



## Strategies for enhancing local support for wildlife conservation in Maasai land, Kenya

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STRATEGIES FOR ENHANCING LOCAL SUPPORT FOR WILDLIFE  
CONSERVATION IN MASAILAND, KENYA

By

Simon Kasaine Ole Seno

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A Dissertation Submitted to the Faculty of the  
SCHOOL OF RENEWABLE NATURAL RESOURCES

In Partial Fulfillment of the Requirements  
For the Degree of

DOCTOR OF PHILOSOPHY  
WITH A MAJOR IN WILDLIFE AND FISHERIES SCIENCE

In the Graduate College

THE UNIVERSITY OF ARIZONA

1998

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entitled STRATEGIES FOR ENHANCING LOCAL SUPPORT FOR  
WILDLIFE CONSERVATION IN MASAILAND, KENYA

and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy

  
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William W. Shaw

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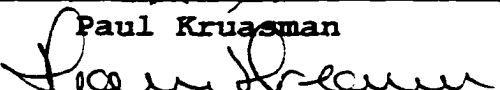
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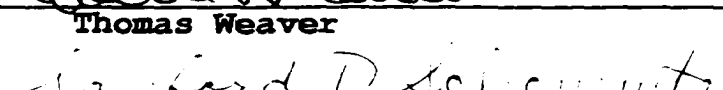
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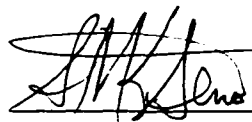
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## ABSTRACT

The primary goal of my study was to evaluate strategies for promoting local support for wildlife conservation in Masai Mara National Reserve (MMNR) and the adjacent group ranches. This was done by determining the effects of the changing land tenure from communal to individual on the Maasai lives and wildlife, and the role of the revenue sharing program in enhancing support for wildlife conservation. The study used local people's suggestions to recommend strategies for improving revenue sharing. A combination of literature review, questionnaire-based surveys and participant observation methods were used to achieve these goals.

The maintenance of a viable ecosystem in Mara has succeeded due to the traditionally benign relationship between the Maasai and wildlife. However, various factors continue to strain this relationship. First, increasing human population and encroachment of agriculture has diminished areas available for livestock and wildlife grazing. Second, the absence of compensation for loss of life and property to wildlife and inadequacy of the revenue sharing has increased people's antagonism towards wildlife. Third, since the local people are excluded from the management of MMNR and wildlife in general, they consider these activities external impositions. Fourth, subdivision of group ranches will severely reduce the land available for livestock and wildlife grazing and eliminate the traditional resource sharing strategy that has sustained the Maasai for centuries.

This study also revealed that although the Maasai harbor many negative feelings towards MMNR, they consider it an important asset. Further, they are unwilling to give

up pastoralism and expect to continue with communal grazing after subdivision which is good for wildlife conservation. In view of this, I made the following recommendations: implement a regional land management system with a core wildlife area (the reserve) and a wildlife management-pastoral area surrounding the core. and designated zones for agriculture; support the above system with firm government policies and incentives; redesign the revenue sharing program to cover all the affected people; promote policies that encourage diversified wildlife-based enterprises including consumptive use; transfer much of the wildlife management responsibilities to the local people.

**CHAPTER I:**  
**MASAI MARA REGION: THE PEOPLE, CONSERVATION AND  
DEVELOPMENT**

A. RESOURCES

General Description

Masai<sup>1</sup> Mara National Reserve (MMNR) occupies the northern portion of the Mara-Serengeti ecosystem that extends from Tanzania into Kenya (Figure 1.1) and it covers an area of 1,368 sq. km. (Sinclair and Norton-Griffiths 1979). The reserve is situated on the southern part of the Kenyan portion of the ecosystem. This Kenyan part shall be referred to as Masai Mara region in this dissertation. The Mara-Serengeti ecosystem covers an area of 30,000 km<sup>2</sup> and supports one of the world's richest assemblages of wildlife (Sinclair and Norton-Griffiths 1979).

Mara is a gazetted (designated) wildlife protection area under the jurisdiction of the Narok and Transmara County Councils. The reserve was declared a National Reserve in 1948 (Republic of Kenya 1983) and covered an area of 647 km<sup>2</sup>. It was first gazetted in 1961 and re-gazetted in 1974 with an area of 1,530 km<sup>2</sup>. In 1984, a total of 162 km<sup>2</sup> was de-gazetted leaving the present 1,368 km<sup>2</sup>.

The Mara region is critical to the entire Mara-Serengeti ecosystem. Its high rainfall, permanent water sources, and high grassland productivity makes it a critical dry season refuge for the Serengeti migrant wildlife that spend up to four months in the

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<sup>1</sup> Masai is used here to denote the area, while Maasai will be used to refer to the Maa speaking tribe. Older literature uses Masai to refer to the tribe

region (McNaughton 1985, Dublin 1986, Douglas-Hamilton et al. 1988).

The physical characteristics and the wildlife create a spectacular landscape, which forms the base for tourism in this region. Masai Mara by itself can not support all the wildlife in the region, and the adjacent group ranches owned and managed by the pastoral Maasai form the main wildlife dispersal area for both resident and migrant species (Sinclair and Norton-Griffiths 1979, Dublin 1986, McNaughton and Georgiadis 1986).

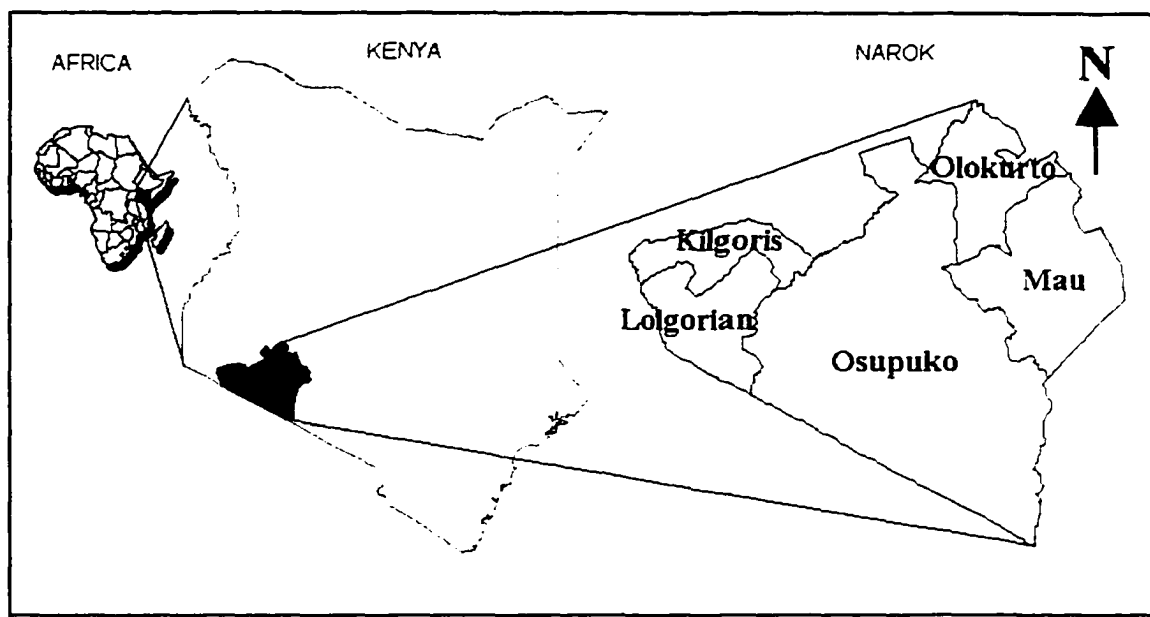


Figure 1.1 Map showing the position of Kenya in Africa, Narok in Kenya, Narok divisions

## B. THE SOCIO-CULTURAL SETTING

### History of the Maasai Territory

Oral history, written records, and evidence from linguistic sources and archaeological material suggests that a Maasai historiography can be roughly classified

into four periods: up to circa 1640; 1640-1890; 1890-1960; 1960-present (Rigby 1988). The Maasai are believed to have occupied a lowland area in northwest Kenya about 400 years ago. They subsequently moved southward, and by 1640 they had arrived in the center of the present Kenya Masailand (Talbot 1986).

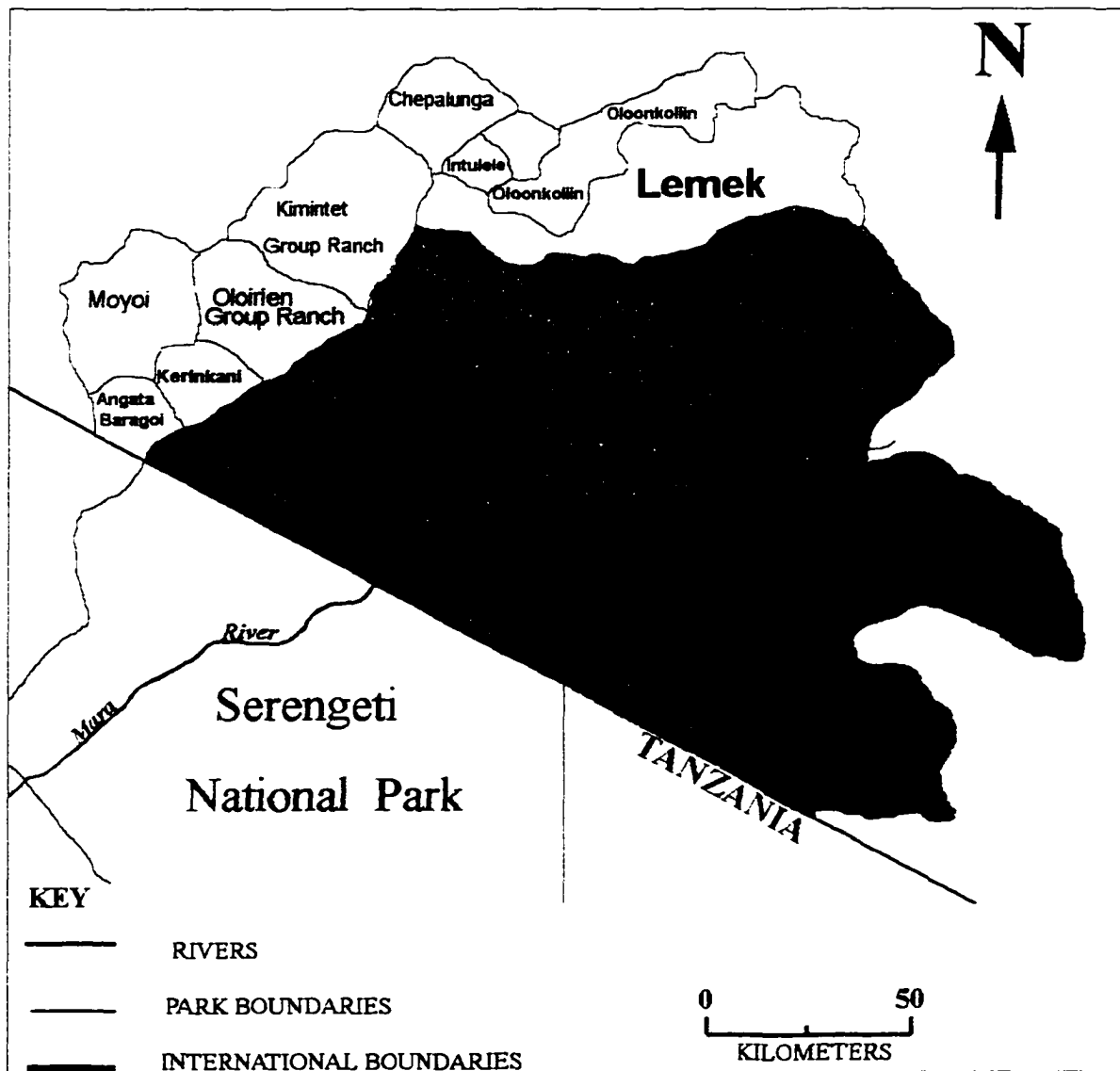


Figure 1.2 Map of Narok showing divisions, Masai Mara National Reserve, and highlighting the four group ranches studied



During the next 150 years or so they moved over 300 miles south, and by 1800 a few had made what proved to be the tribe's deepest penetration into Tanzania. There is very little written account of the Maasai during this first period.

The second period, was marked by the appearance of the great prophets (*iloibonok kituaak*) and the penetration of merchants and traders from the coast (Arabs, Portuguese, and later British, French, Germans and Americans) (Rigby, 1981). Intrusion by traders and merchants influenced production and production relations among most peoples in the path of their trading and raiding routes (Rigby 1992:121).

The third period was marked by the penetration of colonialism, a period when the Maasai lost most of their territory. In the early 1880s, just prior to the start of colonial rule, the Maasai occupied an area estimated at well over 200,000 km<sup>2</sup>. (Talbot 1986: 445). By 1961, the Maasai occupied only 93,000 km<sup>2</sup> (Figure 3-1). British justification of expropriating Maasai grazing lands and other forms of exploitation was built on the guise of protecting neighboring people from assumed Maasai depredations and from themselves (Rigby 1992). They also claimed that the Maasai had stolen the land from their neighbors, and there was nothing wrong with expropriating it for settlers' use, since they did not need it anyway. Contemporary interventions in Maasai society continue to be justified on the grounds that they are "in the best interest of the Maasai". The British projected onto Maasai their greed for territorial expansion as a form of colonial accumulation, on behalf of the white settlers (Sorrenson 1968). Maasai were then accused, tried, and convicted in absentia by the British for stealing these expropriated lands from others (Parkipuny 1991). This later became the justification for

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the so called "treaties" between the British and the Maasai of 1904 and 1911, through which the Maasai lost vast areas of their best lands (Ndagala 1992, Rigby 1992). The 1904 "agreement" between the British and Maasai resulted in the loss of the best Maasai grazing lands in the heart of their country (Sindiga 1984, Talbot 1986). By 1909, the influx of white settlers generated mounting pressure to remove the Maasai from the highlands to the Southern Reserve where they remained isolated from the rest of the Kenyans until independence.

The final period, 1960 to present, represents the pre-independence era and is characterized by many interventions by government and development agencies aimed at developing Masailand and sedentarizing the inhabitants (Campbell 1984, Kituyi 1990, Rigby 1992). During the colonial period, the Maasai lived in their reserve and remained more or less isolated from the encompassing society. Consequently, independence found them ill prepared for the rapid modernization and free-market economy ushered in by the new African government (Kituyi 1990). Further, the antipathy the central government showed toward pastoralists in general resulted in political and economic marginalization of the Maasai after independence (Galaty 1980). After Kenya's independence, in 1963, the process of land alienation was reinforced as people from nearby agricultural communities began migrating extensively into pastoral areas (Sarone 1984, Kituyi 1990).

Immediately after independence, the Kenya government land policy was to foster security of tenure in land through the process of individualization of title (Migot-Adholla and Little, 1981). It was argued that individualization of title not only conferred

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security of tenure but also provided incentives to individuals to invest in their land (Tobiko 1989, Galaty 1992). In some parts of the country, particularly in pastoral areas, individualization was then deemed not practical either because the local people were not ready or due to the need for access to wider resources in dry lands. Consequently, group ranches were regarded as a successful land tenure intervention. Through group ranches, communal lands were divided into smaller units with a group title deed. These ranches were seen as a compromise between individual ownership and the need for access to wider resources in dry lands. Apparently the group ranch concept did not fulfill the desired objectives and the government implemented a policy subdividing all the ranches in Masailand and issuing individual titles. This, in addition to increasing population, will have serious implications on the Maasai livestock production economy as well as on wildlife conservation.

### Community Structure

#### (1) Household Level

The organization of pastoral production among the Maasai takes place at three levels (Galaty 1981). The first level is that of homesteads or kraal (*enkang* or *emanyatta*)<sup>2</sup>. The kraal is an enclosure of several polygamous families who have joined together on the

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<sup>2</sup>Emanyatta (Manyat pl.) referred to special warrior villages where junior-warriors (*Ilmorran*) lived until they graduated into senior warrior status. Living in these warrior villages with their mothers and young girls, the warriors developed a strong sense of group identity and loyalty which remained with them the rest of their lives. This term is now used to refer to a Maasai settlement. *Enkang* is the term used to refer to a family settlement. In this dissertation, Manyatta (which refers to *Emanyatta*) and kraal will be used to refer to a Maasai settlement.

basis of congeniality and common interest in the economic exploitation of their vicinity (Saitoti 1978). It is surrounded by a fence and forms the basic unit of settlement and principal center of domestic life. Entrance is made through a number of separate gates, each owned by an independent family and the number of gates indicates the number of family units in the kraal.

