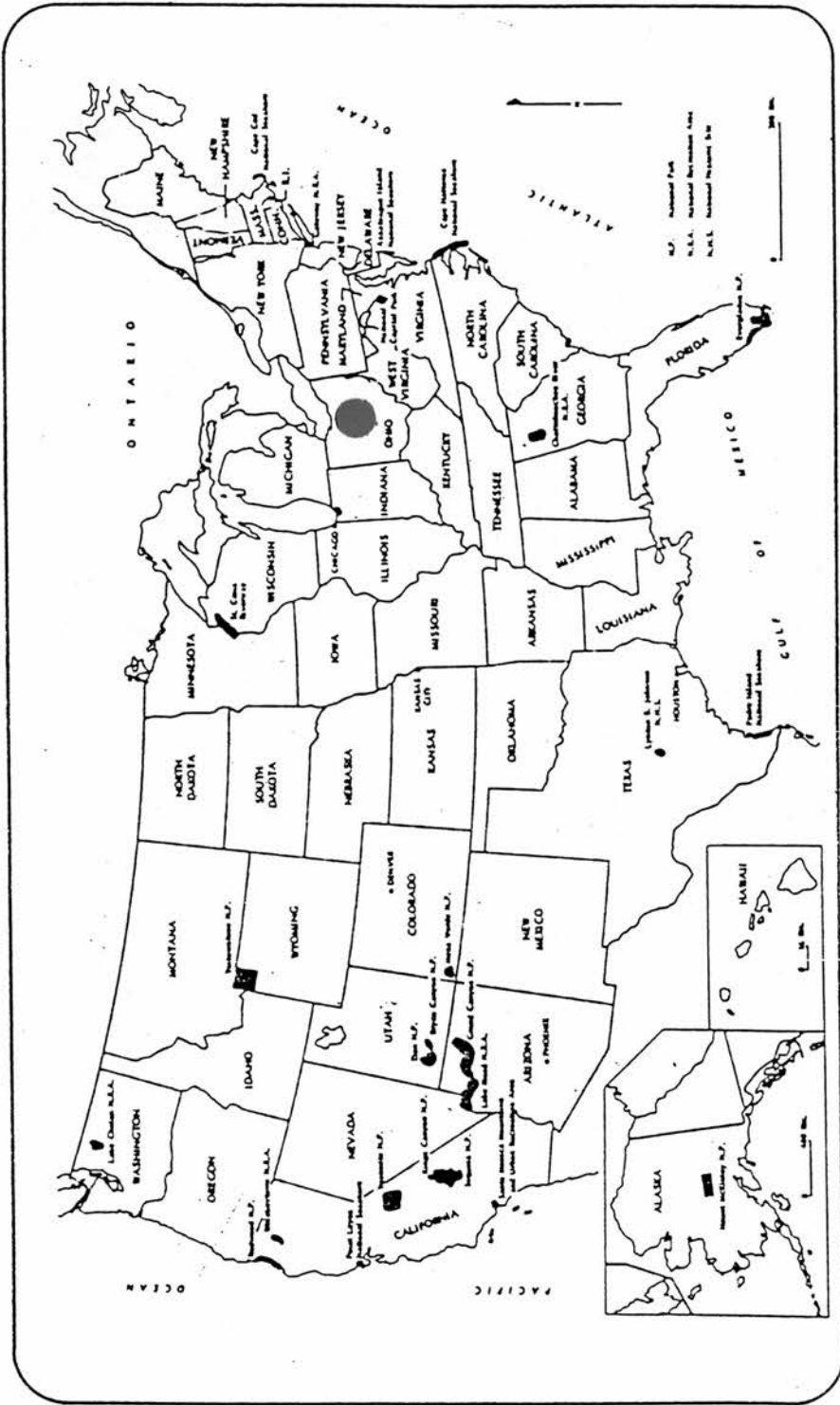


Fig. 20 United States of America
(From Nelson, 1978)

Fig. 21A

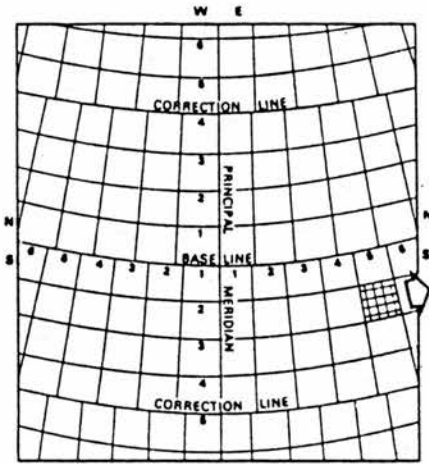


Fig. 21B

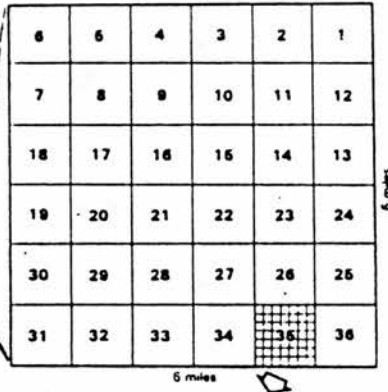


Fig. 21C

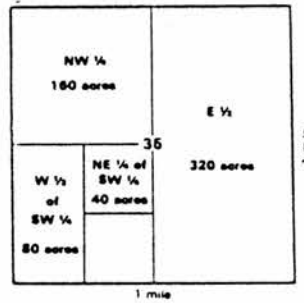


Fig. 21A The U.S. Rectangular Survey System. After 1796, each Township was numbered with Reference to a Baseline and Principal Meridian and subdivided into 36 Sections

Fig. 21B A Township consisting of 36 Sections

Fig. 21C A Section of a Township

(From Johnson, 1976)

For example, the National Grid of the Rectangular Survey System was used in the demarcation of the Crater Lake National Park boundaries.

The Act of 22nd May, 1902 establishing Crater Lake National Park states:

'Be it enacted That the tract of land bounded north by the parallel forty-three degrees four minutes north latitude, south by forty-two degrees forty-eight minutes north latitude, east by the meridian one hundred and twenty-two degrees sixteen minutes west longitude, having an area of two hundred and forty-nine square miles, in the State of Oregon, and including Crater Lake, is hereby reserved to be known as 'Crater Lake National Park'' (U.S.C. Title 16, Sec. 121).

And thus, the Act clearly defined the boundaries of Crater Lake National Park in rectangular formation as applicable to the National Grid of the Rectangular Survey System (see Fig. 15).

The IUCN criteria, like that of the United States, do not make any distinctions between the criteria for the selection of a National Park, and that for the delimitation of a Park boundary. In fact, the IUCN criteria are clearly stated in its definition of the term 'National Park' that:

'A National Park is a relatively large area' :-

1. Where one or several ecosystems are not materially altered by human exploitation and occupation, where plant and animal species, geomorphological sites and habitats are of special scientific, educative and recreative interest or which contains a natural landscape of great beauty.
2. Where the highest competent authority of the country has taken steps to prevent or to eliminate as soon as possible exploitation or occupation in the whole area and to enforce effectively the respect of ecological, geomorphological or aesthetic features which have led to its establishment.
3. Where visitors are allowed to enter, under special conditions, for inspirational, educative, cultural and recreative purpose.

Having studied some selected African (Ghana, Kenya and Tanzania) national park designation procedure, and British and American park designation practice, and the IUCN criteria for park designation, the author in an attempt to further sustain the validity of a tier-two designation of Lake Bosumtwe National Park, has therefore determined a number of criteria that should lead to the designation of Bosumtwe as a tract of land which:-

1. Includes a total area with a lower limit of 1,000 hectares as IUCN (1969) requirement, with an upper limit more difficult to validate, but probably in thousands of square miles.
2. Has great natural beauty.
3. Has a wide diversity of landscape.
4. Possesses high value for outdoor recreation.
5. Not necessarily excludes controlled and convenient access from main centres of population.
6. In the actual determination of the Park boundaries, where possible defines easily distinguishable physical boundaries such as streams, rivers, roads etc.
7. Should not necessarily debar existing settlements within the area from park designation, nor assume that existing inhabitants will be dispossessed.
8. Has boundaries which do not normally divide towns and villages. The inclusion or exclusion of a marginal town or village should be dependent on its character and beauty and its present or potential value.
9. Include as far as possible any features which are an intrinsic part of the existing rural economy and community life within the Park, within a framework which contains and manages the settlements in favour of point 2 above.

In discussing the criteria above, determined by the author, for the delimitation of the Bosomtwe Park boundaries, the author asserts that :-

1. The proposed Bosomtwe Park boundaries will viably enclose an area of about 400 sq. miles as compared to the IUCN minimum park size of 1,000 hectares (approx. 40 sq. miles).
2. Lake Bosomtwe itself commands an area of outstanding natural beauty, as a caldera or geological origin, that particularly qualified it for selection for possible designation as a National Park (see Chap. 7, par. 7.3); and that the same qualification has also been used for the delimitation of the Park boundaries. This instance particularly refers to Dower's case where he uses a set of criteria for both the selection and delimitation of a Park.
3. The diversity of landscape is expressed by the physical features of the area such as highlands, mountains and hills; and also in the floral, fauna and aquatic features of the proposed parkland.
4. The foregoing criteria offer the proposed Lake Bosomtwe National Park a high value for controlled outdoor recreation.
5. In proximity to main centres of population, the location of the Park will be just 21 miles away from Kumasi, the second capital city in Ghana, and capital of Ashanti, which as seen will exert great pressure on the Park, and from which it will need careful protection.
6. In the precise demarcation of the Park boundaries, Lake Bosomtwe itself, its surrounding areas including some hills and mountains and some forest reserves will contribute to initiating the Park boundaries (as discussed earlier in this Chapter).

7. And no town or village will be bisected by any part of the Park boundaries.
8. The resident communities within the Park boundaries will form an integral part of the Park and play a major role in its management, as depicting a tier-two National Park.

The author finally considers that the criteria so far produced provide the best possible considerations for the delimitation of Bosomtwe as a tier-two National Park. It is, therefore assumed that these criteria have been practically applied in the demarcation of the Lake Bosomtwe National Park boundaries, and thus producing an almost triangular shape, shown by Map 8.1, considered common in other parts of the world, for instance, in East Africa and the United States.

It is assumed that the Park boundaries have been approved by Asantehene, King of Ashanti, and absolute owner of all land in the Ashanti Kingdom including Lake Bosomtwe. It is also assumed that the Government of Ghana, in a White Paper, has approved the Park boundaries, with options for limited changes should the need arise in the future as the Park is developed.

APPENDIX II

SYNOPTIC INVENTORY OF THE PHYSICAL NATURAL RESOURCES OF THE
LAKE BOSUMTWE NATIONAL PARK

The physical natural resources of Lake Bosumtwe National Park have been classified as that of geology, landforms, soils and climate. These have been studied to provide the necessary information needed for the development and management of the Park.

1. Geology

The Lake Bosumtwe National Park is of outstanding geological interest because of its volcanic creation as a crater lake or caldera. The geology of Lake Bosumtwe National Park is composed predominantly of Pre-Cambrian rocks and intruded granite; and the two main rock series are recognised as the Birrimian and Tarkwaian, with the Birrimian being more extensive of the two (see Fig. 1).

Lake Bosumtwe straddles the two rock series with almost two-thirds of it lying in the Birrimian and the remaining one-third in the Tarkwaian (see Fig. 1). The theory of 'magnetic differentiation' explains the differences in lavas erupted from the same volcanic centre (Diller and Patton, 1902), (see Fig. 1). Of the Park, the two major series, Birrimian and Tarkwaian together occupy about three-quarters, with the remaining one-quarter consisting of granite (see Fig. 1).

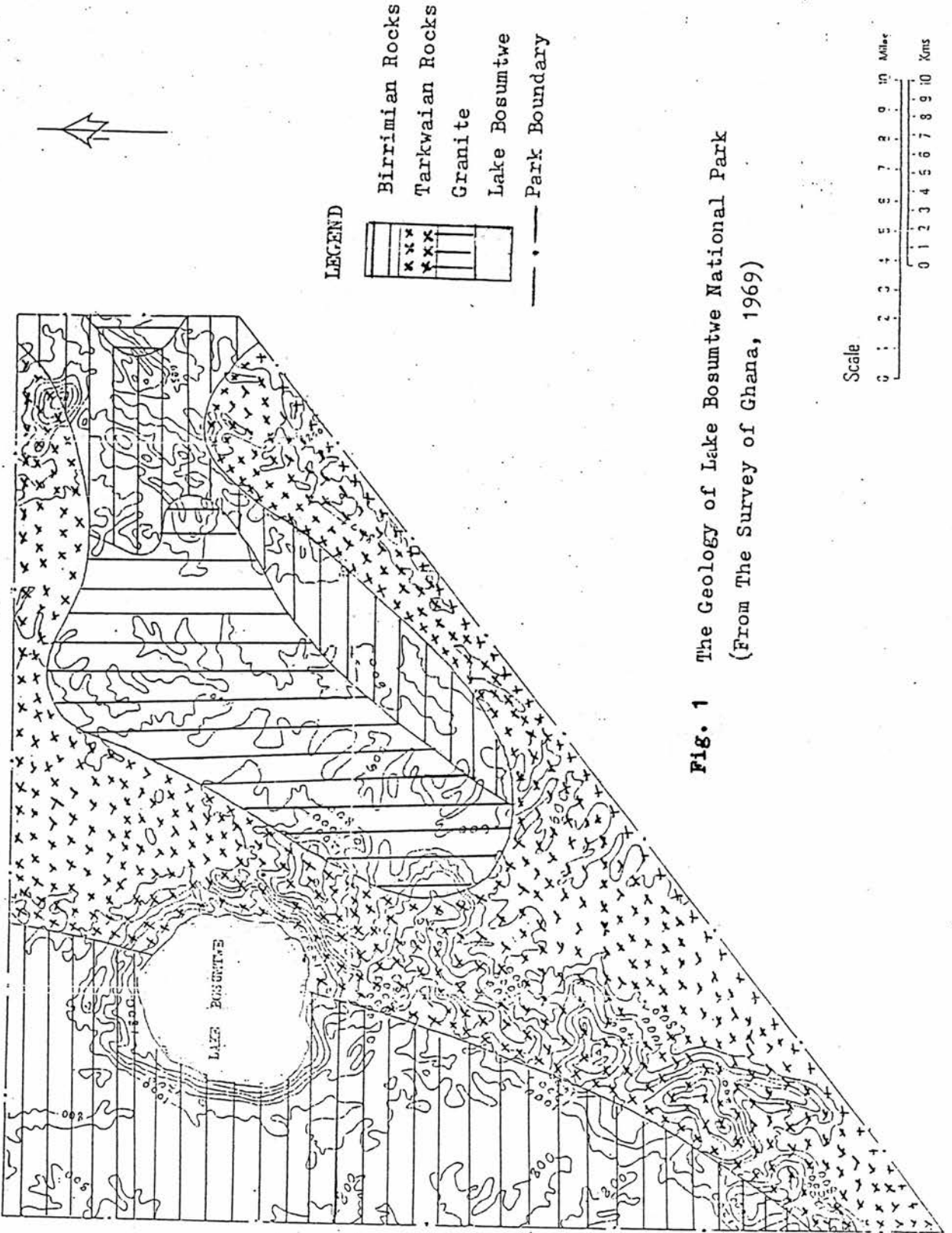


Fig. 1 The Geology of Lake Bosomtwe National Park
(From The Survey of Ghana, 1969)

Scale
0 1 2 3 4 5 6 7 8 9 10 Miles
0 1 2 3 4 5 6 7 8 9 10 Kms

2. Soils

The soils of Lake Bosomtwe National Park consist of two principal groups, 'forest ochrosols and forest ochrosol-oxysol intergrades' (Dickson and Benneh, 1970, p. 44). The forest ochrosol-oxysol intergrades occur as a strip running from north-east through the centre of the Park and terminating at the entire base of the Park (see Fig. 2). The forest ochrosols cover the rest of the Park (see Fig. 2).

Dickson and Benneh (1970) give the description of these soils as: 'The colour of the forest ochrosols ranges from brown to orange. Under reduced amounts of rainfall they are not highly leached, with the result that they contain high quantities of nutrients and generally alkaline. The soils are therefore rich and loamy and support many forest trees, tree and plantation crops including cocoa. They are also the most fertile agricultural soils'. The forest ochrosol-oxysol intergrades have been described by Brammer (1962), and Dickson and Benneh (1970), as having the same range of colours as the forest ochrosols and the two are not easily distinguished; but they are not so well supplied with nutrients as the forest ochrosols. They are also mildly alkaline to mildly acid and can be cultivated for cocoa; as well as forming good agricultural lands. The vegetation which grows in these types of soils has been fully discussed in the main text under 'Natural Living Resources' (see Chapter 9).

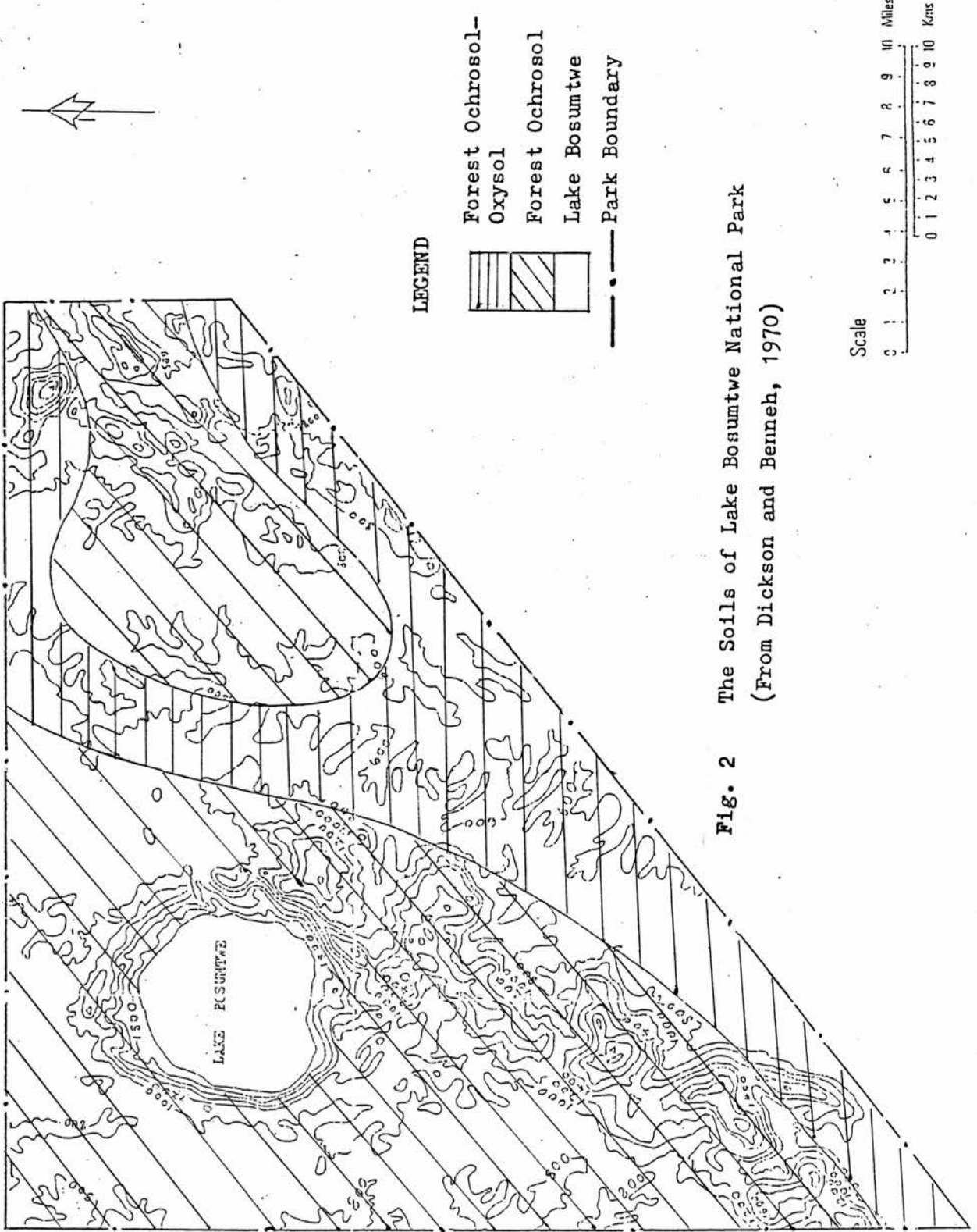


Fig. 2 The Soils of Lake Bosumtwe National Park
(From Dickson and Beuneh, 1970)

3. Relief

The Ashanti Region is bisected by the Southern Voltaian Plateau into physiographic areas of North Ashanti Uplands and South Ashanti Uplands (see Fig. 3). Lake Bosomtwe National Park is entirely situated within the South Ashanti Uplands which form part of the extensive Forest Dissected Plateau of southern Ghana (see Fig. 3). The relief features of the Park consists of two major altitudes which are from 152-305m (500-1000 ft) and 305-610 m (1000-2000 ft) above sea level. Lake Bosomtwe is situated in an altitude of 305-610 m (1000-2000 ft) above sea level (see Map 8.2), which forms about one-third of the Park; and has its highest peak, the Obuom peak, 707 m (2321 ft) high and lies about 16 km (10 miles) south of the Lake (see Fig. 4). At the north-eastern tip of the Park lies another high land of the same altitude of 305-610 m (1000-2000 ft) above sea level, and has its highest peaks, the Prem, 590 m (1937 ft) high, and Ntibo, 484 m (1589 ft) high and situated about 3 miles south of Prem; (see Fig. 4). Almost directly north of the Lake is situated the Beposei Hill, 477 m (1564 ft) high (see Fig. 4). An altitude of 152-305 m (500-1000 ft) above sea level accounts for the remaining section of the Park (see Fig. 4).