At this level, the Maasai practice an elaborate division of labor to facilitate the transformation of pastoral resources into pastoral products. Young boys (*layiok*) and client herdsmen tend flocks and herds while young men (*ilmurran*) perform community functions of communication and defense and assist in the more arduous aspects of herd movement. Women (*inkituak*) are concerned with food production, preparation and distribution (primarily associated with milk). Male elders (*ilpaiyani*) involve themselves primarily in administration, and in overall management and policy decision, at both domestic and community levels.

## (2) Territorial Section Level

The second level is the local territorial section (*Oloshon* sing. *Iloshon* pl.) comprising various localities of frequently mobile domestic groups, in which the units of production at the first level have communal rights of appropriation of pasture, water, and salt. Masailand and its inhabitants are divided into some 20 territorial sections sometimes referred to as tribes, sub-tribes or sections (Table 3.1). These sections of the Maasai are independent groups of people, having their own name, specific territory with well defined boundaries, peculiarities of dress, beadwork, speech, housing, celebration of ceremonies and defense systems (Mol 1978, Galaty 1981). The borders are founded

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on customary use, but were strengthened and formally decided upon by the British in colonial times. In addition to the sections given above, there are some that were destroyed during the Maasai Iloikop wars of the 19<sup>th</sup> century (Mol 1978). Among the best known are the Iltaarromodoon, Ilosekelai, Iloogolala and Ilaikiapiak. Most of these groups either joined the IIntorobo or other Maasai sections.

Table 1.1 Current Maasai Territorial Sections (Sources Rutten 1992, Amin et al. 1988)

Country	District	Olosho/Section	Region of habitat	
Kenya	Narok	Loita	Around Loita hills (SE Narok)	
		Purko	Lemek area (Central Narok)	
		Ildamat	Mau area (NE Narok)	
		Keekonyokie	Suswa	
	Trans-Mara	Uasinkishu (or Kirasha)	Moitanik	Around Kilgoris
			Siria	Shartuka Masurura
				Lolgorien
	Kajiado	Loodokilani Kaputiei Matapato Keekonyokie Dalalekutuk (or Kankere ) Kisonko (or Loitokitok) Ildamat Purko		Around Lake Magadi (SW Kajiado)
				Athi river to Chyulu hills (N Kajiado)
				Around Namanga (S Kajiado)
				From Suswa-Ngong down (NW Kajiado)
				Around Enkorika (central Kajiado)
				Amboseli and Rombo area (SE Kajiado)
				Surrounding Kajiado town (central Kajiado)
Tanzania	Kisonko Sikirari Laitayiok Loita Purko		Around Bissel (central Kajiado)	
			From Lake Natron to Mt. Kilimanjaro southwards	
			West of Mt. Kilimanjaro	
			Serengeti south of Lake Natron	
			West of Lake Natron	
		West of the Loita and Lake Natron		

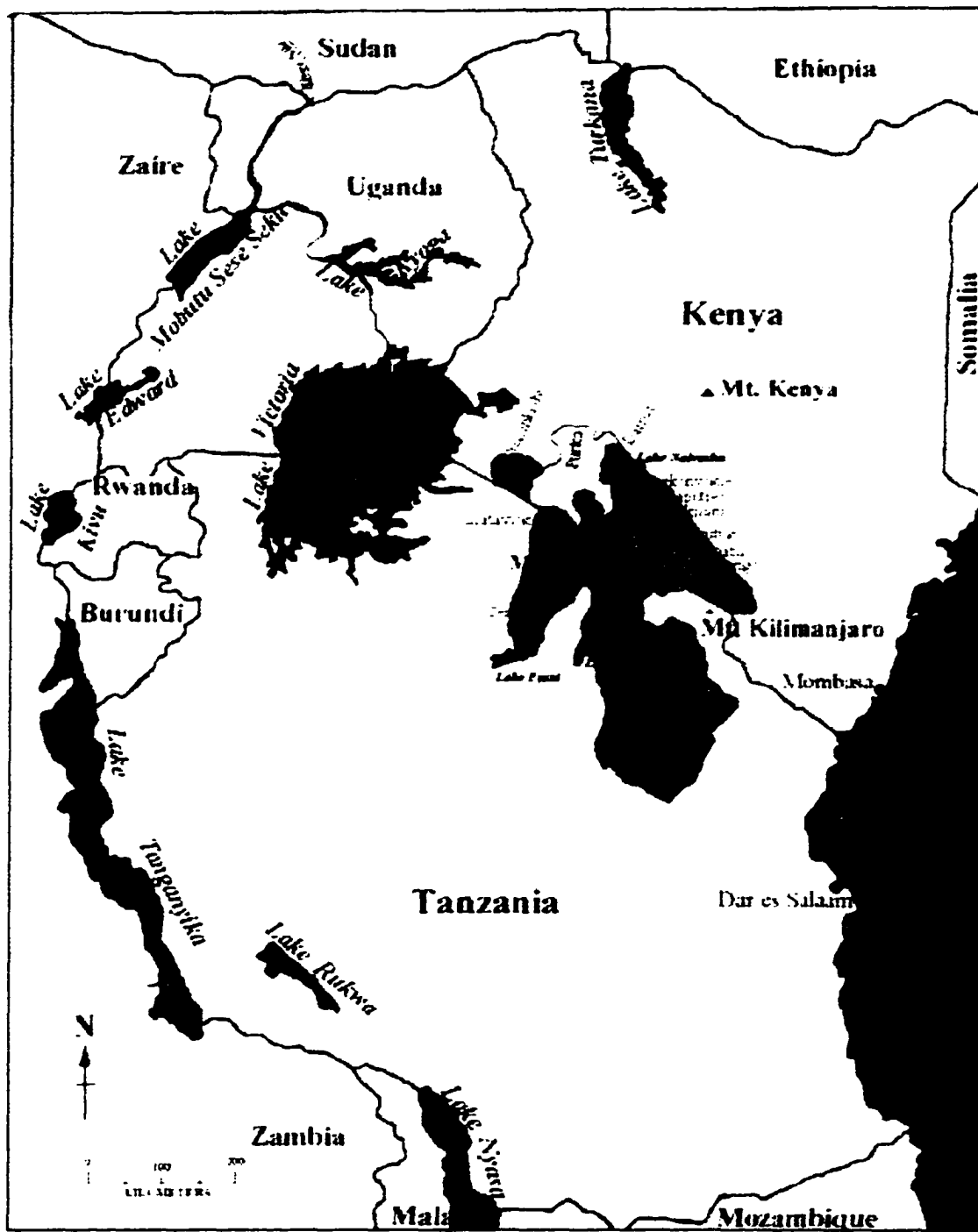


Figure 1.3 Current Location of Maasai Territory in Kenya and Tanzania (adapted from Amin et al. 1988 and Rutten 1993)

### (3) The Age-Set Level

The third level is the extra-territorial dimensions of age organization or age-sets. At any historical period, each named age-set occupied a position in the formal hierarchy of age grades (junior warriors, senior warriors, junior elders, senior elders, and retired elders) (Galaty 1981). Each age-grade has specific tasks and functions and hierarchically ordered authority and influence. Long historical periods are remembered primarily by the age-set that happened to be warriors (Ilmuran) at the time. The recent past of the Maasai, therefore, from about 1890 to present, has been characterized by varying responses of different age-sets to the penetration of colonial and post-colonial power and influence (Rigby 1988, 1992).

Table 1.2 Maasai age group structure

AGE CLASS	AGE
Early boyhood (Nkayiok)	appr. 1-7 years
Later boyhood (Layiok)	appr. 8-15 years
Junior warriors (Ilmurrān)	appr. 16-22 years
Senior warriors (Ilmurrān)	appr. 23-30 years
Junior elders (Ilpaiyani)	appr. 31-45 years
Senior and retired elders (Ilpaiyani kituak)	appr. 46 +

The first politically meaningful age-set is that of the warrior (*ilmorran*) into which the young Maasai adults are initiated through circumcision ceremonies at the age of 15 to 20 years. All the young men within this age bracket are circumcised during the same open period, lasting about five years and form a single moran group. The ilmorrān establish themselves in special villages (*manyattas*) and serve as junior warriors for about ten years. These young men are graduated into senior warrior status at a special milk-drinking ceremony (*Eunoto*).

The basic duties of the warriors are to defend the community from attack, to raid for cattle and other forms of wealth, to learn the arts of governing which they will have to employ later as elders, and to help with the herding of livestock during the dry season. The warriors are graduated into junior elderhood at the meat-eating ceremony (*Olngesherr*).

Elders ideally are the source of political authority. They make the decisions to be implemented by the *ilmorran*. There are three grades of elders: junior elders who are mainly concerned, with establishing their own families. During their tenure, junior elders learn and master the more intricate responsibilities of senior elderhood.

The senior elders are the supreme power among the Maasai. They meet in council under the leadership of a spokesman (*Olaigwenani*), (selected for each age set) to settle disputes and decide general policy. Their decisions grew out of consensus. Retired elders are not active in tribal politics, but are often consulted in important matters because of their wisdom.

The Maasai social organization based on the age set system played an important role in promoting their pastoral production and conservation of wildlife by protecting their land from encroachment. Sir Frederick Lugard voiced this fact when he made the following observation about the Maasai, quoted by (McGregor 1968)

The fact that immense areas, entirely suitable for grazing purposes, were not made use of, is to be attributed to the reign of terror exercised by the Maasai. It was pre-eminently the Maasai tribe which held vast tracts of country open for European penetration, because they kept these areas from being occupied and used. To them also may be attributed the persistence and increase of a wild fauna which makes Kenya Colony to-day the most richly stocked big-game areas in the world. They did not kill and eat game themselves, and they kept meat-eating tribes, such as the Akamba, off the



prairies where the game abounded. They also waged unceasing war against the lion, thereby restricting the serious toll that it levied upon the antelope life of the plains. Up to the very limits of the grass-land, where the elevated prairies ran as embankments into the wooded foothills of the Escarpment, there were Maasai villages.

### C. TRADITIONAL NATURAL RESOURCES EXPLOITATION STRATEGIES

The Maasai have a special attachment and respect for the land. This is portrayed through their traditional beliefs and views about land and the natural resources within it. All natural resources and living things have traditional names, special uses, and special cultural roles. The Maasai believe that life and spirituality of humans is derived from the Mother Earth.

Myths, legends and tales about land are narrated in a sanctified manner and aridity of the land is viewed as a severe punishment by the Creator (*Enkai*), a sign of annoyance for activities that are destructive to the environment. Droughts and famine are considered indicators of the coming punishment. When droughts occur, the Maasai pull together and sacrifice spotless rams and steers to the Creator and Mother Earth to appease her. The Maasai believe that the tilling of land is a curse, an abuse to Mother Earth. Marshes, swamps and wells are sacred areas that are respected, and no settlements are allowed within a reasonable radius (approximately 5 kilometers) from these sources.

Traditionally, the Maasai sacrificed spotless rams and steers annually at these sites to thank Mother Earth for providing them with these life-supporting areas. The Maasai believe that the ecosystem can be destroyed if these traditional views are ignored, which is exactly what is happening under the new individual tenure system.

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This new concept of land ownership is alien to the Maasai and is contributing to the indiscriminate destruction of the environment.

### Livestock Production Strategies

Rearing of livestock represents the core element of production and social reproduction among the Maasai. Good herd management involves, first and foremost, ensuring that productive range resources are available on a sustainable basis. This requires ingenious management of that habitat so as to ensure a long term and sustainable supply of range resources. In areas like Maasai land where environmental conditions are so variable that all the resources cannot be obtained from one area, continuous supply of range resources is assured through communal use on a large geographical range. To facilitate this mode of resource exploitation, the Maasai and other pastoral communities have evolved an elaborate strategy that involves seasonal movement of livestock between areas of different resource potentials. These movements involve complex decisions that are carefully planned. The Maasai move according to a definite annual cycle, which is determined by seasonal changes in weather that further influences the growth cycle and distribution of pastures and water. This production strategy will be referred to as transhumance (Spooner 1974). These transhumance strategies (Smith 1993) are not solely restricted to wet versus dry-season movements, but can be dictated in any season by formal and informal regulations relating to frequency of utilization of a given range.

These arrangements are also range management practices providing for herd dispersion, pasture rotation to protect and allow regeneration of important forage plants

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and avoid undue stress on fragile range resources. The patterns of traditional resource use by Maasai pastoralists are survival strategies providing flexible mechanisms that permit relatively free livestock movement, dispersal, separation, and the splitting of herds designed to reduce or avoid risks (Gulliver 1955, Swift 1977, Peacock et al. 1982, Sperling and Galaty 1990, Smith 1992).

This range management strategy includes constant monitoring and evaluation of changes in range conditions to determine the effect of their exploitation practices. The Maasai pastoralists have developed various sampling and surveying techniques to determine the condition of the range including the use of indicator plant species, health of animals, and milk yields (Kipuri 1996, personal communication with elders 1997).

The Maasai like other pastoral communities raise a combination of different livestock species with slightly overlapping dietary habits, water and management requirements. This ensures a more efficient allocation and utilization of the range resources for maximum benefits. During periods of drought and fodder shortage, the Maasai are known to practice methods of controlled breeding for various livestock species. For example, during dry season they use penile sheets made of animal hide to prevent sheep and goats from breeding. It is clear from sophisticated practices such as these that Maasai culture includes many traditional practices to ensure sustainable livestock production.

Pastoral traditions are threatened by development and protection pressures. On the one hand, economic pressures for agriculture and tourism development continually convert traditional grazing lands to other uses (Odienge 1988, Campbell and Olson

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1991). On the other hand, parks and protected areas usurp pastoral lands and may create conflicts through competition with wildlife for forage or predation of livestock by carnivores (Enghoff 1990). If these conflicts imposed by changing land-use patterns continue, the integrity of conservation areas and pastoralism as a wildlife conservation strategy may be jeopardized. This study explored possibilities for inducing the Maasai living adjacent to MMNR to maintain their pastoral life styles as a strategy for conservation of wildlife and also as a means to contribute to national needs for food.

#### Exploitation of Wild Fauna and Flora

The significance of the natural environment for the daily lives of the Maasai pastoralists is reflected in their knowledge of the environment and its resources, as well as the uses to which natural resources are put. For example, besides providing fodder for livestock, trees and shrubs have many other uses, including fuel, building and fencing materials and medicine. To emphasize the importance of plants for their medicinal value, the Maasai have a similar name (*olchani*, plural, *ilkeek*) for a tree and medicine. This is mainly because medicine is derived from trees and shrubs. Plants used for the treatment of various ailments are numerous and most of them have been very effective. These traditional uses are extremely important in Maasai culture, and the preservation of biodiversity is essential to maintaining these practices.

##### (1) Fauna

The Maasai people do not normally hunt wild animals for food. However, they do utilize various wild animal products. Use of most of these products is based on traditional beliefs and many of the animals given below were used for cultural purposes.

Certain ungulates (the Maasai will not eat any animal that is not hoofed) are occasionally eaten especially during periods of extended famine. Appendix 2 provides a list of some of the wild animals that the Maasai utilized and how they were used. Please note that the use of these animals was not a common practice, and the Maasai did not indulge in regular wild animal hunting.

Nevertheless, the current policy of total protection of wildlife denies the Maasai the use of wild animals for the cultural practices they provided before. This may have compounded the negative attitudes the people have towards wildlife, which they perceive as a resource that now belongs to the government.