In the delimitation of the Park boundaries the physical resources of the parkland were considered and they greatly contributed to the shape of the Park in an almost triangular form.

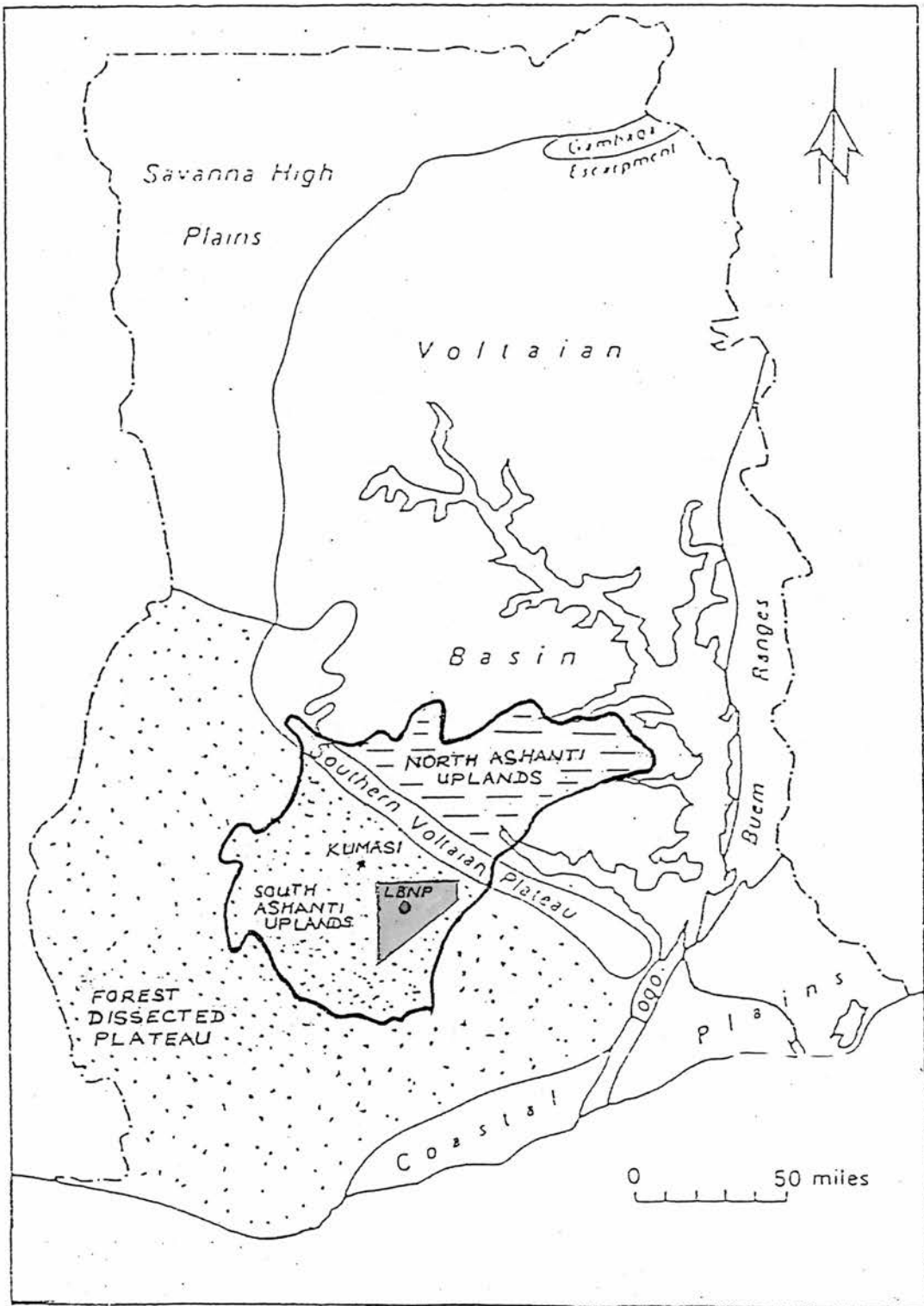





Fig. 3 Map of Ghana showing the physiographic location of the proposed Lake Bosumtwé National Park (LBNP). The Park is entirely situated within the South Ashanti Uplands which form part of the extensive Forest Dissected Plateau of Ghana.

(From Dickson and Benneh, 1970)

LEGEND

-  Lake Bosumtwé
-  Lake Bosumtwé National Park (LBNP)
-  Boundary of Ashanti Region.

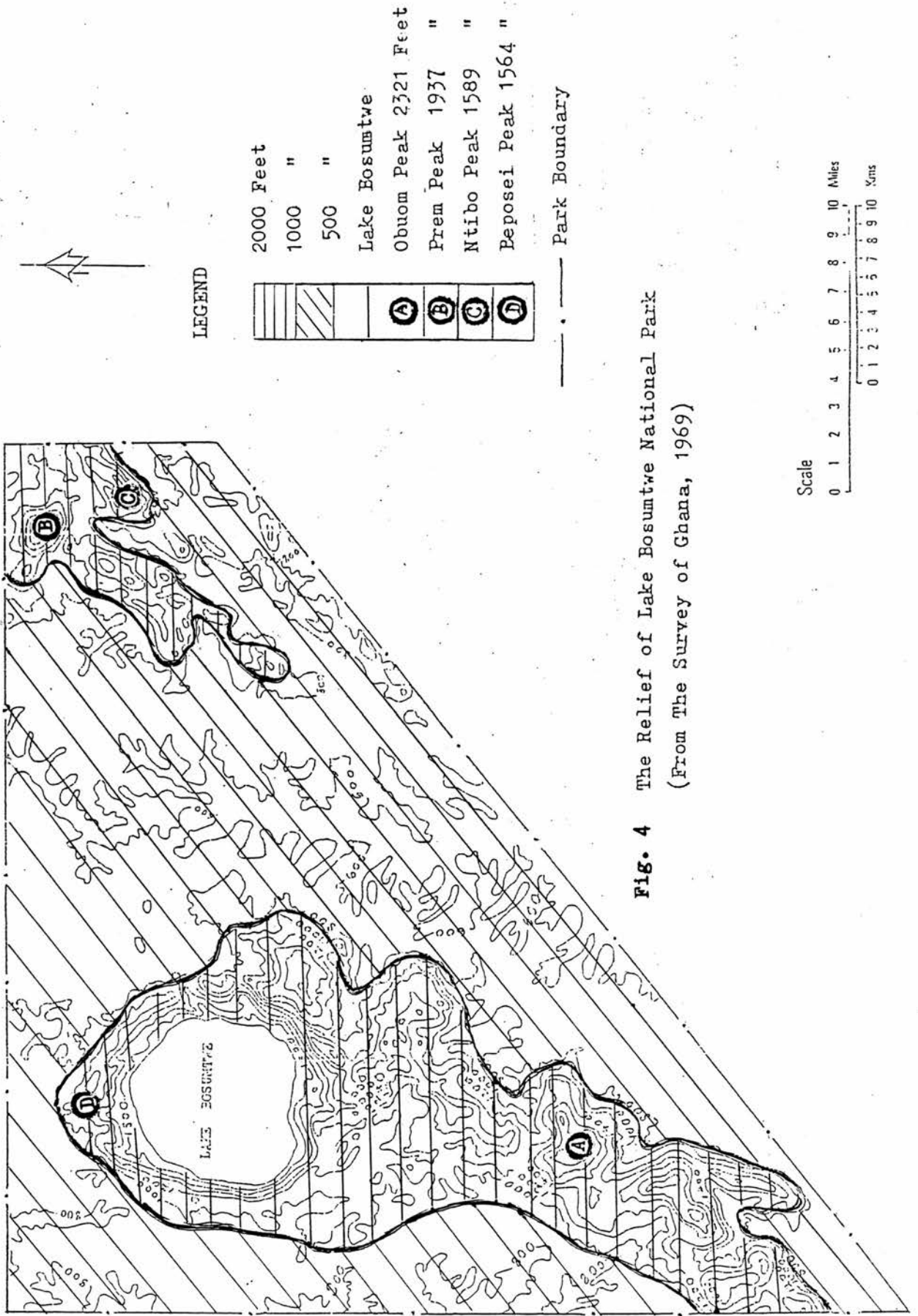


Fig. 4 The Relief of Lake Bosomtwe National Park
(From The Survey of Ghana, 1969)

Scale
 0 1 2 3 4 5 6 7 8 9 10 Miles
 0 1 2 3 4 5 6 7 8 9 10 Kms

4. Climate

The climatic elements relevant to Lake Bosomtwe National Park are temperature, rainfall and humidity. The chief characteristics of Ghana's climate are relatively high temperatures, about 70 to 80°F, generally felt in almost all places throughout the year; but there are important variations in reduction over different parts of the country (see Fig. 5).

5. Temperature

Apart from the effects of insolation and air masses on temperature, a number of local modifications are caused, for example, by the inland tropical forest vegetation, and by the presence and distribution of high land in some parts of the country. Temperatures normally fall about 3°F for every thousand feet of ascent above sea-level (Boateng, 1957, p. 31) and (Walker, 1962, p. 16). And thus, isolated hills and ranges in the Forest Dissected Plateau, such as those in Lake Bosomtwe National Park, particularly Beposei Peak, 477 m (1564 ft) high; Ntibo, 484 m (1589 ft) high; Prem, 590 m (1937 ft) high and Obuom Peak, 707 m (2320 ft) high (see Fig. 4); rather tend to have mild conditions on the Park than its surrounding areas of low land. The Park's other advantage is that it is situated in the Moist Semi-Deciduous Forest zone (see Fig. 6) which has a cooling effect on the climate and therefore provides the Park with a milder weather.