(2) Flora

To the Maasai, the environment includes a myriad of plant species that have special value beyond simply providing forage for livestock. The Maasai have a very profound knowledge of the medicinal value of different plants, and they utilize these plants on a sustainable basis. Human ailments are treated with the leaves, roots, or bark of various plant species. The part of the plant to be used often depends on the prevalence and size of the particular plant. The roots of a rare, slow-growing tree would rarely be used, if at all, to ensure a sustainable supply of the medicine. Its leaves or bark would be used instead. The conditions treated this way range from headaches, stomach worms and other stomach ailments, colds, venereal diseases, chest pains, malaria, cuts and bruises, eye diseases, and many other conditions. Please see Appendix 3 for a list of plants commonly used by the Maasai for medicinal purposes.

The Maasai have an extensive knowledge of their environment. The availability and uses of environmental products are, in fact, indicators of the deep appreciation among these people of the vitality and sustainability of their environment, as well as for their survival as a society.

#### D. SOURCES OF CONFLICT BETWEEN THE MAASAI AND WILDLIFE CONSERVATION

As indicated above, the Maasai territory is much smaller as a result of displacement by the colonial government at the turn of this century (Talbot 1986, Campbell and Olson 1991, Rigby 1992, Rutten 1992). In addition, the Maasai lost more land to the establishment of national parks for wildlife protection.

The designation of Amboseli and Mara into game reserve status under the jurisdiction the local county councils was meant to facilitate coexistence of wildlife conservation and pastoral pursuits (Western and Finch 1986, Talbot and Olindo 1990). Despite this goal, the Maasai were banned from using these reserves, without compensation. The councils' primary reason was to protect tourist revenues, which became the main source of income for the councils. This sparked local hostility toward the new county council reserves. Further, the county councils displayed a serious weakness as managers of game reserves. The councils used the reserves' income to finance development in the more populous areas of their districts, and very little was spent in the reserve or used to develop areas adjacent to the reserves. For example, a study conducted in 1988 (Berger 1989) revealed that less than one percent of the

revenues generated from MMNR went to the local people sharing their lives with wildlife. In short, it appears that although the councils were conceived as representatives of local people, they ignored the concerns of the people and did little to protect wildlife. This has seriously strained the Maasai tolerance of wildlife and the role they have continuously played in facilitating the survival of wildlife and other natural resources.

## CHAPTER II

### OVERVIEW OF THE CONSERVATION PROBLEM AND OBJECTIVES OF THE STUDY

#### A HISTORY OF CONSERVATION

##### Origins of the Principle of Conservation

Conservation originated in prehistory as practices that satisfied human needs, not as altruistic concern for animals and plants (McNeely et al. 1990, Kemf 1993). The survival of wildlife had more to do with low human population density, limited technology, and undeveloped or restricted markets than with self-imposed human restraint. Movement, whether nomadic, transhumant, or wholesale relocation, enabled humans to optimize resource use and sidestep the consequences of over exploitation (World Commission on Environment and Development (WCED) 1987, Western 1994). Evidence from contemporary traditional societies suggests that a holistic sense of the world was common to most cultures and many cultures and religions still retain a strong sense of the indivisibility of humanity and nature (Kemf 1993).

The precise date and origin of the practice of designating certain areas for the conservation of specific wildlife species valuable for hunting and other purposes is not clear, but it is believed that it dates back to the beginnings of human history. Mackinnon (1986), for example, believed that when the Emperor Asoka of India passed an edict for the protection of animals, fish, and forests in 252 B.C., this marked the beginning of the practice of designating areas for conservation. Taverner (1930 quoted in Leopold



1933:5) pointed out that laws for the regulation of hunting had their origin in tribal taboos developed in the early stages of social evolution. According to Taverner (1930), the tribes observing taboos that were biologically effective in preserving the game supply were more likely to survive and prosper than those that did not.

The first written restriction on the taking of game according to Leopold (1933), is probably that contained in the Mosaic Law. In the Book of the Covenant, in which are detailed "the statutes and the judgments which man shall observe in the land which the Lord gave him".

If a bird's nest chance to be before thee in the way, in any tree or on the ground, with young ones or eggs, and the dam sitting upon the young, or upon the eggs, thou shalt not take the dam with the young: thou shalt in any wise let the dam go, but the young thou mayest take unto thyself: that it may be well with thee, and that thou mayest prolong thy days (Deuteronomy 22: 6).

The first clear record of a well-rounded system of game management for conservation purposes is found in the descriptions of the game laws of Kublai, "The Great Khan" of the Mongol Empire, narrated by Marco Polo based on his travels across Asia (AD 1259-1294) (Leopold 1933). The Great Khan's law prohibited the killing of hares, roebucks, fallow deer, stags, or other animals of that kind, or any large birds, between the months of March and September and breaking such order was punishable. This law was meant to allow these animals time to breed and multiply meaning that Kublai promoted the perpetuation of these species. In addition to restrictions on hunting, the Khan also practiced wildlife food and cover management, an indication of the earliest game management practice.

### National Parks and Reserves

The modern concept of a national park being a large protected natural area originated with the establishment of Yellowstone National Park in 1872 (Wright 1994). This park has since served as a model for many of the parks subsequently established in the United States of America and throughout the world. Since then, protected area management has centered on the annexing of land previously used by local people for parks and reserves. This has resulted in total alienation of those people from the resources they traditionally utilized and managed (IUCN 1980, Lindsay 1987, Engoff 1990, Murphree 1993). This process has also engendered resentment towards parks and reserves by local people.

In the face of escalating population, protected areas are becoming increasingly isolated as surrounding natural habitat is converted to human-dominated land use (Sharma and Shaw 1995). Reflecting this concern, the 1980 World Conservation Strategy emphasized the importance of linking protected-area management with the economic activities of local communities. Two key concepts lie at the heart of the resulting trend towards community-based conservation (CBC). First, delineate buffer zones around park boundaries, as sites for both conservation and development-related activities. Second, design new approaches to management reflecting greater participation of local people in conservation and development. This dissertation addresses the second concept by exploring the various strategies that can be employed to facilitate local support for conservation.

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### Community Based Conservation

Community-based conservation is a new approach to conservation, which reverses the traditional top-down conservation by focusing on the people who bear the cost of conservation (McNeely et al. 1990, Kley Meyer 1994, Western 1994, McNeely 1995). The coexistence of people and nature, as distinct from protectionism and the segregation of people and nature, is its central precept (Murphree 1994, Western 1994). While it includes the traditional conservation strategy, CBC programs also consider parks and reserves, natural resources use in buffer areas and biodiversity conservation outside protected areas. The term covers new and traditional conservation methods and conservation efforts that originate within or outside a community, so long as the outcome benefits the community. In the broadest sense, then, CBC includes natural resources or biodiversity protection by, for, and with the local community (Murphree 1994, Western 1994). Community-based conservation includes a range of activities practiced in various corners of the world that directly or indirectly lead to conservation (Metcalf 1994).

The principle of involving local communities in conservation is widely accepted today by many African governments, non-governmental conservation organizations and donor agencies such as the U.S.A.I.D. and the World Bank, which have financed a large number of community conservation programs in many African countries (McNeely et al. 1990, Western and Wright 1994). Through this funding, there has been a remarkable proliferation of projects attempting to link the conservation of biodiversity in protected areas with local, social and economic development. These initiatives have been

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described as Integrated Conservation-Development Projects (ICDPs) whose objectives are to enhance biodiversity conservation through approaches, which attempt to address the needs, constraints and opportunities of local people (McNeely et al. 1990, McNeely 1995). These projects were promoted vigorously by international conservation organizations during the 1980s. For example, in 1985 World Wildlife Fund (WWF) launched the Wildlands and Human Needs Program consisting of about 20 protected area projects in developing countries to give equal emphasis to conservation and development.

Multilateral support for biodiversity conservation has increased as a result of the Global Environmental Facility (GEF) administered by the World Bank, UNDP and UNEP. Since 1991 the GEF has committed over 300 million dollars (USD) to more than 40 biodiversity conservation projects in developing countries (Well and Brandon 1994). Despite this substantial funding, the success of these programs has been questioned. Most of the projects have barely proceeded beyond the planning stage.

## B HISTORY OF CONSERVATION IN KENYA

The unceasing efforts by governments to protect wildlife from human use are explained by reviewing the history of conservation in Kenya. Before the Europeans penetrated the continent, wildlife conservation was based on cultural norms, taboos and traditions. When Europeans penetrated the interior of East Africa during the 19<sup>th</sup> century, they encountered spectacular herds of wildlife which they hunted indiscriminately (Simon 1962). Initially, the numbers of hunters were small with only a

few pioneers killing wildlife for meat and for sport in the first decade of the century. In the early 1920's, rich European and American hunters started coming to Kenya for the sole purpose of hunting wildlife using sophisticated firearms.

The increasing hunting pressure caused a decrease in wildlife numbers and created the need for controlling such hunting. The colonial government took immediate action through the East African Game Regulations of 1900 (Simon 1962) This was followed by the Game Ordinance (rules) and amendments of 1904, 1905, 1906. Finally, in 1907, the colonial government created the Game Department.

The Game Ordinance of 1909 set aside the Southern Game reserve south of the Kenya-Uganda Railway and the Northern Game reserve in North Kenya then known as North Frontier Province (Nyeki 1992). The 1920s and 1930s saw the development of wildlife conservation through bans on hunting of several wildlife species during certain seasons. The Southern Game reserve was also expanded to include the present Tsavo West National Park (Figure 2.1).

Conservation regulation was expanded to include birds through the Game Birds Protection Ordinance of 1926, and later the East African Wild Bird Protection Ordinance of 1933 (Nyeki 1992). During this time, there was increasing awareness of the need for wildlife conservation as reflected by the outcome of the International Conference on Wildlife Conservation of 1933; where there was a general agreement on the need for governments to establish and maintain national parks and wildlife sanctuaries.

The colonial government passed an ordinance in 1937 that improved and strengthened the law relating to the protection of game animals and birds in Kenya. In 1938, the government appointed a Game Policy Committee to explore and develop strategies for acquiring areas for the establishment of national parks for exclusive conservation of wildlife resources. The result was Ordinance No.9 of 1945 that designated Nairobi National Park in 1946 and Tsavo National Park in 1948 under the administration of a Board of Trustees (Simon 1962, Nyeki 1992). During this time, national parks and reserves were set aside for the “preservation of wild flora and fauna and objects of aesthetic (beauty), geological, prehistoric, historical, archaeological or scientific interest”. Since then, 26 national parks, 31 national reserves and two game sanctuaries have been established (Figure 2.1).

For the most part, after independence conservation in Kenya remained the domain of expatriates (mainly ex-colonial officers) (Western 1994). Not surprisingly then, the management philosophy of these areas emphasized the idea that parks must be protected from local people and local communities did not actually participate in park management. Researchers drawn to East Africa to look at pristine ecosystems (as they saw it) reinforced the view that parks were laboratories of nature (Western 1994).

#### The Evolution of Conservation Policy in Kenya

A modified approach to the conservation of wildlife was spelled out by Sessional Paper No. 3 of 1975, “Statement on the Future of Wildlife Management Policy in Kenya” (Republic of Kenya 1975, Awere-Gwekye 1996, KWS 1996, Otieno-Odek 1997). The sessional paper set out the policies justifying a new, integrated approach to wildlife

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conservation based on local participation in all forms of wildlife management and utilization. This paper recommended the establishment of a single national agency, the Wildlife Service, to implement the new policies. The policies were visionary and spelled out the integrated approach to conservation and development adopted by the Biodiversity Convention and participatory practices now springing up around the world.

The fundamental goal of the 1975 policy was to maximize wildlife as a natural resource. The 1975 policy defined returns from the conservation of habitats and the wildlife they contain broadly to include aesthetic, cultural and scientific gains as well as economic returns (Republic of Kenya 1975, KWS 1996). Economic gains were specified as deriving from both tourism and consumptive uses of wildlife. Noting that wildlife is but one use of land, the document emphasized the need for cooperation with land planning and management in other sectors. This policy recognized that conflict is really not between people and wildlife, but between people who wish to conserve wildlife in specific areas and those who are opposed to it. The solution to the conflict under this policy was therefore considered to be an integrated approach to land that would maximize returns from all resources, including wildlife. Consequently, the policy required the government or the agency responsible for wildlife conservation to encourage the best long-term combination of land uses and the fair distribution of benefits accruing from those uses (KWS 1990, 1996)

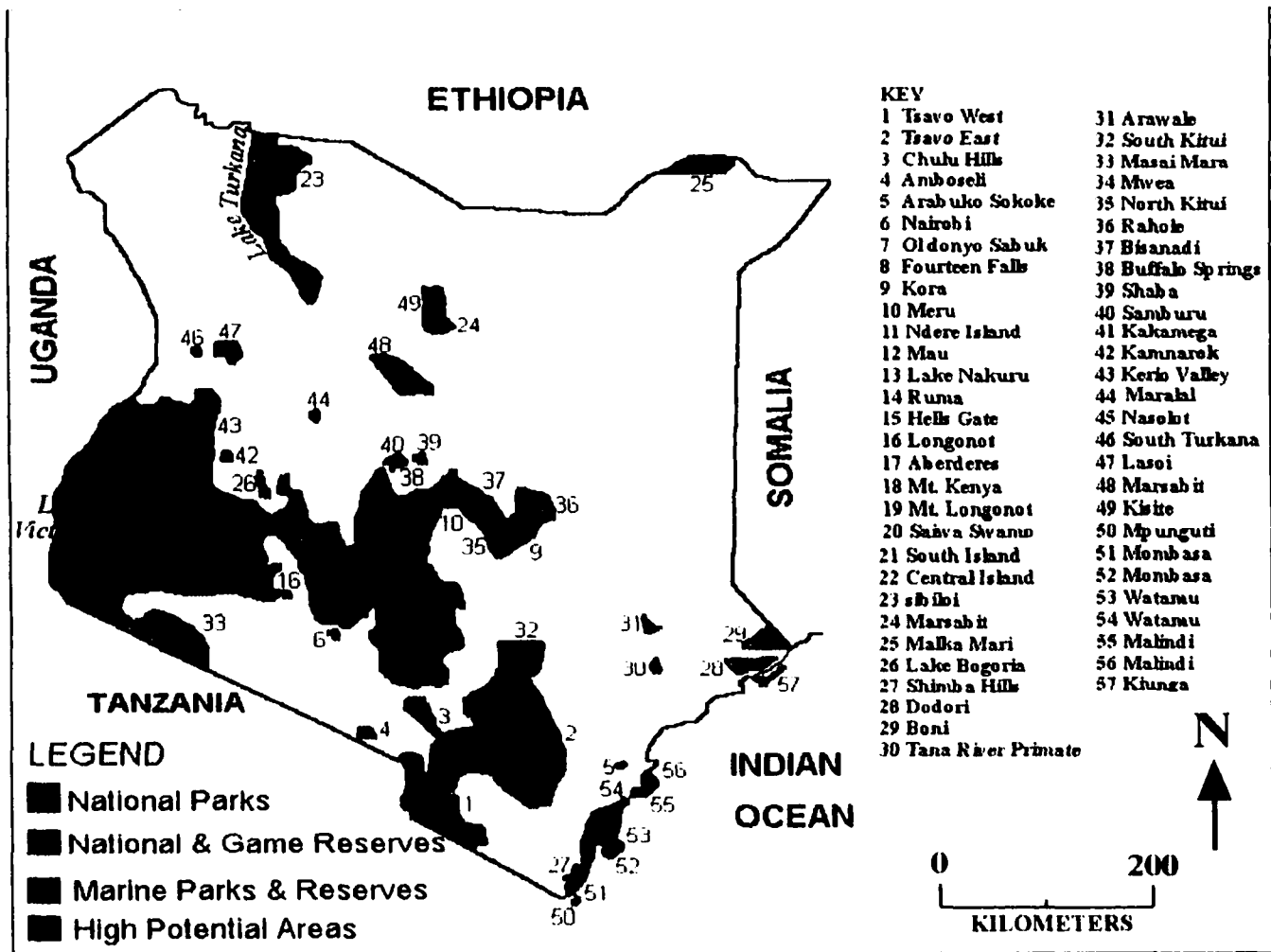


Figure 2.1 Map of Kenya showing the distribution of National Parks and Reserves



To implement this long-term strategy, it was necessary for the Wildlife Service officers to be facilitators, advisors and assessors working with landowners rather than "policemen" working against them. Working with landowners around the country to generate incentives to conserve required the Service to be active in diverse institutional, biological, managerial and social situations. The 1975 Policy presented a preference for flexible regulations over fixed legislative provisions, reflecting the need to capture local needs and anticipate future changes in generating optimum returns from wildlife. The Government also accepted the general responsibility for assisting with control of animals that cause problems as threats to people or property.