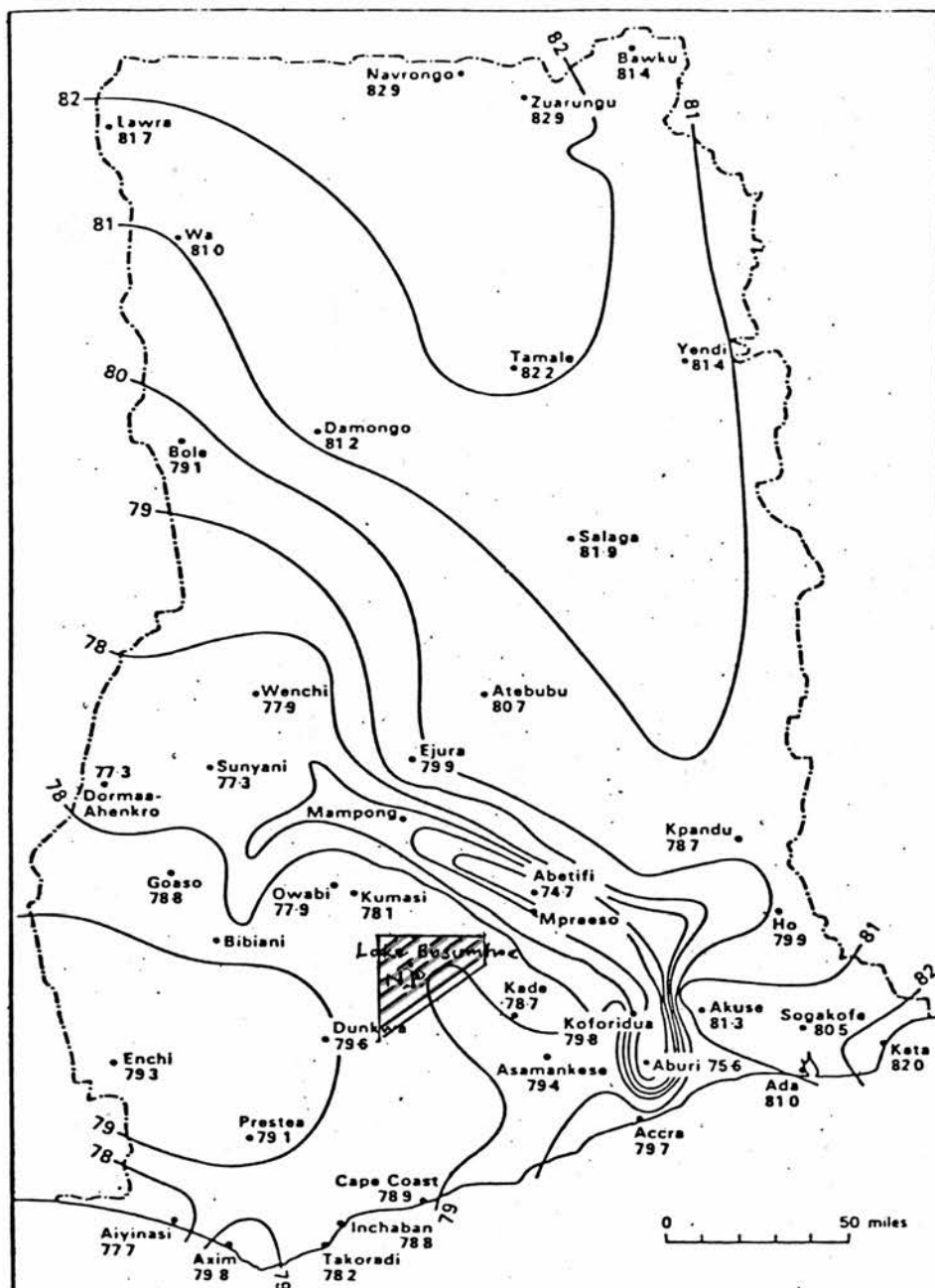


Fig. 5 Mean Annual Temperatures ($^{\circ}$ F) of Lake Bosumtwe National Park and environs. (Insert - Lake Bosumtwe National Park - drawn by Author). (From Dickson and Benneh, 1970)

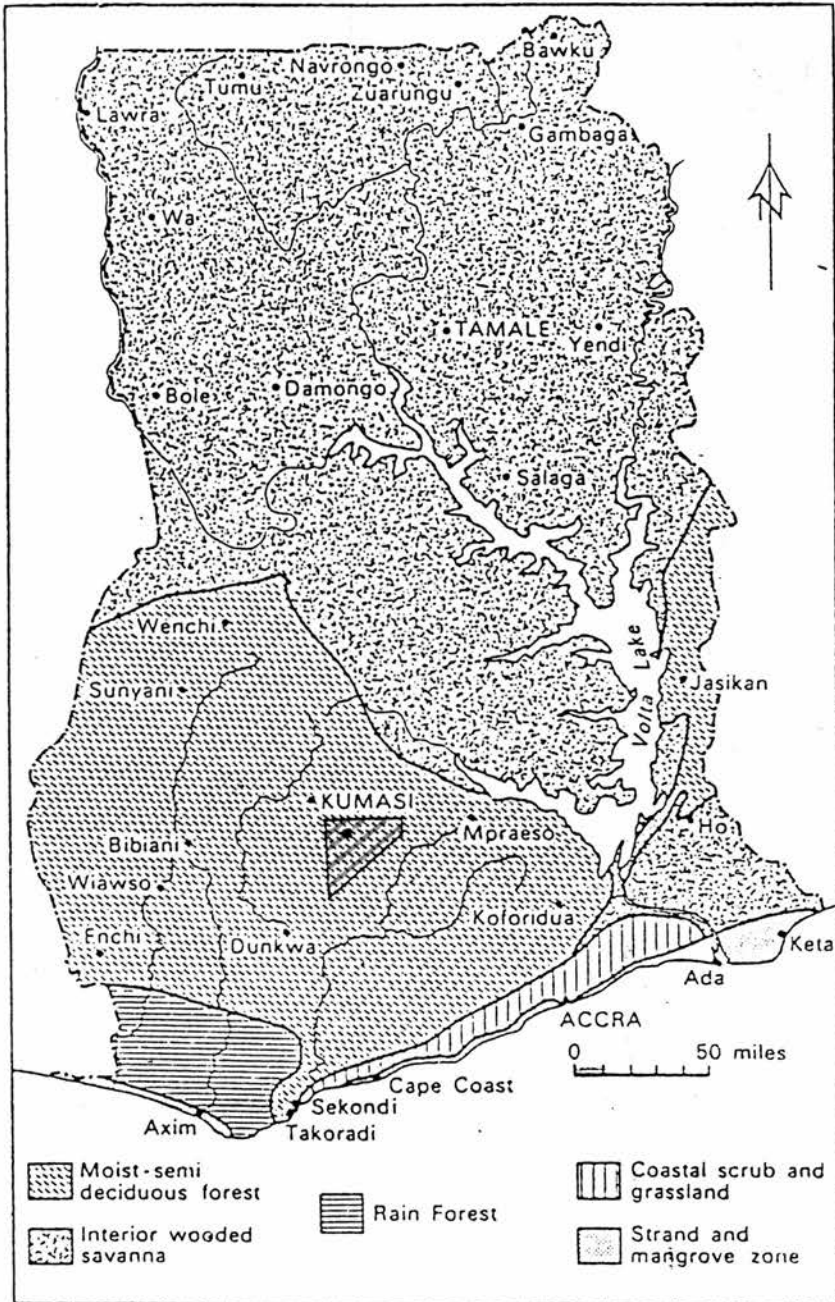


Fig. 6 The Moist Semi-Deciduous Forest of Lake Bosumtwe National Park

6. Relative Humidity

Lake Bosomtwe National Park lies within the Wet Semi-Equatorial zone (see Fig. 7) which generally has a relative humidity of over 90% during the night and early morning. During the day humidity falls about noon reaching about 65% (Boateng, 1959), (Walker, 1962) and (Dickson and Benneh, 1970).

Briefly, relative humidity:

1. Determine the ability of the air to form rain.
2. It controls the rate at which plants and animals lose their moisture.
3. It controls to a large extent the rate at which water bodies and soil itself lose water.

The relative humidity of Lake Bosomtwe National Park is exemplified by that of Kumasi (see Table 1).

Laurie (1975) defines ideal humidity for human comfort as between 40-70 %. In Kumasi the Mean Monthly Relative Humidity at 0900 (9.00 a.m.) G.M.T. (Greenwich Mean Time) is between 85-91 % (see Table 1). During the day as the temperature increases the relative humidity decreases from about 85% to about 70% to fall into the human comfort zone. In effect during the day Lake Bosomtwe National Park provides an ideal humidity for human comfort.

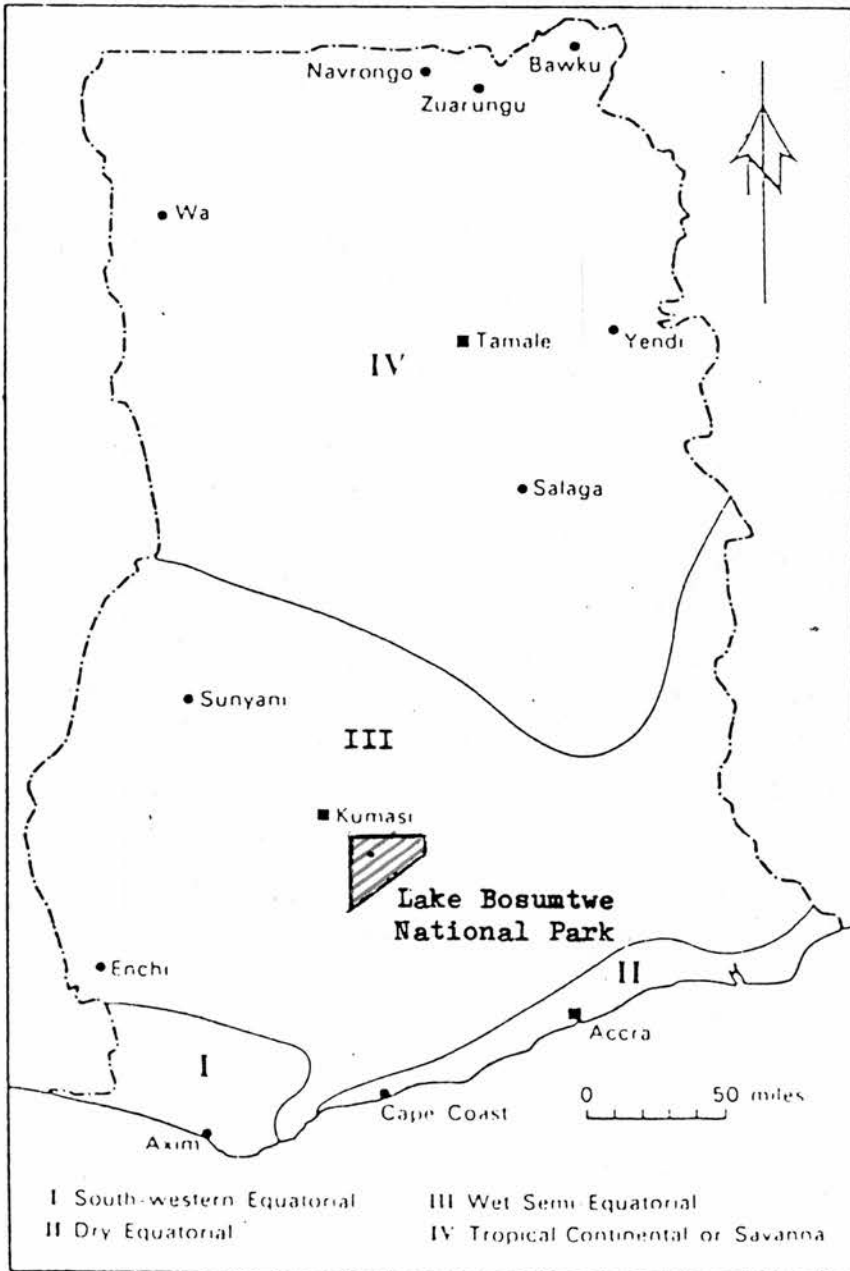


Fig. 7

Showing the Climatic Regions of Ghana.

Lake Bosomtwe National Park is situated in the Wet Semi-Equatorial Zone

(From Dickson and Benneh, 1970)

The relative humidity of Lake Bosomtwe National Park is exemplified by that of Kumasi (see Table 1).

<i>Station</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Annual mean</i>
Accra	81	81	79	78	80	85	85	84	81	80	79	81	81
Achim	91	88	84	83	85	87	85	88	89	87	83	87	87
Kumasi	88	85	87	87	86	88	90	91	91	89	87	90	88
Kete-Krachi	74	68	73	76	80	85	87	85	87	86	82	78	80
Tamale	36	43	55	67	75	82	84	86	86	80	64	40	67
Nantongo	19	27	34	54	65	76	82	85	83	74	48	25	56

Table 1 Mean Monthly Relative Humidity at 0900 (9.00 a.m.) G.M.T. (Greenwich Mean Time). Kumasi exemplifies the Relative Humidity of Lake Bosomtwe National Park. (From Boateng, 1959)

7. - Sunshine

Varley and White (1958) and Church (1980) agree that as night and day are almost equal in Ghana, as in West Africa, hours of sunshine can never exceed about twelve hours, as they may in summer in temperate lands. During the dry season the hot air from the surface rises rapidly and carries dust up into the air to considerable heights, so that during this time, the sun looks very yellow because it is often obscured by the dust haze. At sunrise and sunset, the haze lies near the surface and often makes it difficult to see very far. The hills are also blotted out by the haze in the early morning and as the sun is setting (Varley and White, 1958, p. 38; Church, 1980, p. 32).

'Cloudiness diminishes inland, and is at a minimum near the tropic line. In consequence, the recorded sunshine is often remarkably little (Church, 1980, pp. 32 and 33)'.

The following figures of mean daily sunshine in hours are representative of Kumasi (see Table 2), (and by proximity they could exemplify that of Lake Bosumtwé National Park which has no record of sunshine as such (Author's remarks)).

Table 2 shows that the percentage of maximum possible sunshine in Kumasi occurs in January at 69% for 3.9 hours, and also in February at 69% for 4.3 hours; and the least occurs in August at 22% for 0.9 hour. This interprets that during the day the warmest months are January and February; and the coolest is August (see Table 2).

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual mean
% of maximum possible												
69	69	64	57	50	42	22	18	33	52	56	60	49
Kumasi (Average of 9 years)												
3.9	4.3	4.8	5.0	3.7	2.0	1.1	0.9	2.3	3.9	4.6	3.9	3.4

Table 2 Shows the Mean Monthly Percentage of maximum possible sunshine in Kumasi and the Mean Monthly Hours of duration. The percentage of maximum possible sunshine in Kumasi exemplifies that in Lake Bosumtwé National Park.
(From Church, 1980)

8. Rainfall

Lake Bosomtwe National Park is situated in the Wet Semi-Equatorial zone (see Fig. 7) and that the Park by its climatic region receives between 60 to 70 inches of rain per year (see Fig. 8).

The Park has similar rainfall distribution as Kumasi which has two rainfall maxima. The first rainy season in Ghana starts from May to June, with the heaviest rainfall in June. Kumasi has 7.15 inches of rainfall spread over 13 days in May, and in June 9.21 inches of rainfall in 17 days (see Table 3). The second rainy season begins in September and ends in October. Kumasi receives in September 6.95 inches of rain in 17 days, and in October 7.94 inches of rain over 28 days (see Table 3).

Kumasi is a typical station in the Wet Semi-Equatorial climatic region in Ghana (see Fig. 7); it lies between the rainfall zone of 50-60 inches of rain per annum and receives about 58.00 inches of rain annually (see Fig. 8). Lake Bosomtwe National Park is also situated in the Wet Semi-Equatorial (see Fig. 8.10); it is located in a rainfall zone ranging from 60-70 inches of rain per year (see Fig. 8). The annual rainfall of Lake Bosomtwe has not been recorded but this is estimated to be about 67in per year.

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.	Annual mean
Kumasi	0.67	2.31	5.38	5.65	7.15	9.21	4.96	2.92	6.95	7.94	3.86	1.21	58.21
	2	5	10	10	13	17	13	11	17	28	11	3	140

Table 3 The Mean Monthly Rainfall and number of rainy days (rainfall in inches) of Kumasi. Lake Bosomtwe National has a similar rainfall distribution as Kumasi. (From Boateng, 1959)

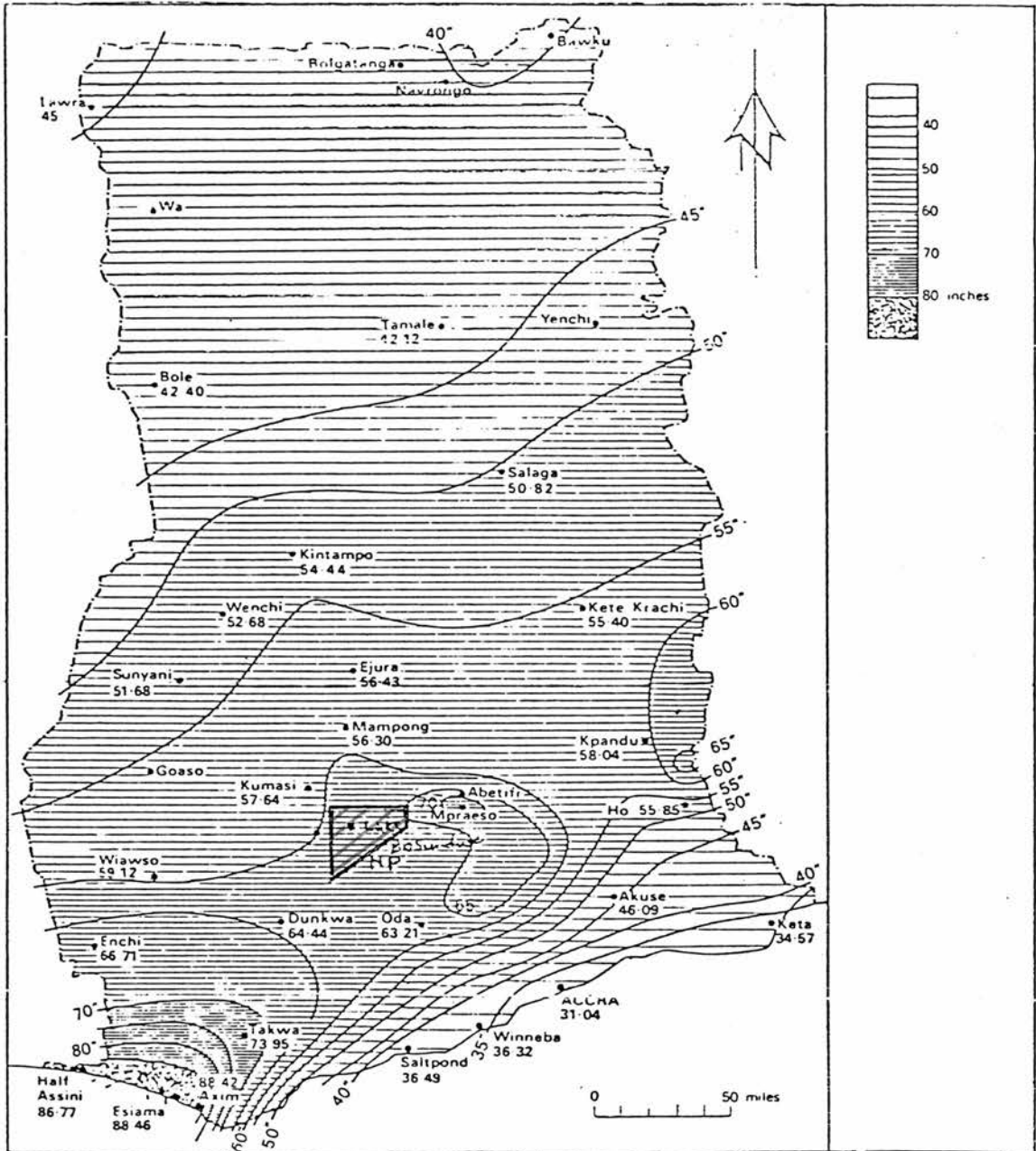


Fig. 8 The Mean Annual Rainfall of Ghana. Lake Bosomtwe National Park indicated receives between 60-70 inches of rain per year.
(From Dickson and Benneh, 1970)