It is clear that the 1975 Policy acknowledged the limitations of conservation programs that are confined to protected areas. It recognized that protected areas could not maintain the abundance and vigor of wildlife without access to larger ecosystems or intensive management (KWS 1996). Given that the extended ecosystem lay on private and communal lands outside the protected areas, the policy called for an integrated approach to wildlife conservation. Economic and other incentives achieved through partnership arrangements were seen as the best way of achieving this end. The policy prescribed many reasons and means of conserving wildlife in as many areas as possible as the best assurance for the future of wildlife. Forward looking policies like these have earned Kenya international recognition as a leader in wildlife conservation.

While the value of biodiversity is more widely appreciated than ever, the reality is that pressures on wildlife and habitat are mounting rapidly due to expanding human populations and intensified resource extraction (Wells et al. 1992). Other changes

include land tenure (Lynch and Alcorn 1994), land fragmentation, economic liberalization (Bromley 1994), political pluralism and greater awareness of property rights (Feldmann 1994), and a deepening antipathy towards wildlife by landowners suffering depredations. These and other factors have contributed to a deepening intolerance among those affected by wildlife and less willingness to tolerate them without remuneration in some form.

The first step to rectify the failures in the implementation of the 1975 Policy included the replacement of Wildlife Conservation and Management Department (WCMD) with the Kenya Wildlife Service (KWS) in 1989. The launch of KWS as a parastatal body (i.e., a government agency with strong donor support) saw immediate improvements in park management, anti-poaching operations, tourist security and staff morale. A pilot program of wildlife utilization was also launched and met with some success. The program also included a plan to share 25 % of park revenues with landowners. During the early stages of this program, the mounting conflict between people and wildlife outside protected areas was still largely ignored, leading to accusations of KWS being indifferent to human suffering. As a result, the Government instructed KWS to address the human-wildlife conflict as a matter of the highest priority and to review current wildlife policies accordingly. In 1994, KWS commissioned an independent five-person Wildlife Review Group to look at the human-wildlife conflict throughout the country (KWS 1994). The review team met landowners and other interested parties throughout Kenya to look into the conflict and

solicit remedial measures. The current conservation strategy by KWS is based on the recommendations of this team.

### C FACTORS CONTRIBUTING TO THE CONSERVATION PROBLEM IN MAASAI LAND.

Although Kenya has continued to show commitment to wildlife conservation, a failure to implement the 1975 Policy fully contributed to the deepening conflict between people and wildlife. The legal provisions of the 1975 policy contained in the Wildlife (Conservation and Management) Act 1977 also did not adequately reflect the intent of the 1975 Policy to provide adequate enforcement of it. Furthermore, Wildlife Conservation and Management Division (WCMD) was insufficiently funded and proved incapable of carrying out its conservation mandate.

Other failures in the implementation of policy included the inability of land use agencies to integrate, harmonize and enforce land use legislation and policies that would have enhanced conservation and the competitive value of wildlife (King'oriah 1995, Kiriro and Juma 1991). The inadequacy of protected areas is further underlined by census information produced by the Department of Remote Sensing and Resource Surveys showing that three quarters of all Kenya's large mammals (and a far higher proportion of other species) live outside protected areas (DRSRS 1995) Thus, while the significance of biodiversity is growing nationally and globally, its value to those accommodating it on their land has shrunk resulting in serious conflicts between local communities and conservation.

### Human wildlife conflicts in Kenya

Studies addressing the question of conflict between local communities and conservation in Kenya (Aboud 1989, Berger 1989, Lado 1992, Akama 1993, Sindiga 1994) have shown that negative attitudes towards wildlife are caused by animal damage to crops, loss of livestock to predators, loss of land to conservation, and lack of control over wildlife resources. These and other studies recommended giving local people more control over wildlife resources in order to obtain their support for wildlife management. Unfortunately, empowering local communities to manage their own resources without outside interference has not been a primary objective of most local conservation programs (Little 1994, Western 1994). As a result, many conservation problems such as poaching are actually caused by outsiders who take advantage of local resources and the community's lack of authority to defend their resources and sanction outside violators (KWS 1990, Little 1994).

In Kenya, KWS is addressing this issue through the community wildlife program (CWP) designed to share 25% of its wildlife revenue with the local communities. In addition, KWS established the Wildlife for Development Fund (WDF) to finance wildlife-related revenue generating projects for the communities (KWS 1990). These schemes were expected to win support for wildlife conservation by changing attitudes towards wildlife and promoting adoption of land use systems that are compatible with wildlife conservation. However, there is considerable discussion over how successful these programs have been. For example, some people have questioned whether any benefit-transferring system will succeed in changing attitudes and behavior

unless there is a direct link between wildlife conservation and income earned (Murphree 1993, AWF 1994, Western and Wright 1994, Shaw 1995). Indeed, some benefits (such as construction of school and clinics) may not be directly linked to conservation, and in some situations, may actually discourage land use practices that are compatible with conservation by encouraging permanent settlements rather than nomadic lifestyles. My study attempted to find out whether revenue sharing is reaching the target communities. It assessed impact on these communities and explored possibilities for producing a better link between wildlife conservation and the economic well being of park neighbors. The study also investigated strategies for developing tourism at the local level to ensure that local communities earned more revenue from industry.

#### Population Growth

Kenya's population of approximately 25 million and its growth rate of about 3.5% per year has continued to intensify demand for land. More land is required for human settlements and agricultural production to sustain the increasing population. This in turn has resulted in human settlement in marginal lands which are favorable habitats of wildlife and which support livestock production systems (e.g. pastoralism and beef cattle ranching). Encroachment on wildlife habitat has created serious problems between human interests and those of wildlife.

Narok District has historically been a pastoral domain, and has enjoyed, until recently, the low human population densities typical of extensive livestock rearing areas. However, Narok borders Kisii, Kericho and Nakuru Districts, which have large peasant populations with high growth rates. Over the decades, those people confronted

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with shortages of arable land have sought to expand into the Narok rangelands.

However, the British colonial administration restricted this by declaring Narok and Kajiado Districts as closed pastoralist reserves (having already alienated in 1904 and 1911 vast tracts of prime Maasai grazing areas for white settlement).

Table 2.1 Population for Narok District (Republic of Kenya, population data for 1989)

	Male	Female	Total	# of HH	Area (km <sup>2</sup> )	Density per km <sup>2</sup>
Narok District	198489	199783	398272	78575	18002	22
Mau Division	44603	42926	87529	19267	3154	28
Keekonyokie	9682	9485	19167	4046	735	26
Enoosupukia	8659	8679	17338	3619	218	80
Oletukat	778	866	1644	337	267	6
Oloolpironito	2553	2481	5034	910	142	35
Mosiro	2324	2485	4809	1070	635	8
Narok Town	9292	8093	17385	4645	316	55
Upper Melili	7629	7099	14728	3128	404	36
Lower Melili	2763	2734	5497	1086	276	20
Oloolntoto	923	1004	1927	426	161	12
Olokurto Division	23343	23842	47185	9399	1587	30
Olokurto	3320	3450	6770	1377	438	15
Olpusimoru	3908	3955	7863	1413	248	32
Enaibelibel	12525	12877	25402	5176	604	42
Olorropil	3590	3560	7150	1433	297	24
Osupuko Division	63644	63708	127352	24910	10387	12
Ololulun'ga	11056	10698	21754	4231	1041	21
Lemek	12438	12022	24460	4677	3243	8
Mulot	18960	19558	38518	6926	634	61
Naikarra	8154	8067	16221	3753	1877	9
Naroosura	7980	8116	16096	3175	1874	9
Loita	5056	5247	10303	2148	1718	6
Kilgoris Division	43227	45747	88974	16380	1115	80
Moitanik East	12465	13503	25968	4675	215	121
Moitanik West	5798	6091	11889	2207	181	66
Uasin Gishu West	4180	4373	8553	1718	203	42
Uasin Gishu East	6411	6676	13087	2560	251	52
Emarti	14373	15104	29477	5220	265	111
Lolgorian Division	23672	23560	47232	8619	1759	27
Siria East	4123	3560	7683	1651	734	10
Siria West	4469	4577	9046	1869	236	38
Siria Central	7018	6930	13948	2450	374	37
Kimintet	8062	8493	16555	2649	415	40

When Kenya attained independence in 1963, tribal reserves were abolished and this opened Maasai land for encroachment by all Kenyans. Individuals from the densely populated areas were quick to take advantage of their new freedom provided in the new constitution (Republic of Kenya 1963) to settle anywhere and quickly started migrating to the more sparsely populated pastoral rangelands. Before the end of the first decade after independence, virtually all of the prime rangelands of the upper Mau had been lost. Both peasant immigrants and commercial grain farmers settled in this area, the latter having been granted leasehold by the government. To this day, high rates of immigration and the consequent advance of arable agriculture continue despite land disputes with the local Maasai community.

Within the first 25 years of independence, the human population of Narok District nearly tripled, having grown from 125,200 persons in 1969 to 210,306 persons in 1979, according to national censuses. By 1989 census, the population had risen to 398,272 people (Table 2.1 and Figure 3.3). In this process, the District has changed from a low human density pastoral area to one in which annual human population growth rates exceed 5% - a figure well above the already high national average of 4% percent (DDO, 1983b). High population densities and rapid growth rates are centered in the northern part of the District, where arable agriculture has proliferated.

Increasing populations of pastoralists require larger numbers of livestock, which is causing overgrazing and range deterioration (Sindiga, 1987, Rutten, 1992). Additionally, the influx of agricultural peoples reduces the amount of land available to pastoralists for grazing and denies them needed water (Lado 1992, Rutten 1992). While

the Maasai population and their livestock numbers have increased significantly, half the recent increase in human numbers in the rangelands has come from non-Maasai immigrant farmers (Sindiga 1987, Odieng 1988, Lado 1993). Furthermore, a lack of a clear government land policy and corrupt land practices drive large groups of Maasai off the rangelands they controlled exclusively until very recently (Galaty 1982, Lindsay 1987, Kipuri 1989).

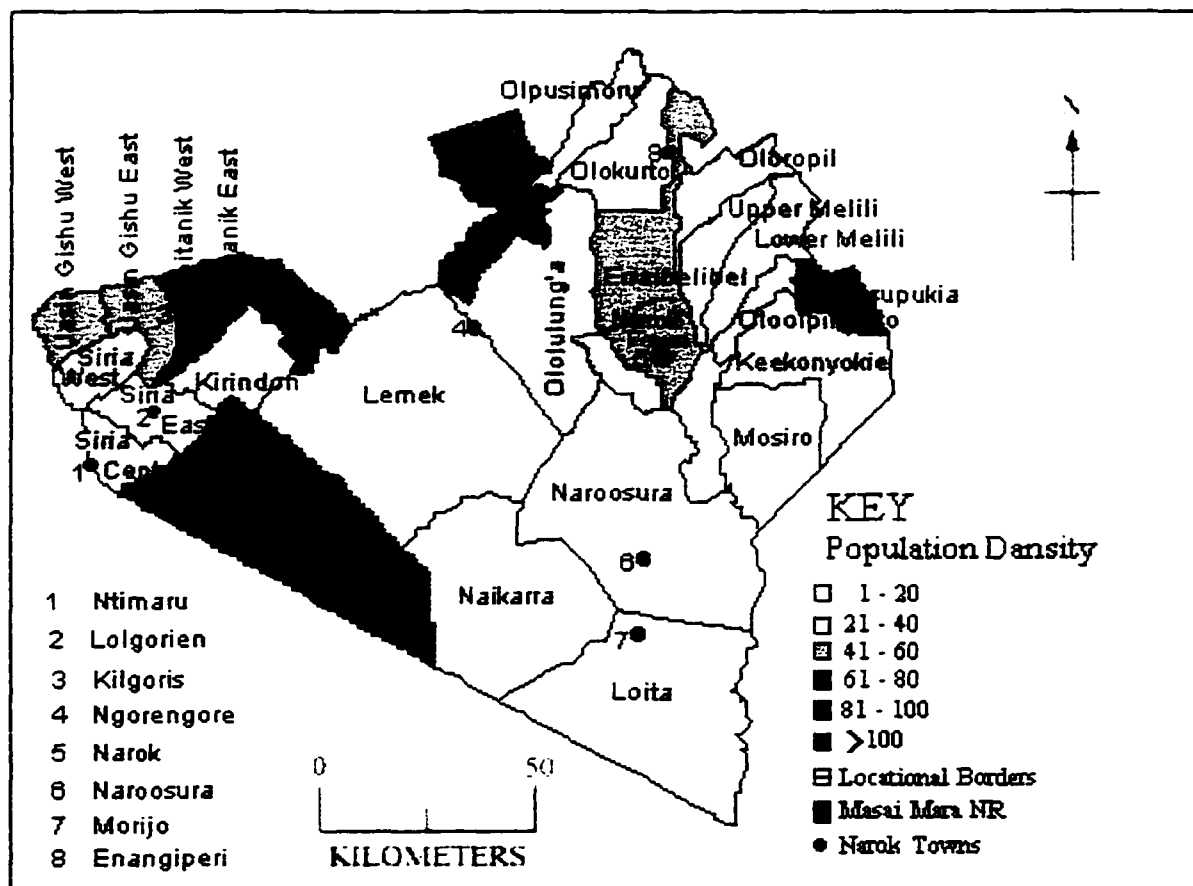


Figure 2.2 Map showing Divisional Population Densities for Narok District



### Land Use Policy

Kenya does not have a consolidated land use policy. The ownership and use of land are regulated via 77 statutes that relate to land and environment (Republic of Kenya 1970, Migot-Adholla and Little, 1981, Awere-Gyekye 1996). These statutes were enacted independent of each other and are being implemented by various government departments and institutions. The greatest weaknesses in these laws, however, is that most were initiated, formulated and enacted as separate and disjointed instruments, without regard to each other. Consequently, they appear to have been based on different philosophies and have therefore addressed different and sometimes contradictory interests. Very little effort has been made to harmonize the different pieces of legislation and the activities of the institutions implementing them. The consequence of this has been increasing conflicts among different sectors of the government regarding different land use activities. This problem is worsened by inadequacy of existing legislation relating to land, lack of institutional coordinating mechanisms, lack of awareness of policies relating to land by the public, and lack of public participation in land use policy formulation and amendments (Awere-Gyekye 1996).

Due to lack of comprehensive land use and conservation policies, increasing human population, current agricultural policies, and non-enforcement of relevant land use acts, Kenya's ecosystems and the services and products they provide are being degraded at an alarming rate (Rutten 1992, Mwangi 1995, Awere-Gyekye 1996). As a consequence, biodiversity in these ecosystems is rapidly declining. The loss of wildlife

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habitats to agricultural activities has led to reduction in populations of certain wildlife species and the complete extinction of an unknown number of species (Awere-Gyekye 1996). For example, due to the loss of their former range to agriculture, the migration of wild animals such as buffalo, elephant, wildebeest and zebra has been severely curtailed (see Appendix 1 for scientific names). Some large wildlife species that are under threat from these pressures include the sitatunga, hippopotamus, roan and sable antelopes, greater kudu, elephant, forest duikers, the bongo, Grevy zebra and others. Many species of birds and numerous plant species of unknown economic and ecological values are continually being lost from changing and uncontrolled land uses.

Overall, the continuing uncoordinated changes in land use are adversely effecting the plant and animals species diversity in the forests, woodlands, shrublands, savannas and aquatic ecosystems in Kenya. Continued destruction of these ecosystems will further lead to the reduction or extinction of more species.

The increase in agriculture in Maasai land is leading to the expansion of cultivation into areas that have traditionally been used for livestock and wildlife grazing as well as for wildlife dispersal areas adjacent to parks and reserves. The result is a steady loss of habitat for wildlife and loss of grazing land for the Maasai pastoralists. This in turn leads to intensified conflicts between the Maasai land use practices and conservation.

The development of large-scale commercial wheat farming, propelled by the pursuit of Kenya's national wheat self-sufficiently goal (Odienge 1988, Parkipuny 1991), poses the gravest threat to the integrity of the MMNR. Arable agriculture is

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rapidly advancing right to the boundary of the reserve and threatens to encompass the whole Loita Plains in the northeast and the Isiria Plateau to the northwest (Figure 4.2). Two main negative consequences of this expansion are foreseen. First, the loss of the Loita Plains and the Isiria Plateau will deprive wildlife of crucial dispersal and migration areas. Secondly, the displacement of the local Maasai pastoralists and their livestock will, it is feared, squeeze these people into direct conflict with the reserve.

So far, the primary policies concerning land ownership and use have been those in support of agricultural production (Odienge 1988, Lado 1992, Rutten 1992). National policies have focused on and emphasized the role of agriculture as the dominant sector in earning foreign exchange and for strategic reasons (i.e., food self-sufficiency and as the foundation of Kenya's industrial sector) (Republic of Kenya 1986, Awere-Gyekye 1996, Otieno-Odek 1997). By contrast, policies geared towards environmental conservation have, until the recent initiation of the National Environmental Action Plan, been accorded but meager concern notwithstanding the role of tourism in Kenya's economy (Republic of Kenya 1994).

#### Wildlife Conservation Issues in MMNR

Tourism is the main economic activity directly linked to wildlife conservation in the Mara and other Kenyan parks. This wildlife-based tourism popularly referred to, as ecotourism developed due to interests arising out of environmental, economic, and social concerns (Western and Lindberg 1993). It is a strategy that is meant to incorporate both a strong commitment to nature and a sense of social responsibility and focuses on exploiting tourism's potential for conservation and development. It is meant

to avert the negative impacts on environment and culture that are usually associated with tourism (Olindo and Whelan 1991, Barnes, et al. 1992, Sinclair, et al. 1992, Western and Lindberg 1993). For ecotourism to realize these goals, it must accomplish the principles of balancing tourism, conservation and culture, and this can only happen with support from local landowners. Unfortunately, ecotourism in Kenya has been developed largely in isolation from local communities.

While the focus of ecotourism attraction is wildlife inside the parks and reserves, its survival is dependent upon wildlife dispersal areas mainly occupied by pastoralists. The Government of Kenya realizes this and has through KWS and local county councils implemented a revenue sharing programs through which a proportion of revenues earned from the parks and reserves are shared with local communities. This economic incentive is meant to motivate participatory conservation. The main concern however is whether the revenue reaches the targeted people and whether it is influencing their attitudes towards wildlife conservation.

#### D. OBJECTIVES OF THE STUDY

This study addressed fundamental questions of importance to the management of MMNR and to the conservation of the biological resources. The primary goal was to evaluate strategies for promoting local support for wildlife conservation in the wildlife dispersal areas in Masailand, Kenya. This goal was achieved by accomplishing the following objectives:

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1. Conducting a general survey of the study area to map and describe land use patterns, distribution of settlements, and types of houses. This was meant to provide backgrounds for developing a sampling design. This survey was also used to determine the extent to which the Maasai in areas adjacent to Masai Mara National Reserve (MMNR) were adapting to new land use activities (e.g., cultivation) and to discover patterns of sedentarization.
  2. Identifying incidences of human and livestock encroachment into the reserve and assessing the frequency and impacts of these occurrences. These occurrences were analyzed in terms of their relationships to different land uses and their proximity to communities that benefit from the revenue sharing program.
  3. Identifying and mapping areas near the reserve boundary where crop and livestock depredation occur and analyzing distribution and patterns of these human-wildlife conflicts in relation to land uses.
  4. Determining the extent to which the local Maasai benefit from MMNR and how this has influenced their attitudes towards wildlife conservation and their perceptions about participation in conservation. This was accomplished by finding out whether the people realized and/or perceived any form of benefit from either the revenue sharing program through the council or directly from the tourism industry.
  5. Assessing the peoples' attitudes towards the current move to subdivide group ranches, perceptions of the implications of this move and their envisaged land use strategies after the land is subdivided. This was used to explore land use options that would facilitate both traditional livestock production and wildlife conservation.
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6. Soliciting recommendations for enhancements or alternatives to current revenue sharing strategy that might promote a better link between support for conservation and actual income received by local families. This was accomplished by asking for people's suggestions on the improvement of revenue sharing programs, the management of the Mara and any other suggestions that would facilitate better livestock and wildlife production.
  7. Analyzing the findings obtained by accomplishing the above objectives to identify potential strategies for promoting the Maasai traditional pastoral production and wildlife conservation despite the changing land tenure system.
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## **CHAPTER III**

### **STUDY AREA, RESEARCH OBJECTIVES AND METHODOLOGY**

#### **A. DESCRIPTION OF THE STUDY AREA**

The general physical characteristics of the Masai Mara region are well documented (Williams 1964, Sinclair and Norton-Griffiths 1979, McNaughton 1983). The region is characterized by plains and open woodland interspersed with riverine forests and bush or woodland areas. To the west is the Siria escarpment rising to 200-300 meters above the Mara plains. In the north-east part, around Lemek area, the topography is dominated by hills and the central part of the area is predominantly plains. In south-east corner of the study area lies the northern tip of the Siana hill range. The whole area slopes gently downwards to the south-west and most of it is drained in a south-easterly (Figure 3.1).

All the water-courses of the Mara plains eventually join the Mara River direction which originates from the Mau Escarpments and runs south through the reserve into Tanzania before discharging into Lake Victoria. These environmental attributes influence the patterns of resource distribution and land use (McNaughton 1983). The topography influences the distribution of wildlife by creating boundaries and corridors of movement. For example, plains game, such as wildebeests and zebra are rare in the hilly escarpment areas. In view of this, Koiyaki, Olkinyei and Siana were selected for this study because they support the majority of the region's wildlife creating an arena for interactions between people and wildlife.

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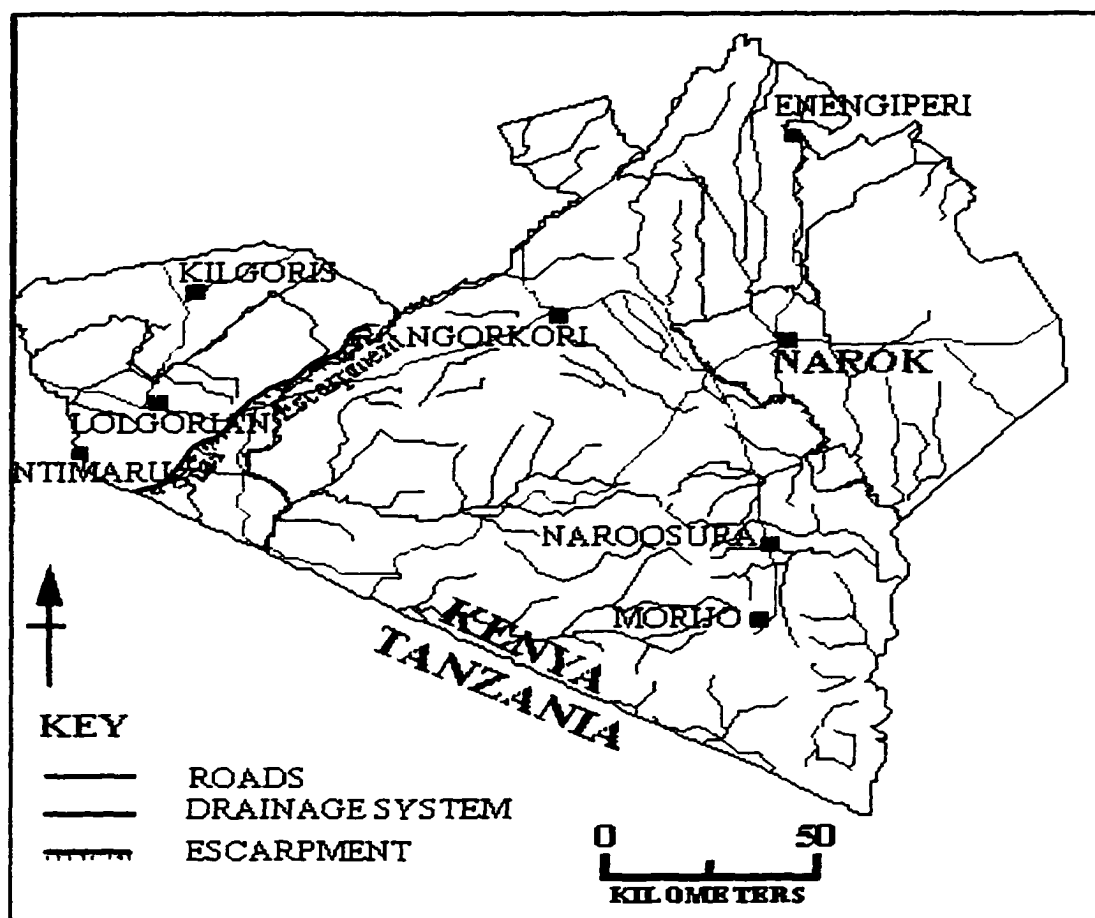


Figure 3.1 Map of Mara region showing drainage system

### Rainfall

The climatic conditions of Narok have been described in detail by Glover (1966) and Sombroek (1982). Rainfall in the region is bimodal and falls in two seasons. The "short rains" come in November and December and the "long rains" in February through May. The rest of year is usually dry. Average annual rainfall within the Mara reserve is between 250 and 500 mm. Rainfall in the adjacent group ranches varies according to topography and other features. For example, the Loita Plains to the east receive approximately 700-800 mm per annum, while the western areas, more strongly



influenced by the Lake Victoria weather system and the effect of the Siria Escarpment, receive about 1000 mm per annum.

The rainfall distribution influences the northward movement of the migratory herbivores (Ecodynamics 1982). During the dry season, these herbivores migrate northward into the well watered Mara region. During dry seasons migrant and resident species concentrate around ravines and other permanent water, whereas during the wet season they disperse to use the forage and temporary water on the outlying plains (Douglas-Hamilton et al. 1988). The Maasai and their livestock have traditionally followed the same pattern to facilitate efficient exploitation of resources.

#### Vegetation

The Maasai Mara region lies within Eco-climatic Zone IV described by Pratt and Gwynne (1977) as semi-arid to sub-humid. The vegetation in this area consists of plains grassland and open woodland interspersed with riverine forests, woodland and bushland. The grasslands on the plains are dominated by *Echinochloa pyramidaris*, *Eragrostis haploclada*, *Hyparrhenia dissoluta* and *Pennisetum mezianum*. According to Vesey-Fitzgerald (1973), Dublin (1986) and Ogutu (1991) human activities including burning, have maintained a grassland community within the Mara Region. The woodland community is composed of *Balanites aegyptica* and *Cassine buchananii*. Acacia woodland is common along watercourses. Clear-cutting and selective tree harvesting are destabilizing and reducing the woodlands into a lower vegetation category (Ogutu 1991).

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In the MMNR, both animal activities and seasonal burning (Dublin 1986) are modifying the woodlands. The bushlands have been described as successional communities existing either as degraded forests and woodlands or as a transition from grasslands (Vesey-Fitzgerald 1973, Pratt and Gwynne 1977). The shrubland is also a successional community dominated by *Tarchonanthus camphoratus* and *Acacia drepanolobium*.

### Wildlife

Kenya's varied environments support an incredible variety of wild animals. There are 57 species of large mammal in Kenya (Capone 1972) including ungulates (buffalo, kudu, gazelles, and other antelopes), large carnivores (lion, leopard, cheetah, hyena and wild dog) and other large mammals (rhinoceros, hippopotamus, elephant, and giraffe). In addition to these large mammals, there are many families of small mammals, and birds (Petrides 1954). Twenty-two large mammals are found in Mara region (Sinclair and Norton-Griffiths 1979)

## B RESEARCH METHODOLOGIES

### Data Collection

Data for this study were collected in various ways. First, secondary data were extracted from maps, and government and private documents. The bulk of the information was obtained from books, research papers, annual reports, policy papers, maps and remote sensing data. The main sources included KWS, African Conservation Center (ACC), African Wildlife Foundation (AWF), World Wildlife Fund (WWF),

Department of Resource Surveys and Remote Sensing (DRSRS), United Nations Environmental Program (UNEP), IUCN, Narok and Trans-Mara County Councils, Moi University and the University of Arizona library. These sources provided information on land use patterns, wildlife and livestock statistics, historical and physiographic factors of the study area and other basic information.

Second, in-depth discussions were held with selected government officials, local leaders and conservation agencies. Before embarking on the actual field data collection, I spent two months consulting with officials from various organizations. The selection of those consulted was based on their involvement in activities related to wildlife conservation and development in the study area. In Nairobi, I had discussions with senior officials at KWS, African Conservation Center (ACC), African Wildlife Foundation (AWF) and World Wildlife Fund (WWF). At KWS, I consulted the Deputy Directors in charge of Biodiversity, Partnerships, and the Head of Species Conservation Section. These are the sections of KWS dealing with research and any matters related to human-wildlife interactions. The other agencies have ongoing research and development projects around the Mara. At the regional level, I had talks with the Regional Assistant Director (RAD) for central Rift Valley regarding community programs in the Mara area. The RAD oversees all KWS programs in this region, and he offered to assist me where possible. In Narok and Trans-Mara, I discussed my study with the clerks of the councils and senior wardens in charge of MMNR.

Third, structured interviews based on a questionnaire covering a variety of issues were used to collect information from 238 respondents. The questionnaire

(Appendix 4) covered a variety of issues including problem wild animals, revenue distribution, trespass into the reserve, local participation, tourism, extension and general management of the MMNR. Most of the people were found in groups and it was difficult to isolate individuals for personal interviews (Figure 3.1). Therefore, some form of group interview (Weaver 1970) was employed. In this approach, I selected one individual from the group as the focal respondent.



Figure 3.2 Interview session with a group of people in attendance but focusing on one individual

All the questions were directed towards the focal respondent, but other members within the group could offer their views. If the focal respondent agreed with the views

provided by any member of the group, such views were recorded as his response. However, if the focal respondent disagreed with such views, they were recorded on the margins as other comments. Finally, the participant observation method (Whyte 1977, Whyte 1979, Marshall 1981, Kurz 1983,) was used to collect more information to complement the questionnaires. This approach was used jointly with the questionnaire survey to enhance completeness of the data and to inspire new theoretical ideas. It was also meant to validate the survey findings and gain insights unconstrained by prior theoretical expectations. Given that I could speak the local language and the fact that the Maasai provide more information in conversation than in a structured interview, this method was a useful source of information.

Table 3.1: Number of respondents according to district, division and group ranch

District	Count	Division	Count	Group Ranch	Count
Narok	180	Osupuko	180	Siana	85
				Koiyaki	67
				Olkinyei	28
				Oloirien	58
Trans-Mara	58	Lolgorian	58		
Total	238		238		238

During the actual field data collection, the purpose of the evaluation was revealed to the respondents immediately. I also made sure to dissociate my study from KWS, the County Councils and implementation agencies operating in the area. This was very helpful in obtaining the people's cooperation in the face of the many development-related studies being conducted in the area. A very important situation that gave me more leverage is that I am a Maasai. It is customary among the Maasai to provide each

other with detailed introduction before engaging into any kind of conversation for the first time. Consequently, before every interview session, I introduced myself, disclosing my family name, clan, age group, and my section (olosh). My respondents provided me with similar information and this established my position, and the group could trust and provide me with the information I needed.

### Field Data Collection

The original design was to divide the study area into two situations representing people receiving revenues from the council and those not receiving anything. This was not possible because according to the County Council, all the areas adjacent to the Mara benefited from the revenue sharing program through which the council contributes 19% of gate receipts to all the group ranches to share. However, it was still possible to investigate the effects of revenue sharing because two situations exist in this area regarding wildlife-related benefits. With the assistance of KWS, some group ranches have formed Wildlife Associations to facilitate grassroots wildlife conservation and ensure direct benefits to the people. Two of the group ranches (Koiyaki and Oloirien) had already formed associations through which they were collecting revenues. These ranches shared this extra revenue among their members. The other two group ranches (Siana and Olkinyei) had not formed a Wildlife Association when this was conducted and their benefits from wildlife resources were limited to the 19% shared with the County Council through the group ranch committees. In order to measure how wildlife-related benefits influence attitudes towards wildlife, I compared the two groups.