BIBLIOGRAPHY

- Abrahams, H.M. (ed.), (1959) Britain's National Parks, Country Life Limited, London.
- Allen, R. (1980) How to Save the World: Strategy for World Conservation, Kogan Page Ltd., London.
- Anyane, S.L. (1963) Ghana Agriculture, Oxford University Press, London.
- Arnberger, L.P. (1978) Yosemite: Summary of the Draft General Management Plan, National Park Service U.S. Department of the Interior, Washington, D.C.
- Bacon, C.R. (1982) Eruptive History of Mount Mazama and Crater Lake Caldera, Cascade Range, U.S.A., U.S. Geological Survey, California, U.S.A.
- Beaconsfield Conference (1972) Recreation and the Woodland Owner, Beaconsfield Conference, Reading.
- Bell, M. (ed.), (1975) Britain's National Parks, David and Charles Inc., North Pomfret, Vermont
- Boateng, E.A. (1960) A Geography of Ghana, The Syndics of The Cambridge University Press, London.
- Bolles, E.B. (1979) Animal Parks of Africa, Hodder and Stoughton, London.
- Brown, T.J. and Itami, R. M (1982) Landscape Principles Study: Procedures for Landscape Assessment and Management - Australia, in "Landscape Journal Vol.1, No.2", University of Wisconsin, pp. 113-121.
- Brownrigg, M. and Greig, M.A. (1976) Tourism and Regional Development, The Fraser of Allander Institute, 100 Montrose Street, Glasgow G4 0LZ.
- Butcher, D. and Huszar, L. (1966) Bui Resettlement Study, ed. Tudor G. Ingersol, Ministry of Fuel and Power, Accra.

- Cazier, L. (1976) Surveys and Surveyors of the Public Domain, US Surveys, Washington D.C.
- Central Bureau of Statistics (1960) Statistical Year of Ghana, 1960, Central Bureau of Statistics, Accra.
- (1970a) Population Census of Ghana 1970, Central Bureau of Statistics, Accra.
- (1970b) Statistical Year Book of Ghana, 1970, Central Bureau of Statistics, Accra.
- (1970c) Statistical Handbook of Ghana, 1970, Central Bureau of Statistics, Accra.
- Cherry, G.O. (1975) Environmental Planning 1939-1968, Vol. II, National Parks and Recreation in the Countryside, HMSO, London.
- Church, R.J.H. (1980) West Africa: Geographies for Advanced Study, Longman, London.
- Clawson, M. (1969) The Development of Recreation in the United States and Canada and its Implication for the National Parks, in "The Canadian National Parks: Today and Tomorrow", eds. J.G. Nelson and R.C. Scace, University of Calgary and National and Provincial Parks Association of Canada, Calgary, Al Alberta; pp. v, xi and 1027.
- Coe, M.J. (1967) The Ecology of the Alpine Zone of Mount Kenya, Dr. W. Junk, The Hague.
- Colvin, B.C. (1948) Land and Landscape, John Murray, Albemarle Street, W. London.
- Coolidge, H.J. (1972) Evolution of the Concept, Role and Early History of National Parks, in "World National Parks: Progress and Opportunities", ed. Richard van Osten, Hayez, Brussels; pp.63-66.
- Coppert, T.A. (1972) The Yosemite Valley Commission, The Development of Park Management Policies 1864-1905, M.A. Thesis, California State University.

- Council for the Preservation of Rural England (CPRE), (1938) The Case for National Parks in Great Britain, C.P.R.E., London.
- Countryside Commission (1972) Notes of the Countryside Commission's Views on the Consultative Document on Forestry Policy, 1972, Countryside Commission, Cheltenham.
- (1973) Recreation at Reservoirs, Countryside Commission Water Resources Board.
- (1974) Advisory Notes on Notes on National Parks Plan, Countryside Commission, Cheltenham.
- (1975) Landscape Agreements (Revised) CCP 61, Countryside Commission, Cheltenham.
- (1978) The Place of Forestry in England and Wales, Countryside Commission, Cheltenham.
- (1978) Upland Land Use in England and Wales, CCP 111, Countryside Commission, Cheltenham.
- (1979) The Economy of Rural Communities in the National Parks of England and Wales, (Interim Report), Countryside Commission Cheltenham.
- (1981) The Economy of Rural Communities in the National Parks of England and Wales, Countryside Commission, Cheltenham.
- Cranson, K.R. (1982) Crater Lake - Gem of the Cascades, Lansing Community College, Lansing, Michigan.
- Crater Lake National Park (1982) Annual Statement for Interpretation and Visitor Services, National Park Service, Crater Lake National Park, Oregon.
- Crowe, S. (1979) The Value of Small Woodland to Landscape and Society, in "Park", Vol.4, No.1, IUCN-Morges; pp.5-7.
- Cullingworth, J.B. (1964) Town and Country Planning in Britain, George Allen and Unwin, London.

- Curry-Lindahl, K. (1972a) Africa: National Parks, Habitats, Biomes Ecosystems, in "World National Parks: Progress and Opportunities", ed. Richard van Osten, Hayez, Brussels; pp.105-118.
- (1972b) Some Comments on National Parks and Surrounding Human Population in Africa, in "World National Parks: Progress and Opportunities", Hayez, Brussels; pp.307-371.
- (1976) Background and Development of International Conservation Organizations and Their Role in the Future, in "Environmental Conservation" Vol.5, 1978, Elsevier Sequoia SA, Lausanne, pp.163-70.
- Dalziel, J.M. (1937) The Useful Plants of West Tropical Africa, The Crown Agents for the Colonies, London.
- Denyer, S. (1978) African Traditional Architecture, Heinemann Educational Books Ltd., London.
- Denyoh, F.M.K. (1969) Changes in Fish Population and Gear Selectivity in Volta Lake, in "Man-Made Lakes: The Accra Symposium", ed. Letitia E. Obeng, Ghana University Press, Accra; p.206.
- Department of the Environment
(1973) Local Government Act 1972: Administration of National Parks,
Circular 63/73 (Dept. of the Environment)
Circular 119/73 (Welsh Office), HMSO.
- (1974) Local Government Act 1972: Town and Country Planning Development Plan Provisions,
Circular 65/74 (Dept. of the Environment)
Circular 99/74 (Welsh Office), HMSO.
- (1974) Local Government Act 1972: National Parks,
Circular 65/74 (Dept. of the Environment)
Circular 103/74 (Welsh Office), HMSO
- (1976) Report of the National Park Policies Review Committee,
Circular 4/76 (Dept. of the Environment)
Circular 7/76 (Welsh Office), HMSO.
- (1977) Roads and Traffic - National Parks
Circular 125/77 (Dept. of the Environment)
Circular 182/77 (Welsh Office), HMSO.

- De Voto, B. (1953) Let's Close the National Parks, in "Harper's Magazine, October, 1953".
- Dickson, K.B. (1969) A Historical Geography of Ghana, Cambridge University Press, London; pp. 18-22.
- Dickson, K.B. and Benneh, G. (1970) A New Geography of Ghana, Longman Group Limited, London.
- Diller, J.S. and Patton, H.B. (1902) The Geology and Petrography of Crater Lake National Park, Crater Lake National Park, Oregon.
- Douglas-Hamilton, O and Douglas-Hamilton, I (1980) Africa's Elephants Can They Survive? In "National Geographic", Vol.158, No.5, November, 1980, National Geographical Society, Washington D.C.; pp.568-603.
- Dower, M.(1965) Fourth Wave: The Challenge of Leisure, in "The Architects' Journal", January, 1965, London; pp. 122-190.
- Duffey, E. (1982) National Parks and Reserves of Western Europe, Macdonald & Company Ltd., London.
- Eidsvik, H.K. (1980) National Parks and Other Protected Areas: Some Reflections on the Past and Prescriptions for the Future, in "Environmental Conservation", Vol.7 No.3, Autumn 1980, Elsevier Sequoia S.A., Lausanne; pp.185-190.
- Everhart, W.C. (1972) The National Park Service, Praeger, New York.
- Fabos, J.G., Milde, G.T. and Weinmayr, V.M. (1968) Frederick Law Olmsted Sr., The University of Massachusetts; p.43.
- Fein, A. (1972) Frederick Law Olmsted and the American Environmental Tradition, George Braziller, Inc., One Park Avenue, New York, N.Y. 10016.
- Fines, K.D. (1967) Landscape Evaluation: A Research Project in East Sussex, East Sussex County Council Planning Department.

- Foster, J. (1966) Peak District National Park Development Plan First Review, of Report and Analysis of Survey, Peak District National Park Board, Aldern House, Bakewell, Derbyshire.
- Frome, M. (1980) National Park Guide, Rand McNally and Company, New York.
- Gold Coast Secretariat (1938) The Gold Coast, Gold Coast Secretariat, Hudson and Kearns, Ltd., London.
- Gregory, J.W. (1968) The Great Rift Valley, Frank Case and Company, Ltd., London.
- Griffiths, J.F. (1966) Applied Climatology: An Introduction, Oxford University Press, London.
- Griffiths, J.F. (ed.), (1972) World Survey of Climatology, Vol.10: Climates of Africa, Elsevier Publishing Company, Amsterdam.
- Grillo, P.J. (1975) Form, Function and Design, Dover Publications Inc., New York.
- Hackett, B. (1971) Landscape Planning, Oriol Press Limited, 32 Ridley Place, Newcastle upon Tyne.
- Hall, J.B. and Swaine, M.D. (1976) Classification and Ecology of Closed-Canopy Forest in Ghana, in "The Journal of Ecology", eds. P.J. Grubb, C.H. Gimingham and J.H. Tallis, Blackwell Scientific Publications, London; pp. 913-951.
- Harley, J.B. (1975) Ordnance Survey Maps: A Descriptive Manual, HMSO, London.
- Harroy, J-P. (1972) National Parks: A 100-Year Appraisal, in "World National Parks: Progress and Opportunities", ed. Richard van Osten, Hayez, Brussels; pp. 13-20.
- Harroy, J-P. (1974) A Century in the Growth of the "National Park" Concept Throughout the World, in "Second World Conference on National Parks", ed. Sir Hugh Elliot, IUCN, Morges; pp.24-32.

- Hartzog, Jr., G.B. (1974) Management Consideration for Optimum Development and Protection of National Park Resources, in "Second World Conference on National Parks", IUCN, Morges, pp. 155-161.
- Hendee, J.C., Stankey, G.H. and Lucas, R.C. (1978) Wilderness Management, Forest Service, US Department of Agriculture, Washington D.C.
- Hill, H. (1980) Freedom to Roam: The Struggle for Access to Britain's Moors and Mountains, Moorland Publishing Co. Ltd., P.O. Box 2, Ashbourne, Derbyshire, DE6 1DZ.
- His/Her Majesty's Stationery Office (HMSO) (1924) Access to Mountains Bill (1924), HMSO, London.
- (1926) Access to Mountains Bill (1926) HMSO, London.
- (1927) Access to Mountains Bill (1927) HMSO, London.
- (1927) Access to Mountains Bill (1928) HMSO, London.
- (1930) Access to Mountains Bill (1930) HMSO, London.
- (1931) Access to Mountains Bill (1931) HMSO, London.
- (1931) Report of the National Parks Committee, (Addison Report), Cmd. 3851, HMSO, London.
- (1937) Access to Mountains Bill (1937) HMSO, London.
- (1938) Access to Mountains Bill (1938) HMSO, London.
- (1939) Access to Mountains Bill (1939), (As Amended by Standing Committee B) HMSO, London.
- (1939) Lords Amendments to the Access to Mountains Bill (1939), HMSO, London.
- (1939) Access to Mountains Act (1939), HMSO, London.
- (1942) Report of the Committee on Land Utilisation in Rural Areas (1942), (Cmd. 6378), (Scott Report), HMSO, London.

His/Her Majesty's Stationery
Office (HMSO) (1944)

- (1944) Post-War Forest Policy Private Woodlands, Supplementary Report by H.M. Forestry Commissioners, (Cmd. 6500), HMSO, London.
- (1944) The Control of Land Use, Cmd. 6537, HMSO, London.
- (1945) National Parks in England and Wales (1942), Cmd. 6628, (John Dower Report), HMSO, London.
- (1945) National Parks: A Scottish Survey (1945), Cmd.6631, (Ramsay Report), HMSO, London.
- (1947) Report of the National Parks Committee (England and Wales), (1947), Cmd.7121 (Hobhouse Report), HMSO, London.
- (1947) Conservation of Nature in England and Wales (1947), Cmd. 7122, (Huxley Report), HMSO, London.
- (1947) Footpaths and Access to the Countryside, Report of the Special Committee (England and Wales), (1947), Cmd. 7207, HMSO.
- (1947) National Parks and the Conservation of Nature in Scotland, Report by the Scottish National Parks Committee and the Scottish Wild Life Conservation Committee (1947), Cmd. 7235, (Ramsay and Ritchie Report), HMSO, London.
- (1947) Town and Country Planning Act, 1947, HMSO, London.
- (1949) National Parks and Access to the Countryside Act, 1949, HMSO, London.
- (1950) National Parks and Access to the Countryside, HMSO, London.
- (1955) Agreements on Afforestation in the Lake District, HMSO, London.
- (1967) Countryside (Scotland) Act 1967, HMSO, London.
- (1968) Countryside Act, 1968, HMSO, London.
- (1968) National Parks and Access to the Countryside Act 1949 and the Countryside Act 1968, Explanatory Memorandum on Grants, HMSO, London.

- His/Her Majesty's Stationery Office (HMSO) (1970) Development Plans, A Manual on Form and Content, HMSO, London.
- (1971) Town and Country Planning Act, 1971 HMSO, London.
- (1972) Local Government Act, 1972, HMSO, London.
- (1972) Forestry Policy, HMSO, London.
- (1974) Leisure in the Countryside, England and Wales, Cmd. 2928, HMSO, London.
- (1974) Report of the National Park Policies Review Committee, (Sandford Report) 1974 HMSO, London.
- (1977) Town and Country Planning (England and Wales), The Town and Country Planning General Development Order 1977 No.289, HMSO, London.
- (1977) First Special Report from the Expenditure Committee on National Parks and the Countryside, HMSO, London.
- (1981) Wildlife and Countryside Act 1981, HMSO, London.
- Horrobin, D.F. (1971) A Guide to Kenya and Northern Tanzania, East African Publishing House, Nairobi.
- Hoskins, W.G. (1977) The Making of the English Landscape, Penguin Books Ltd., Harmondsworth, Middlesex.
- House of Commons (1884) Access to Mountains (Scotland) Bill, 1884 House of Commons, London.
- (1885) Access to Mountains (Scotland) Bill, 1885 House of Commons, London.
- (1886) Access to Mountains (Scotland) Bill, 1886 House of Commons, London.
- (1887) Access to Mountains (Scotland) Bill, 1887 House of Commons, London.

- House of Commons (1888) Access to Mountains (Scotland) Bill, 1888
House of Commons, London.
- House of Commons (1888) Mountains, Rivers and Pathways (Wales)
Bill 1888, House of Commons, London.
- House of Commons (1890) Access to Mountains (Scotland) Bill, 1890
House of Commons, London.
- (1891) Access to Mountains (Scotland) Bill, 1891
House of Commons, London.
- (1892) Access to Mountains (Scotland) Bill, 1892
House of Commons, London.
- (1897) Access to Mountains (Scotland) Bill, 1897
House of Commons, London.
- (1898) Access to Mountains (Scotland) Bill, 1898
House of Commons, London.
- (1908) Access to Mountains (Scotland) Bill, 1908
House of Commons, London.
- (1908) Access to Mountains Bill, 1908, House of
Commons, London.
- International Union for Conservation of Nature and Natural Resources (IUCN), (1970) Resolutions Nos.1 and 2: Definition of National Park, "Proceedings of the 10th General Assembly, New Delhi, 1969", IUCN Publications, New Series, No.27, 1196, Gland; p.156.
- (1971) United Nations List of National Parks and Equivalent Reserves, Hayez, Brussels.
- (1972) Addendum - Corrigendum to The Second Edition of the United Nations List of National Parks and Equivalent Reserves, Hayez, Brussels.
- (1974) United Nations List of National Parks and Equivalent Reserves, IUCN International Commission on National Parks, 1110 Morges.
- (1980a) World Conservation Strategy, IUCN, 1196, Gland.
- (1980b) United Nations List of National Parks and Equivalent Reserves, IUCN, 1196 Gland.
- (1981) Conserving Africa's Natural Heritage, IUCN, 1196, Gland,

- Irvine, F.R. (1961) Woody Plants of Ghana, Oxford University Press, Amen House, London E.C. 4.
- Ise, J. (1961) Our National Park Policy: A Critical History, John Hopkins Press, Baltimore.
- Johnson, H.B. (1976) Order Upon the Land, the U.S. Rectangular Land Survey and the Upper Mississippi, Oxford University Press, New York.
- Kane, P.S. (1981) Assessing Landscape Attractiveness: A Comparative Test of Two New Methods, in "Applied Geography", An International Journal, Vol.1, No.2, April 1981, ed. D.J. Briggs, Butterworths, pp.77-96.
- Kayhanfar H. (1981) Application of Three Methods of Landscape Evaluation to the North Slopes of the Pentland Hills, Unpublished M.Phil. Thesis, University of Edinburgh.
- Keyes, N.B. (1980) America's National Parks, Doubleday and Company, Inc. Garden City, N.Y.
- Lake District National Park Board (1965) Report on Traffic in the Lake District National Park, Lake District National Park Board, Kendal, Cumbria LA9 4RQ.
- Lake District Special Planning Board (1978) Lake District National Park Plan, Lake District Special Planning Board, Kendal, Cumbria LA9 4RQ.
- Lamb, W. (1979) World Without Trees, Wildwood House Ltd. London.
- Larson, D.G. and Forbes, M.E. (1982) Annual Report on the Limnology and Water Quality Monitoring Program at Crater Lake National Park, Crater Lake National Park Service, P.O. Box 32, Oregon 97604, U.S.A.
- Laurie, I.C. (1979) Landscape Evaluation, University of Manchester.
- Laurie, M. (1976) An Introduction to Landscape Architecture, (Pitman Edition), Pitman Publishing Ltd., London.

- Lind, E.M. and Morrison, E.M.S. (1974) East African Vegetation, Longman Group Ltd., London.
- Lloyd, A. (1964) The Drums of Kumasi: The Story of the Ashanti Wars, Panther Books Ltd., 108 Brompton Road, London, S.W.3.
- Lovejoy, D. (1973) Land Use and Landscape Planning, Leonard Hill Books, International Textbook Company Limited, 24 Market Square, Aylesbury, Bucks HP20 1TL.
- Lusigi, W.J. (1978) Planning Human Activities in Protected Natural Ecosystems, J. Cramer, FI-9490, Vaduz.
- Lynch, K. (1971) Site Planning, MIT Press, Cambridge, Massachusetts.
- Macdonald, M.A. and Taylor, I.R. (1977) Notes on Some Uncommon Forest Birds in Ghana, (Bull. Brit. Orn. Cl., 1977:97 (4)), London; pp. 116-120.
- MacEwen, A. and MacEwen, M. (1982) National Parks: Conservation or Cosmetics? George Allen & Unwin (Publishers) Ltd. London.
- MacHarg, I.L. (1971) Design With Nature, The American Museum of Natural History, Doubleday and Company, New York.
- MacLaren, M. (1931) Lake Bosomtwe: Ashanti, in "The Geographical Journal, Vol. LXXVIII, July to December, 1931", The Royal Geographical Society, Kensington Gore, London S.W.7; pp. 268-276.
- Manning, R.E. (1979) Strategies for Managing Recreational Use of National Parks, in "Parks", Vol.4, No.1, IUCN-Morges; pp. 13-15.
- McLeod, M.D. (1981) The Asante, British Museum Publications Ltd., London.
- Miller, K.R. (1982) Planning National Parks for Ecocodevelopment: Methods and Cases from Latin America, The University of Michigan, Ann Arbor, Michigan.