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It is difficult to get a random sample of people in pastoral land use systems, given population movements, the pastoral nature of the people, and the lack of reliable statistical sampling frame (such as population lists, telephone numbers or addresses). In this study, I used the most recent household distribution maps developed by the Department of Resource Surveys and Remote Sensing (DRSRS) to select the most accessible manyattas in each of the four group ranches and population census data for 1989 to determine the sample size

Table 3.2 Total number of households observed during the 1989 population census, number of households sampled and the percentage of the population the sample represents.

	# of households	# of households sampled	% of households sampled
Siana	1,948	85	4.5
Koiyaki	1,675	67	4.0
Olkinyei	1,117	28	2.5
Oloirien	1,651	58	3.5
Total	6,391	238	3.7

For every manyatta visited, two to four people were selected for interview based on the number of households in the manyatta. Each individual interviewed represented one household. Based on the 1989 population census results, I surveyed 3.7% of the households observed within the study area (Table 3.1).

Generally, the individuals selected for the surveys were the heads of the household, but I also interviewed other members of the family when the head of household was not available. Apart from household heads, most of the other family members interviewed were sons. Wives and daughters were interviewed in areas where people had established permanent settlements and lived in permanent houses (thatched

and iron roofed houses see Chapter 4, Figure 4.1 to 4.3). However, this was possible only when men were not around. It was very difficult to interview women in manyattas, and I did not opt for this because I was afraid it was culturally inappropriate and would have jeopardized the whole exercise.

Although I attempted to include women as well as men in our sample, this was usually not possible due to the Maasai social structure. At one point, a man stopped me in the middle of interviewing a woman and offered to provide me with all the information I needed and advised me to leave the women alone as they knew nothing. For this reason, the gender distribution in our sample was skewed towards men (Table 3.3).

Table 3.3 Gender distribution of survey respondents

Gender	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Male	84	99	64	95	25	89	52	90	225	95
Female	1	1	3	5	3	11	6	10	13	5
Total	85		67		28		58		238	

#### Distribution of Settlements

Information on manyattas and other household distribution was obtained from DRSRS in the form of maps (see the section on map preparation for details).

#### Human and Livestock Trespass into the reserve

This part of the study assessed the extent and impacts of livestock and human trespass into the reserve and was accomplished by interviewing local people and park officials. Rangers at five gates leading into the Mara (Sikinani, Talek, Oloololo,



Musiara and Sopa) were asked to identify incidences and frequency of people and livestock trespassing into the reserve. Part of my questionnaire asked local people whether they entered the reserve for purposes other than game viewing. After explaining the nature of my study, most respondents felt comfortable revealing this information. I also employed the participant observation technique where I spent time with local residents (over a drink, by giving them a ride, or at their manyattas) and informally discussed many issues related to the Mara.

I defined “trespass” as incidences of people entering the reserve to hunt, collect firewood, building materials, and medicinal plants, and driving livestock into the reserve for grazing, salt licks and watering. Park officials were asked to categorize, on a scale of 1 to 3 (where 1=low 2=medium and 3=high) different levels of trespass that occur along the park boundary during each season or the year. Using this preliminary information, each area was visited to verify the reported intensities and to divide the study area into zones based on trespass intensity. This intensity was based on how often I saw livestock each time I used any of these gates or drove along the boundaries of the reserve. Since I used some gates more frequently than others, the information based on my observation may have been biased, but combined with ranger’s reports, it provided a good estimation of the spatial distribution of the trespass problem.

#### Crop and Livestock Depredation by Park’s Wildlife

Assessment of crop and livestock depredation involved two steps: 1) Family units within the study area were surveyed to determine frequency and extent of crop and

livestock damage. 2) Government and civic officials were interviewed to determine reported cases of wildlife damage.

#### Relationship between MMNR and its human neighbors

Relationship between MMNR and its human neighbors was determined by evaluating attitudes towards the reserve and the revenue sharing program and the role of tourism in promoting the welfare of the local Maasai. To accomplish this, questionnaire-based interviews were combined with the participant observation methods and used to describe and compare the conservation-related attitudes and behaviors of each of the two groups and to assess their attitudes towards enhancement or alternatives to the revenue sharing program. The same techniques were used to determine the role of tourism in promoting the welfare of local communities.

Individuals from selected manyattas in the study area were surveyed to record conservation related attitudes and practices. Types of land uses practiced, membership in Wildlife Associations and other wildlife-related activities constituted participation in conservation activities. Attitudes towards conservation were assessed in terms of peoples' beliefs about wildlife and MMNR, concerns about revenue sharing programs, and other community conservation programs. The interviewees were also asked to make recommendations for enhancements or alternatives to current revenue sharing program.

To determine the role played by tourism in promoting the welfare of the local people, officials from hotels and lodges were interviewed concerning origins of their employees (local or not) and whether they obtained supplies locally. Local people were also interviewed on their perceptions of the benefits they derived from the tourism

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industry. This information was used to measure the role of tourism in providing local jobs and markets for locally produced goods and services.

#### Map preparation

The maps used in this study were generated using WinDisp3 and Adobe Photoshop. First, maps for Africa and their accompanying data were downloaded from the FAO and USAID home pages and stored as Binary (.bna) images. The accompanying data included batch files for rivers, towns, lakes, countries, provinces etc. After obtaining all the necessary images and their data, I used WinDisp3 to overlay various images to obtain the coverage I needed. The resulting maps were then edited and labeled using Adobe Paintshop and converted into TIFF format and inserted into the dissertation document.

Household distribution maps were obtained from DRSRS, and the information on them was not altered. The only modification made was the removal of any information that was not relevant to this study. The cleaning up process was accomplished using Adobe Paintshop. Maps delineating the group ranches were obtained from MMNR offices. These maps were treated the same way as those from DRSRS.

#### Data Analysis and Report Preparation

All the data collected was coded and entered into a spreadsheet using Microsoft excel. The data was later transferred to JMP (SAS Institute Inc. 1995), which was used to process it. JMP was selected because it provides a great variety of statistical and

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graphical methods organized into a small number of interactive platforms. This made it much easier to use.

### C. SOCIO-DEMOGRAPHIC AND CHARACTERISTICS OF THE SAMPLE

As pointed out earlier, age group is an important social aspect of the Maasai that plays a crucial role in pastoral production. All the extant age categories (Table 3.4) were represented in the sample. There were however some differences in the percentages reflecting political representation among the Maasai. Ilkisaruni and Ilkotoip had more respondents because these are the elders and senior elders and are the most active in the Maasai traditional politics. Ilkishili are junior elders involved in establishing families and preparing to enter into active politics. Ilkotoip are currently the most powerful elders, but Ilkisaruni are progressively taking over. The Ilnyangusi are retired elders whose role is to provide advice to the other age sets.

Table 3.4 Age distribution of survey respondents

Age group and ages	Group Ranch								Total	
	Siana		Koiyaki		Olkinyei		Oloirien		#	%
Mejooli (16 to 20 yrs.)	14	17	6	9	1	4	7	12	28	12
Ilkishili (21 to 30 yrs)	18	21	13	19	4	14	9	15	44	18
Ilkisaruni (31 to 40)	20	24	21	31	5	18	8	14	54	23
Ilkitoip (41 to 50)	19	22	16	24	13	46	18	31	66	28
Iseuri (51 to 60)	10	12	10	15	5	18	9	15	34	14
Ilnyangusi (61 to 70)	4	5	1	2	0	0	7	12	12	5
<b>Total</b>	<b>85</b>		<b>67</b>		<b>28</b>		<b>58</b>		<b>238</b>	<b>100</b>

The majority of the respondents in my study had no formal education and those with education had seldom gone beyond primary (elementary) level. The few with some college education were mainly primary school teachers with a primary school teaching certificate. Further, most of the respondents were self-employed, mainly raising their own livestock. Others ran small businesses like shops or curios, selling artifacts to tourists. Those with salaried jobs were either schoolteachers or worked for the county council, tourism operations or the government.

**CHAPTER IV:**  
**LAND USE CHANGES AND ITS EFFECTS ON THE MAASAI  
LIVING ADJACENT TO MMNR**

A. INTRODUCTION

Conservation agencies in Kenya are striving to establish partnerships between protected areas and their neighbors in order to ensure the survival of wildlife. One way to improve the success in forming such partnerships is to better understand how local people make land use and natural resource use decisions as these decisions are influenced by social, economic and environmental factors (Shaw 1995). They are generally rational efforts to meet subsistence and development needs and desires with the available resources and under existing environmental and socioeconomic conditions (Barrow et al. 1995, Snelson 1993). Understanding how decisions are influenced by different environmental and socioeconomic factors enables the creation of conditions and incentives that encourage more sustainable land uses that will be readily adopted by local people. This is particularly essential in the Mara region which is undergoing drastic land transformation through group ranch subdivision.

In this chapter, I have presented results that address land settlement patterns, land ownership, land use practices including livestock and crop production, and perceptions concerning the subdivision of group ranches. The chapter looks at the changing land tenure system from communally owned group ranches to privately owned land through subdivision and how these changes will affect livestock production and wildlife conservation. The situation now in Maasai land is that the exercise of group

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ranch subdivision is already in progress and there is probably no possibility of stopping it. The goals of this chapter are therefore not to influence the government to terminate the exercise, but to explain the possible consequences of this program on the Maasai and wildlife conservation. In this chapter, I use the findings of this research to argue for the promotion of a modified pastoral production strategy that the Maasai can employ after subdivision to facilitate efficient use of the resulting individual pieces of land.

### Land Ownership

There are three main designations of land in Kenya, Trust Land, government land and private land. Trust Land is land held in trust by a County Council (CC) for the people in an area. Trust Lands constitutes about 78% of all the land in Kenya (Bragdon 1990). The CC oversees natural resources on these lands and the rights of different users to these resources. Trust land has no official title deed, and it remains under the custody of the CC until it is subdivided among the people living in the area. Game reserves like Masai Mara National Reserve are carved out of Trust lands and fall under the jurisdiction of County Councils.

Government lands are vested in the president who has powers to make grants or dispositions of estates, interests or rights (Government Land Act Cap 280) (Republic of Kenya 1984). This category of land was introduced in Kenya by the "Crown Lands Ordinance" of 1902, which declared all supposedly waste and unoccupied land to be land of the Crown. Government lands include forest reserves and other government reserves, national parks, townships and open water. Apart from the townships, none of the areas in my study fell under this category.

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Private persons or groups hold private lands. Individuals or legal persons, such as corporations or partnerships own private lands. Group ranches fall under this category. Siana can be classified as an unincorporated group ranch which exists as a group ranch in the understanding of the local people but is not registered with the Land Adjudication Office. Koiyaki, Olkinyei and Oloirien are incorporated group ranches and have title deeds under the name of each group. As mentioned earlier, under the Maasai custom, land is not seen as a commodity and custom and taboos govern relations to land. The essential character of land rights is the existence of user rights and the absence of exclusive owner rights.

The Maasai own and utilize natural resources within their land communally. Access to and use of pastures and water are regulated under customary land laws (Jacobs 1975, Saitoti 1978, Rutten 1992, Alcorn 1993) which are enforced through a council of senior elders. For example, dry season pastures are closed to all members of the community until the right time comes to retreat to these mostly swampy or upland places (Tobiko 1989, Personal communication 1996). This type of control is also imposed by the Il Chamus (Little 1985) who are close relatives of the Maasai.

Within the Maasai traditional land tenure, some form of private ownership exists where a family is allowed to mark a small 'traditional private pasture' (*olokeri*) located immediately opposite the family gate to their kraal. These pastures are reserved for calves, sick, aged and weak animals. Grazing on another person's *olokeri* without permission is a serious social offense. However, unlike the conventional private land ownership, the family has no legal title to this piece of land and it can not be inherited.



Olokeri belongs to the family as long as they continue using it. When the family migrates, ownership ceases.

Another restriction concerning the free use of land among the Maasai is based on wet season pastures. The Maasai pastoralism involves herd and family movements between permanent high potential, dry season pastures and temporary low-potential wet season grazing areas (Jacobs 1975, Tobiko 1989). Most families have a preferred area in the lower plains where they return during the wet season. The family erects a permanent settlement at a specific spot and acquires exclusive rights over both the settlement and the spot. No outsider can occupy such a spot without permission even when abandoned. Settlements in the dry season grazing area are temporary in nature, and families may not settle on the same spot every year.

Under the traditional tenure, Maasai from different sections can not trespass into another section's area without permission. In principle, however, permission is always granted. The Maasai recognize that by allowing others into their areas they create a reciprocal right, which is vital to their livestock production strategies. Although the land within the study area falls under the official description of private land, the Maasai continue to practice traditional land use strategy.

### The Group Ranch Concept

Communal land ownership among the Maasai and indeed other pastoralists, has been described as an inefficient form of land use by Hardin (1968). This strong negative attitude towards pastoralism go back to colonial times (Galaty and Bonte 1991).

Throughout their administration, the British regarded the Maasai as a threat and their

nomadic life style as worthless and destructive (Galaty 1992, Rigby 1992). To make the Maasai useful, both the colonial and the independent Kenyan governments believed that dividing their land into private farms would stop the Maasai migratory behavior. This began a process of land transformation that has threatened the existence of the Maasai.

The government of Kenya knew that the Maasai would not accept the outright privatization of their land and introduced the group ranch system as an intermediate stage. The group ranch concept is an innovation, as opposed to private ranching, which is based on the familiar concept of private property. The group ranch principle was based on a group of people owning land jointly and holding the title to the land in the group's name. Livestock raising continues to be managed on an individual basis. The group ranches were established in the mid-1960s and early 1970s and aimed at overcoming some of the problems the government perceived as related to sharing land resources.

The primary motive was to provide a framework within which to facilitate the dismantling of communal ownership of land and subsistence oriented livestock rearing. The pastoral way of life was expected to be replaced by a sedentary lifestyle and commercial livestock production. It was rationalized that a system of exclusive group rights to restricted range resources and the ownership of land titles would induce pastoralists to take out loans, with which they would finance range and livestock improvements, and enter the commercial livestock sector (Halderman 1972).

From the government's perspective, the group ranch concept did not accomplish the intended objectives. Most of the ranches did not capitalize on the loans and other

development programs initiated through the scheme to improve livestock infrastructure, and where loans were taken, repayment was disappointing. Further, the Maasai have been very slow in adapting the lifestyle and livestock production strategies that the program was designed to facilitate. Since the intended goals were never met, the government embarked on subdivision of group ranches so as to stimulate development among the Maasai. The question here is whether this will help the Maasai and wildlife conservation.

## B. OBJECTIVES

The goal for this section is to determine how the changing land tenure from communal to individual will affect the lives of the Maasai, their livestock production practices and wildlife conservation in areas adjacent to MMNR. This goal is achieved by accomplishing four objectives.

First, determine the existing categories of land ownership and land use strategies by the Maasai in this region. Special attention is paid to the persistence of pastoral strategies and the encroachment of cultivation.

Second, determine settlement patterns and the types of housing structures as indications of settlement permanency.

Third, determine people's attitudes towards subdivision of their ranches and find out how they plan to use their land after it is subdivided, and

Fourth, determine the people's perceptions of the possible consequences of group ranch subdivision on people, livestock and wildlife.

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### C. METHODOLOGY

The above objectives were accomplished using various methods. First, land use policies and other government documents were reviewed. Special attention was paid to Group Representative Act, which provides the guidelines for the formation and termination of group ranches. Various statutes relating to land use also were reviewed to determine the contradictions that exist in Kenya's land policy, which reflects the problems facing wildlife conservation.