- Moss, R.P. (1969) The Ecological Background to Land Use Studies in Tropical Africa, with Special Reference to the West, in "Environment and Land Use in Africa", eds. M.F. Thomas and G.W. Whittington, Methuen and Co. Ltd. London; pp. 193-238.
- Muir, J. (1981) Our National Parks, The University of Wisconsin Press, Wisconsin.
- Murray, B. (1980) Housing Policy in a National Park (Lake District), Liverpool Polytechnic.
- Myatt, F. (1966) The Golden Stool: An Account of The Ashanti War of 1900, William Kimber, 46 Wilton Place, London S.W.1.
- Myers, N. (1972) National Parks in Savannah Africa, Science Vol. 178, pp. 1255-1263.
- Nash, R. (1967) Wilderness and the American Mind, New Haven, Yale University Press.
- (1968) Wilderness and Man in North America, in "The Canadian National Parks: Today and Tomorrow, eds. J.G. Nelson and R.C. Scace, University of Calgary Press, Calgary.
- National Park Service (1970) Administrative Policies, National Park Service, U.S. Department of the Interior, Washington, D.C.20240.
- (1978) Management Policies, National Park Service, U.S. Department of the Interior Washington D.C. 20240.
- (1978) Planning Process Guideline, National Park Service, U.S. Department of the Interior, Washington D.C.20240.
- Nelson, J.G., Needham, R.D. and Mann, D.L. (eds.), (1978) International Experience with National Parks and Related Reserves, Department of Geography Publication Series No.12, Department of Geography, Faculty of Environmental Studies, University of Waterloo, Ontario.
- Northumberland County Council (1977) Northumberland National Park Plan, National Park and Countryside Committee, Northumberland County Council.

- Obeng, L.E. (ed.), (1969) Man-Made Lakes: Some Perspectives, in Man-Made Lakes: The Accra Symposium, Ghana University Press, Accra; p.19-24.
- (1975) Agriculture and Water Problems: The Case of the Volta Lake, in "Development and the Environment in East Africa", Occasional Paper No.15, University of Nairobi; pp.78-91.
- Olindo, P.M. (1974) Park Values, Changes and Problems in Developing Countries, in "Second World Conference on National Parks", ed. Sir Hugh Elliot, IUCN, Morges; pp.52-60.
- (1975) Visitor and Vehicle Pressure in National Parks, in "Development and the Environment in East Africa", Occasional Paper No.15, University of Nairobi; pp. 180-200.
- Olson, B. (1976) The Role of Public Participation in Parks Canada Planning, Master of Environmental Design (Urbanism) Thesis, Faculty of Environmental Design, The University of Calgary, Calgary.
- Parkard, F. (1972) The Problem of Definitions, in "World National Parks: Progress and Opportunities" ed. Richard van Osten, Hayez, Brussels; pp. 63-66.
- Parks Canada (1979) Parks Canada Policy, Parks Canada, Ottawa.
- Patmore, J.A. (1972) Land and Leisure, Penguin Books Ltd. Harmondsworth, Middlesex.
- Peak Park Joint Planning Board (1976) Peak District National Park Structure Plan, Peak Park Joint Planning Board, Bakewell, Derbyshire.
- Peak Park Joint Planning Board (1977) Peak District National Park Plan, Peak Park Joint Planning Board, Bakewell, Derbyshire.
- Pembrokeshire Coast National Committee (1977) Pembrokeshire Coast National Park Plan Pembrokeshire Coast National Park Committee, Dyfed County Council, Dyfed.

- Prothero, R.M. (ed.), (1969) A Geography of Africa, Routledge and Kegan Paul Ltd., London.
- (ed.), (1978) People and Land in Africa South of the Sahara: Readings in Social Geography, Oxford University Press, London.
- Quartey, E.L. (1969) Man-Made Lakes: The Accra Symposium, ed. Letitia Obeng, Ghana University Press, Accra; p. 15.
- Quigg, P.W. (1978) Protecting Natural Areas, National Audubon Society, 950 Third Avenue, New York, New York, 10022.
- Rattray, R.S. (1923) Ashanti, Oxford University Press, London.
- Reed, N.P. (1974) How well has the United States Managed its National Park System? The Application of Ecological Principles to Park Management, in "Second World Conference on National Parks", ed. Sir Hugh Elliot, IUCN, Morges; pp. 38-49.
- Reekie, R.F. (1975) Background to Environmental Planning, Edward Arnold (Publishers) Ltd., London.
- Richards, P.W. (1952) The Tropical Rain Forest - An Ecological Study, Cambridge University Press, London.
- Roper, L.W. (1973) A Biography of Frederick Law Olmsted, The Johns Hopkins University Press, Baltimore.
- Rowntree, R.A. (1972) Managing Visitors in Order to Protect Park Values, in "National Parks for the Future", The Conservation Foundation, Washington D.C.; pp. 163-168.
- Sarasin, P. (1913) Exposé Introductif de M. Paul Sarasin, in "Recueil des procès-verbaux de la Conférence Internationale pour la Protection de la Nature", K.J. Wyss, Berne; pp. 32-82.
- Scharff, R. (ed.), (1967) Yosemite National Park, David McKay Company, Inc., New York.

- Sekyi, P.E. (1981) Evolution of the Concept of National Park in the United States and Britain, in "Edinburgh Architecture Research, Vol.8, 1981, ed. Young C. Kim, Department of Architecture, School of Built Environment, University of Edinburgh; pp. 54-74.
- (ed.), (1982) British National Parks: Conflicts, Compromises and Solutions in Primary Land Uses, in "Edinburgh Architecture Research, Vol.9, 1982, Department of Architecture, School of Built Environment, University of Edinburgh; pp. 83-103.
- (1983) British National Parks: Scotland Without A National Park, in "Edinburgh Architecture Research, Vol.10, 1983, eds. Dina Demiri and Mark Frederickson, Department of Architecture, School of Built Environment, University of Edinburgh; pp. 39-65.
- Sheail, J. (1975) The Concept of National Parks in Great Britain 1900-1950, in "Institute of British Geographers, Transactions No.166, November, 1975, London; pp. 41-56.
- Shoard, M. (1980) The Theft of the Countryside, Maurice Temple Smith Ltd., London W.C.1.
- Smith, C. (1978) National Parks, Fabian Tract 456, Fabian Society, 11 Dartmouth Street, London SW1H 9BN.
- Smith, W.D. and Swartzlow, C.R. (1936) Mount Mazama: Explosion Versus Collapse, in "Bulletin of the Geological Society of America, Vol. 47, December 31, 1936; pp. 1809-1830.
- Standish, R.I. (1972) World National Parks - Problems of Today and Tomorrow, Progress During the Sixties - A Summary in "World National Parks: Progress and Opportunities, ed. Richard van Osten, Hayez, Brussels; pp 21-28
- Stebbing, E.P. (1937) The Forests of West Africa and the Sahara, W & R Chambers Ltd., London.
- Stohr-Gillmore, M.W. (1983) Environmental Management Appraisal of Crater Lake, Oregon, Unpublished M.A. Thesis, University of Oregon.

- Strahler, A.N. and Strahler, A.H. (1973) Environmental Geoscience: Interaction Between Natural Systems and Man, Hamilton Publishing Company, Santa Barbara, California.
- Sutton, D.B. and Harmon, N.P. (1973) Ecology: Selected Concepts, John Wiley and Sons, Inc. 605 Third Avenue, New York, N.Y. 10016.
- Szafer, W. (1973) History of Nature Conservation in the World and in Poland, in "Protection on Man's Natural Environment" ed. Wlodzimierz Michajlow, PWN - Polish Scientific Publishers, Warsaw; pp. 7-51.
- Tandy, C.R.V. (1971) The "Isovist" Method of Visual Analysis of Landscape, Lands Use Consultants, Croydon.
- Thompson, M.M. (1979) Maps for America - US Geological Survey, Reston, Virginia; pp. 240-241.
- United States Congress (1872) Act to Establish Yellowstone National Park, March 1st., 1872; (P.L. 46-24 Stat.32).
- (1890) Act to Establish Yosemite National Park, 1890.
- (1902) Act to Establish Crater Lake National Park, May 22, 1902, (32 Stat. 202)
- (1916) Act to Establish a National Park Service, August 25, 1916, (39 Stat.535).
- Unwin, A.H. (1920) West African Forests and Forestry, T. Fisher Unwin Ltd., London.
- Varley, W.J. and White, H.P. (1958) The Geography of Ghana, Longmans, Green and Company Limited, London.
- Warfield, R.G., Juillerat, L. and Smith, L. (1982) Crater Lake: The Story Behind the Scenery, KC Publications, Las Vegas, Nevada.
- Westmacott, R. and Worthington, T. (1977) New Agricultural Landscapes, (CCP 102), Countryside Commission, Cheltenham.

- Whiteman, K. (ed.), (1984) Ghana's Population Census - 1984, in "West Africa, 13th August, 1984, No.3495" West Africa Publishing Company, London; p.1659.
- Whitfield, T.J.R. and Taylor, M.J.L. (1980) Cumbria and Lake District Joint Structure Plan, Cumbria County Council and Lake District Special Planning Board, Cumbria.
- Williams, H. (1942) The Geology of Crater Lake National Park, Oregon, Carnegie Institution of Washington, D.C.
- Williams, J. G. (1981) A Field Guide to the National Parks of East Africa, William Collins Ltd., London.
- Wills, J.B. (ed.), (1962) Agriculture and Land Use in Ghana, Oxford University Press, London.
- (ed.), (1962) Crops Other Than Cocoa, in "Agriculture and Use in Ghana", Oxford University Press, London; pp. 193-238.
- Wilson, H. and Womersley, (1972) Traffic Management in the Lake District National Park, Friends of the Lake District, Kendal.
- Winterbottom, H.S.L. (1933) The Use of the New Grid on Ordnance Survey, in "The Geographical Journal, No.82, 1933", London; pp. 42-54.
- Wordsworth, W. (1906) Guide to the Lakes, 4th. Reprint, ed. Ernest de Selincourt, Oxford University Press, Walton Street, Oxford, OX2 6DP; pp. 92.
- Yapp, W.B. (1969) The Weekend Motorist in the Lake District: The Report of a Survey, Countryside Commission, Cheltenham.
- Yosemite National Park Service, (1974) Master Plan, Yosemite National Park Service, Yosemite, California.
- Yosemite National Park Service, (1978) Draft Environmental Statement, General Management Plan, Yosemite National Park, National Park Service (Denver Service Centre), U.S. Dept. of the Interior, Washington D. C.20240.

- Yosemite National Park Service,
(1978) Draft General Management Plan: Visitor Use/Park Operations/Development, Yosemite National Park Service, Department of Interior, Washington D.C. 20240.
- (1980) General Management Plan: Visitor Use/Park Operations/Development, Yosemite National Park Service, Department of Interior, Washington D.C. 20240.
- (1980) Crisis in Yosemite, Yosemite National Park Service, P.O. Box 577, California 95389.
- Zetter, J.A. (1971) The Evolution of Country Park Policy, Countryside Commission, Cheltenham.