Field observations and questionnaire-based interviews were combined with the participant observation methods to evaluate land use practices and strategies by people living next to MMNR. Information about encroachment of agricultural practices into areas that were formerly left for livestock and wildlife was obtained from previous studies and land use maps prepared by the Department of Resource Surveys and Remote Sensing (DRSRS). Respondents were interviewed on issues pertaining to land ownership, land use and their attitudes towards the subdivision of their group ranches. The main focus was on how subdivision will affect their current livestock production strategies that involve regular movements and the wildlife that graze on their communally owned land. Since subdivision will result in smaller individually owned pieces of land, questions were designed to find out what the respondents thought would happen to the youth and women.

Distribution of residential sites was determined through field observations, examination of household distribution maps prepared by DRSRS in 1996 and population census data for 1989. The population census data provides information on

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the number of households in each location, and this was used as a guideline in the design of the interviews. Information on the organization of households was obtained in a similar manner. The maps were scanned and modified to stress the distribution of Manyattas, thatched houses and tin roofed houses.

## D. RESULTS

### Settlement Patterns

With individualization of land ownership, the Maasai will settle in one spot for prolonged periods of time, which will influence the type of housing they build. Currently, the Maasai occupy temporary houses built of branches and cow dung. As people settle down, the style of their housing will change to more permanent structures. Manyattas are the typical kraal style for the Maasai. A typical house in a manyatta has its walls and roof propped with poles and covered with a mixture of mud and dung (Figure 4.4). The structures are temporary typifying the transhumant lifestyles of the Maasai.

As seen in Figure 4.1, manyattas are more widely distributed in the lower parts of the Mara region. There were more manyattas observed in Siana followed by Koiyaki and Olkinyei. Very few manyattas were observed in Oloirien group ranch. This is an indication that pastoralism is still strongly practiced in Siana, Koiyaki and Olkinyei group ranches. There are more grass-thatched houses in Oloirien group ranch than the other three group ranches combined (Figure 4.1, 4.2 and 4.3). This is because Oloirien is situated in the upper, more watered parts of the region, and the people in this area are

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more sedentary. Also, this area borders the very densely populated Kisii and Kericho Districts, and there are many migrants from these districts who have settled in this area. As these maps show, there are more manyattas in the lower regions where the main land use practice is pastoralism.

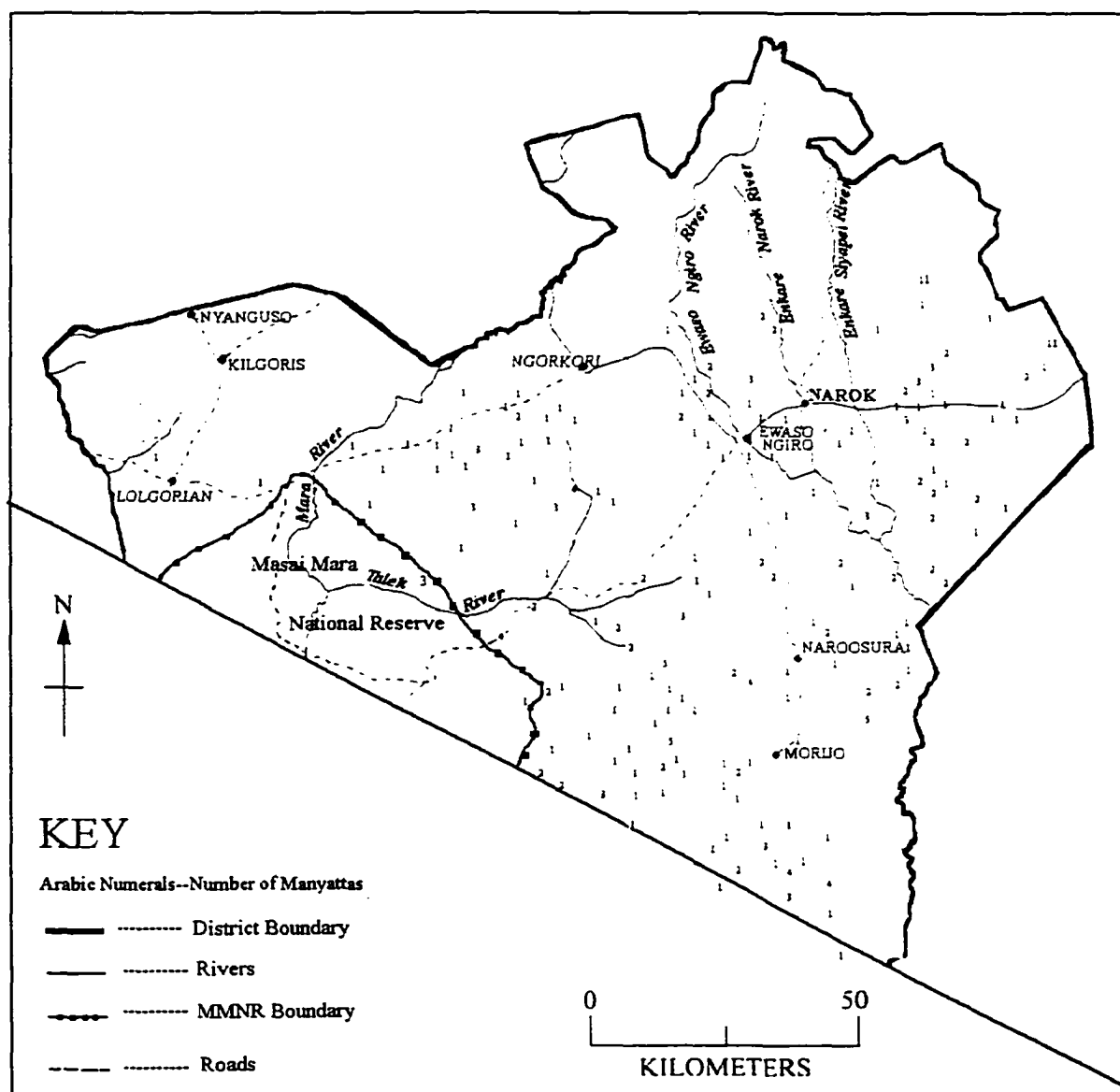


Figure 4.1. Map of Narok District showing distribution of Manyattas in 1996 (source DRSRS)

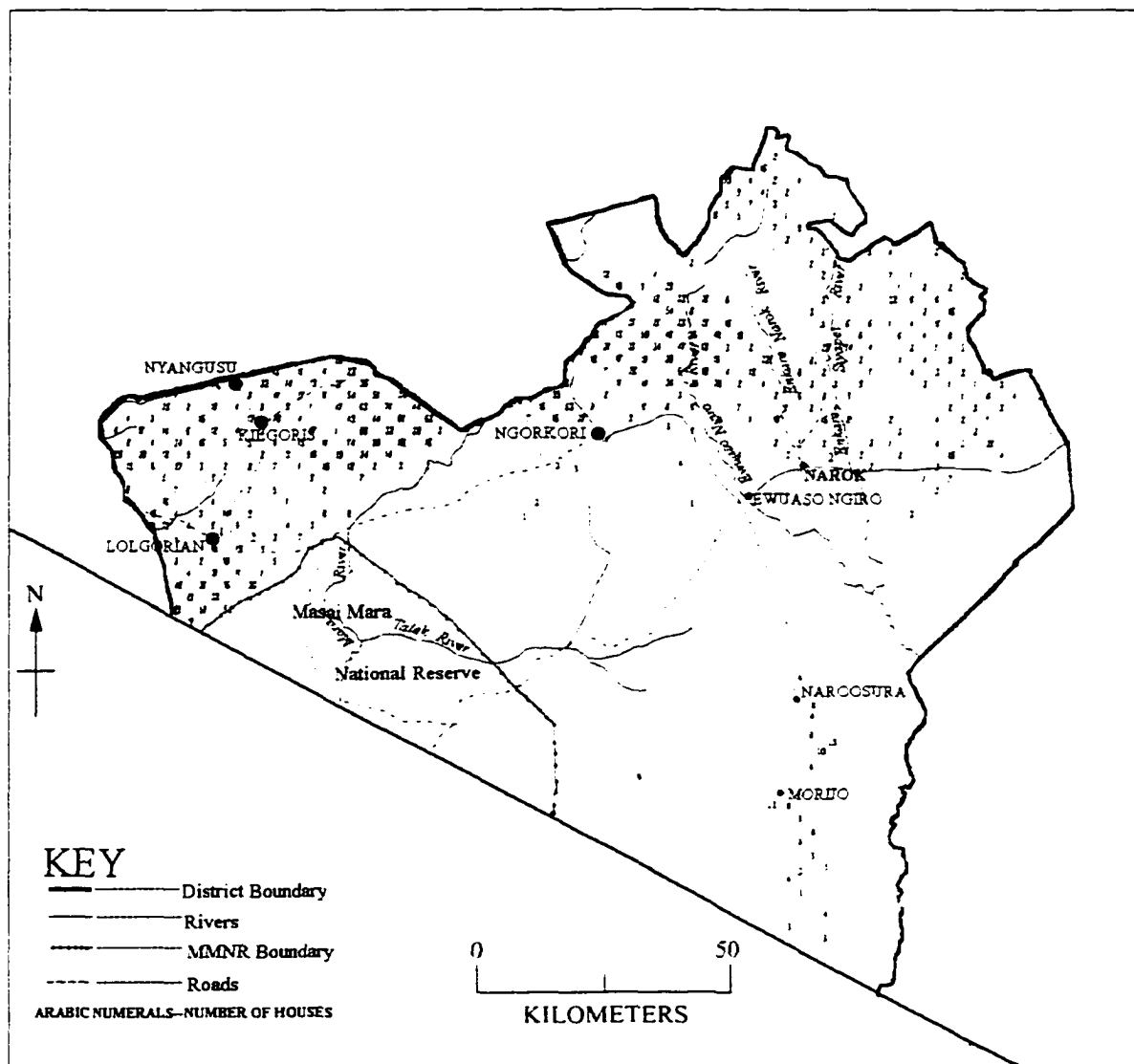


Figure 4.2 Map of Narok District showing distribution of thatched houses in 1996 (source DRSRS)

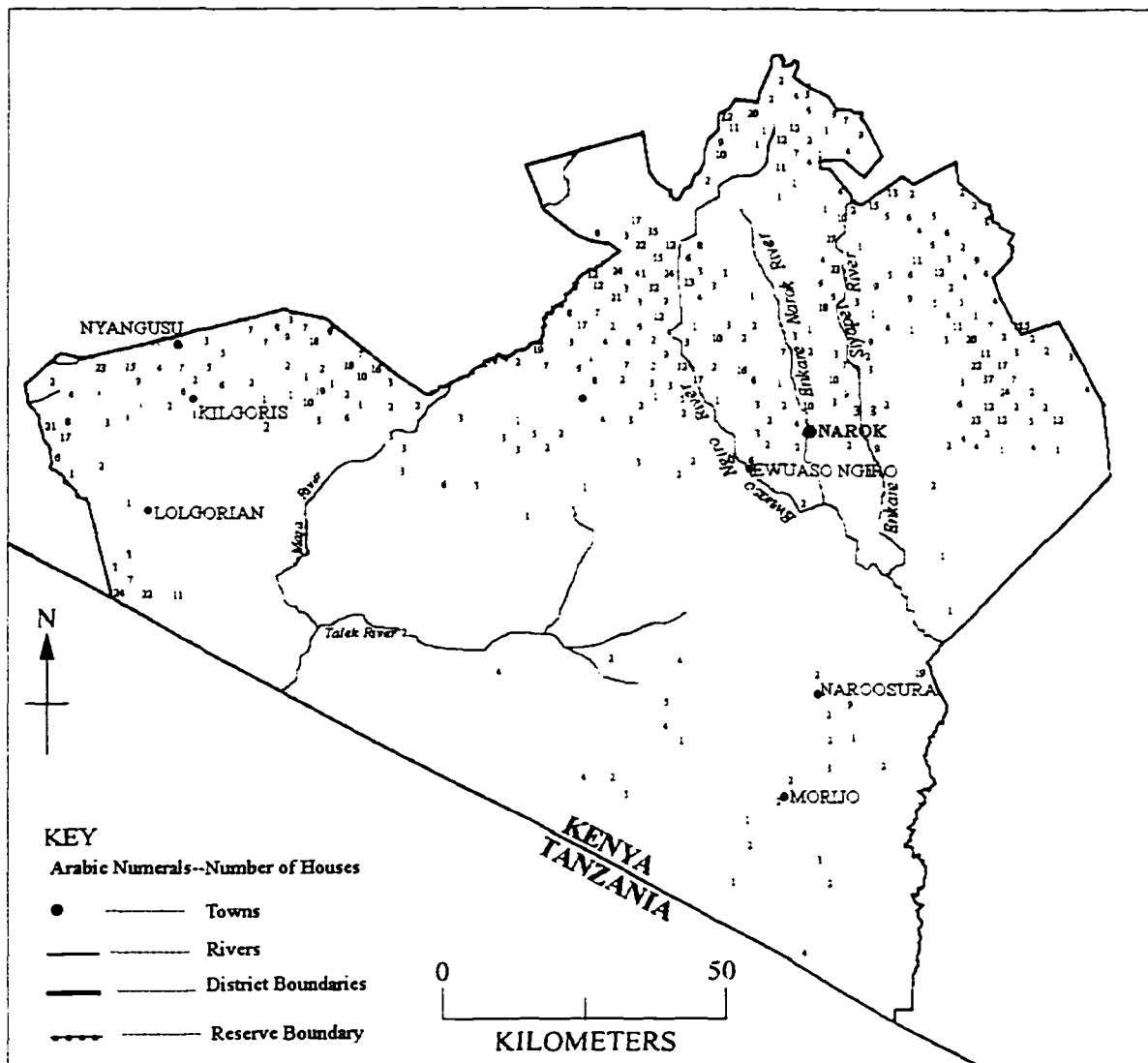


Figure 4.3 Map of Narok District showing distribution of iron roofed houses in 1996 (source DRSS)

However, permanent housing is encroaching southwards meaning that the Maasai are beginning to sedentarize

#### Land Ownership

The people interviewed in this study come from four ranches adjacent to MMNR (see Figure 4.1). One of the ranches (Siana) is not yet demarcated, and the



members do not have a group title to the land. The other three (Koiyaki, Olkinyei and Oloirien) are demarcated and registered under the Group Representative Act. Members of these ranches have a group title for their land. These three group ranches are in the process of subdivision, and some of the individual families have already been allocated some pieces of land, but no individual titles have been issued.

### Types of Land Use

This part of the study was designed to determine the perception of the people about land ownership. The results are reported in Table 4.1 below. In general, most people had a fairly accurate perception of the legal status of their lands.

Table 4.1. Types of land ownership by respondents from Siana, Koiyaki, Olkinyei and Oloirien group ranches

land ownership	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Individual	1	1	5	7	0	0	9	15	15	6
Group Ranch	8	9	44	66	12	43	17	29	81	34
Communal land	74	87	4	6	5	18	5	9	88	37
Individual/GR	2	2	12	18	9	32	23	40	46	19
No response	0	0	2	3	2	7	4	7	8	3
Total	85	99	67	100	28	100	54	100	238	99

### Livestock Production

Livestock production is the major activity undertaken by the Maasai. As part of the study, I asked the people to tell me how many livestock<sup>1</sup> they owned and explain their grazing strategy. Out of the 238 respondents, 235 (99%) admitted that they raised livestock<sup>1</sup>. The three (1%) who did not own livestock were employed as herd boys .

<sup>1</sup> Since the Maasai do not like revealing the actual size of their herds, I decided to omit livestock numbers.

This is not surprising considering that the primary mode of production by the Maasai is pastoralism.

Over 95% of the respondents produced livestock for domestic consumption. Livestock is a major trade commodity of the Maasai and more than half of the respondents produced livestock for sale. The Maasai also accumulate their wealth in the form of livestock, and over 34% of the respondents admitted accumulating livestock for this reason as well as a sign of higher social status (Table 4.2). Virtually all the respondents reported raising livestock for domestic consumption, and almost 60% raised livestock for sale. There were no apparent differences in this practice among the four group ranches.

Table 4.2. Percentage of respondents who raise livestock and their reasons for raising livestock.

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Livestock raising										
Yes	85	100	66	98	28	100	56	97	235	99
No	0	0	1	2	0	0	2	3	3	1
Total	85		67		28		58		238	100
use of livestock*										
Sale	46	54	42	63	18	64	36	62	142	60
Wealth	28	33	27	40	8	29	20	35	83	35
Domestic use	80	94	64	95	28	100	54	93	226	95

\* Multiple responses

#### Livestock Production Strategies

To facilitate efficient livestock grazing, the Maasai split their livestock into smaller herds or according to species. Results from my study show that almost a quarter of the respondents split their livestock during the wet season, while over 60% split during the dry season (Table 4.3). Reasons for or not splitting livestock are given in

Table 4.4 and 4.5. People split their livestock to ensure efficient grazing when forage is not adequate and when they own too many livestock. Those who do not split their herds have sufficient access to grazing or own few livestock. Some keep their livestock on their land to avoid contact with other herds to avoid the spread of livestock diseases.

Table 4.3. Livestock production strategies during dry and wet seasons

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Split livestock during wet season										
Yes	22	26	15	22	8	29	4	7	49	21
No	63	74	52	78	20	71	54	93	189	79
Total	85		67		28		58		238	100
Split livestock during dry season?										
Yes	56	66	50	75	17	61	24	41	147	62
No	29	34	17	25	11	39	34	59	91	38
Total	85		67		28		58		238	100.0

Table 4.4. Reasons for splitting or not splitting livestock during dry season

Reasons	Split livestock		Do not split livestock		Total	
	#	%	#	%	#	%
Efficient grazing	83	35	12	5	95	40
Not enough grazing here	54	23	1	<1	55	23
Too many livestock	4	2	0	0	4	2
Enough grazing here	2	1	59	25	61	26
Few livestock	0	0	8	3	8	3
Avoid diseases	4	2	6	2	10	4
No response	5	2	0	0	5	2
Total	91	38	147	62	238	100

Table 4.5. Reasons for splitting or not splitting livestock during wet season

Reasons	Split livestock		Do not split livestock		Total	
	#	%	#	%	#	%
Efficient grazing	39	16	12	5	51	21
Less grazing here	2	1	1	<1	3	1
Too many livestock	5	2	0	0	5	2
Enough grazing here	3	1	151	64	154	65
Few livestock	0	0	10	4	10	4
Avoid diseases	0	0	10	4	10	4
No response	5	2	0	0	5	2
Total	54	22	181	77	238	100

### Crop Production

Although the Maasai are primarily pastoral, many have turned to dry land farming to supplement their livestock-based food resources (Figure 4.4). Some Maasai are also taking up cultivation as a major land use activity. Since, in general, cultivation is far less compatible with wildlife than grazing, any changes towards cultivation will have significant implications for MMNR and the wildlife that utilize the reserve and adjacent group ranches. To find out how this activity was spreading among the Maasai within the study area, I asked people to tell me if they were growing crops and the type of crop grown.

The results show that over 40% of those interviewed practiced some form of cultivation. Among the group ranches, Oloirien had the highest percentage of people practicing cultivation and Siana had the lowest percentage (Table 4.6). Oloirien group ranch is located at a higher zone and receives more rainfall than the other ranches. Maize was the most common crop followed by beans and wheat.



Figure 4.4 Maasai Manyatta showing cultivation immediately outside the compound

Other crops grown that are not shown in the table include potatoes, vegetables, fruits and sugar cane. Growing of maize is not surprising, as maize flour constitutes the major diet supplement consumed by the Maasai. It is important to note that although wheat is grown extensively in Koiyaki and Olkinyei group ranches, this is done by outsiders who lease the land from the group ranches. There are very few Maasai in this area or elsewhere in Narok who personally grow wheat. This is probably because of both the financial and the labor costs involved in this activity.

Table 4.6. Percentage of respondents who practice cultivation and the type of crops they grow

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
Cultivate crops	#	%	#	%	#	%	#	%	#	%
Yes	24	28	28	42	13	46.4	36	62.1	101	42.4
No	61	72	39	58	15	53.6	22	37.9	137	57.6
Total	85		67		28		58		238	100
Crops grown*										
Wheat	0	0	5	8	3	10.7	1	1.7	9	3.8
Corn	24	28	28	42	11	39.3	36	62.1	99	41.6
Beans	22	26	16	24	11	39.3	13	22.4	62	26.1

#### Subdivision of Group Ranches

This part of the study was designed to find out whether people were aware of plans to subdivide their ranches and to measure their attitudes towards subdivision. Over 85% of the respondents were aware of the subdivision process. The rest either thought there were no plans to subdivide or did not know (Table 4.7). On the question of how to use their land after subdivision, most people indicated livestock production, suggesting that livestock will retain its importance to the Maasai. However, those intent on taking up crop production constituted more than half of the respondents. Since wildlife causes damage to crops, this finding suggests that conflict between local interests and conservationists will intensify. About 27% of the respondents hope to take advantage of the tourism industry. The rest will either sell part of their land or lease it to other people (Table 4.7).

Table 4.7 Knowledge about subdivision of group ranches and the way the respondents will use their land after subdivision

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Aware of plan to subdivide GR.										
Yes	71	83	60	89	24	86	48	83	203	85
No	3	4	0	0	0	0	0	0	3	1
Don't know	11	13	7	11	4	14	10	17	32	14
Total	85		67		28		58		238	100
Land use after subdivision*										
Raise Livestock	71	84	54	81	22	79	48	83	195	82
Cultivation	38	45	33	49	16	57	40	69	127	53
Tourism	21	25	23	34	11	39	9	16	64	27
Sell	2	2	5	8	1	4	2	4	10	4
Lease	2	2	2	3	0	0	0	0	4	2

\* Multiple responses

The desire to subdivide may result from the desire for a permanent homestead, the need to ensure security of land ownership, the desire to develop and so on. Among those interviewed, the majority (Table 4.8) indicated security of land ownership and the possibility of developing their land as a positive outcome of subdivision. However, 40% of the respondents feared that this exercise would result in reduced livestock grazing lands, and 30% were concerned that individuals could be allocated small pieces of land that could not sustain a livelihood.

The Maasai have owned and used their land communally for many generations, and their perceptions and attitudes towards land ownership are grounded in this traditional communal mentality. Although they did not follow the traditional boundaries, group ranches were designated with the concept of communal ownership in mind. However, the current move towards subdivision of the ranches deviates greatly

Table 4.8 Percentage of respondents who thought that subdivision of group ranches is a good idea and the reasons given for such attitudes

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Those in favor of subdivision	67	79	59	88	24	86	51	88	201	85
Their Reasons *										
Security of ownership	65	77	58	87	23	82	50	86	196	82
Can effect developments	47	55	45	67	17	61	38	66	147	62
Those against subdivision	44	52	38	57	20	71	32	55	134	56
Their Reasons *										
Reduced grazing area	34	40	28	42	9	32	23	41	95	40
Not enough land for individuals	22	26	20	30	15	54	13	22	70	29

- Multiple responses

from the traditional type. The new individual tenure system is expected to disrupt the traditional grazing strategies and result in more conflicts with wildlife. This part of the study investigates people's perceptions of the implications of subdivision of their ranches and how this will affect people, livestock and wildlife. Tables 4.9-4.12 provide results concerning the effects of subdivision on the youth, women, livestock and wildlife.

The younger generation and women are likely to be impacted more by subdivision than men and older people. The results of this study (Table 4.9) show that most of the respondents believed that the younger generation would inherit land from their parents. Others thought that everyone, including younger males, would be allocated lands. Only a small percentage thought that the younger generation would remain landless as there was not enough land to go around. Importantly, many people



simply did not know how subdivision would affect the younger generation probably because this was something new to the Maasai.

Table 4.9 Perceptions of respondents regarding the effects of subdivision on the youth

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Effects										
Will inherit	42	49	31	46	12	43	30	52	115	48
All will be allocated land	16	19	11	16	4	14	6	10	37	15
Will end up landless	11	13	17	25	4	14	10	17	42	18
Do not know	16	19	8	12	8	29	12	21	44	19
Total	85		67		28		58		100	

Women do not own property in the Maasai society and more than half of the respondents (Table 4.10) believed that women do not need land, as their husbands would take care of them. In fact, over 10% said outright that women could not own land, as this was not part of the Maasai custom. A small percentage (7%) was concerned that subdivision will render women landless and will reduce their firewood collection areas (Figure 4.5)

Table 4.10 Perceptions of respondents regarding the effects of subdivision on women

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Effects										
Husband's responsibility	47	55	43	64	14	50	40	69	144	61
Will remain landless	5	6	7	10	3	11	5	9	20	8
Women can not own land	14	16	7	10	5	18	3	5	29	12
Other	4	5	3	4	1	4	0	0	8	3
Don't know	15	18	7	11	5	18	10	17	37	16
Total	85	100	67	99	28	100	58	100	238	100



Figure 4.5 A Maasai woman carrying firewood collected from communally owned land

The keeping of livestock is the principal subsistence strategy of the Maasai. Due to the marginal conditions of the area they occupy, the Maasai practice a nomadic pastoral life style. They follow migratory cycles, rotating grazing land seasonally and, in some cases, also rotate adjacent grazing areas in the same season. Subdivision of the group ranches will likely disrupt this strategy making it difficult for the Maasai to sustain livestock production. About 40% of the respondents (Table 4.11) intimated that subdivision would reduce the amount of land available for grazing. This will undoubtedly increase conflicts with the reserve, as there will be more livestock trespassing into the reserve. A good number of people (32%) thought that, even after subdivision, communal grazing will continue. These people perceived subdivision as a

legal device for ensuring security of ownership and preventing outsiders from encroaching into their land. A few people (Table 4.11) thought that subdivision would result in a reduction of the number of livestock owned by individuals. This low percentage is probably due to the fact that reduction of livestock numbers is a consequence most Maasai are not willing to accept. Another outcome that was not very popular is that subdivision will facilitate better livestock husbandry. This reason was given by only 12% of the respondents. Considering the marginal conditions of the range, subdivision will result in restricted livestock movement, and since movement ensures wider and efficient exploitation of forage resources, this will result in inefficient livestock management.

Table 4.11 Perceptions of respondents regarding the effects of subdivision on livestock

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Effects										
Less land to graze	28	33	26	39	13	46	12	21	79	33
Reduce livestock	6	7	7	11	0	0	3	5	16	7
Continue communal grazing	34	40	19	28	6	21	16	28	75	32
Better livestock husbandry	2	2	5	8	2	7	19	33	28	12
Don't know	15	18	10	15	7	25	8	14	40	16
Total	85	100	67	101	28	99	58	101	238	100

A substantial number of the people interviewed said that subdivision would be detrimental to wildlife conservation. Those concerned about the welfare of wildlife indicated that subdivision would reduce wildlife grazing areas (24%), and result in wildlife being confined in the reserve with insufficient forage (21%). Some respondents (8%) were concerned that wildlife would perish (Table 4.12). Twenty nine percent of the respondents said that wildlife would continue grazing on private land.

Table 4.12 Perceptions of respondents regarding the effects of subdivision on wildlife

Effects	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Restricted movement	16	19	20	30	9	32	13	22	58	24
Confined in the reserve	20	24	8	12	3	11	18	31	49	21
Continue grazing on our land	26	31	25	37	6	21	12	21	69	29
They will perish	7	8	5	8	2	7	4	7	18	8
Don't know	16	19	9	13	8	29	11	19	44	19
Total	85		67		28		58		238	100

## E. DISCUSSION

### The Group Ranch Concept

The government of Kenya's motivation to subdivide group ranches in Masailand was driven by perceptions of the group ranch program's failure. The government was disappointed with the slow speed of sedentarization, outright refusal by many group ranches to take credit to finance socio-economic transformation and the poor repayment of loans. Another problem was that whereas group ranch members were collectively required to limit livestock holdings by selling animals considered to be above the carrying capacity of each group ranch, group ranch executive committees were not able to enforce this requirement.

However, when evaluated against the Maasai point of view, the group ranch concept has not been a total failure. The possession of land deeds has halted to a very large extent the alienation of Maasai land. Under the group ranch system, members graze their livestock within the confines of their group ranches, but they also (at least

for the time being) maintain the traditional system of sharing resources over areas beyond ranch boundaries.

Many of the government objectives have also been met. Ranches have created a sense of land ownership within the boundaries, which is encouraging gradual sedentarization as evidenced by the increasing number of more permanent houses (Figures 4.1 to 4.3). There have also been some improvements in the livestock quality through increases in water, dips, and veterinary services. These improved production conditions have also stimulated livestock sales and even the marketing of fattened steers on a commercial basis, which is practiced by almost 60% of the respondents in my study.

As far as the people are concerned however, the main problem with the concept is that it has not been able to protect Maasai land from outside encroachment. For example, although the group ranches were intended to stay in Maasai ownership, in some areas, many non-Maasai including senior civil servants have been able to have their names entered into group ranch registers. This means that the group ranch concept does not guarantee security of land ownership. In view of this, the Maasai in my study area welcome the subdivision of their land because they fear losing it to outsiders under the existing group ranch situation. The people believe that the only way to save their land is by getting individual title deeds, which will give them the powers to evict outsiders. Consequently, over 84% (Table 4.8) of the respondents in my study supported the idea of group ranch subdivision as a means of securing their land.

The survival of wildlife adjacent to MMNR may not necessarily depend on retaining the group ranch system. Observations within the study area and elsewhere within Maasai land show that group ranching has not curbed farming as most of the ranches have leased parts of their land to commercial wheat farmers. The group ranch strategy is good for wildlife only as long as the land is left open for grazing. Since this system does not guarantee security of land ownership for the Maasai, the government should focus more on developing communal land use strategies under an individual tenure system and ensure that the combination of livestock production and wildlife conservation becomes more beneficial than agriculture.

#### Effects of Subdivision on the Maasai and their Livestock Production Practices

The effects of subdivision will depend on how this will change the land use strategies by the Maasai. The changes will be influenced by many factors including land use policy, returns from the different types of land uses, politics and other external forces. The various possible consequences of group ranch subdivision and the perceptions of the people towards this exercise are briefly outlined below.

Results from this study show that the Maasai are strongly in favor of subdivision of their ranches for good reasons. However, they still have fears about how this will influence their lives as well as their livestock production practices. The main concern is that after subdivision it will become more difficult to graze their livestock as widely as they do now especially if people decide to fence their parcels. Nevertheless, some people (31% in my sample) are still optimistic that subdivision will not change their traditional livestock production strategies and believe that communal grazing will

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persist. The strong affinity for pastoralism revealed in my study suggests that the process of individuation will not take place immediately. Furthermore, we know that in general, pastoral cultures are very reluctant to change over to cultivation and such changes typically take generations. For these reasons, I believe that the Maasai, at least in the foreseeable future, will disregard the individualization and instead support informal arrangements to continue with the traditional herding. Consequently, although the Maasai may embrace subdivision and individual ownership of traditional lands, they will continue to use their lands as pastoral commons. However, this is only a short-term prediction because there are many factors that will likely contribute to pressures to subdivide the land further and/or manage and utilize it exclusively on an individual basis.

In the absence of proper planning, subdivision will have far reaching effects depending on how the Maasai choose to use their individual land. The change from communal use of land to individual ownership is expected to bring economic and cultural changes to the Maasai. These changes will be strongly influenced by outside forces. Drawing from experience in areas like Suswa and parts of Kajiado where subdivision took place before any considerations were given to its consequences, it is clear that individual tenure will result in many problems for the Maasai. As pointed out previously, the Maasai do not consider land as a commodity, but a resource to be used by all within cultural controls. It is understandable therefore that when non-Maasai people offered Maasai people from Suswa money for the use of their land after subdivision, most people seized the opportunity to raise money to purchase more

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livestock, which is evidently, more valuable to them. This practice increased the number of livestock in the area but significantly reduced the amount of land available for grazing and resulted in very serious conflicts where the Maasai drove their cattle into other people's land and even grazed on crops. During drought, people from Suswa are forced to move livestock up to 100 kilometers to areas around Gilgil and Nakuru through private land, encountering many problems on the way. This is something they do repeatedly despite these problems because of their strong pastoral traditions.

Another imminent situation is that many people will become landless after selling their land. It is well known that Maasai land experiences frequent droughts and other catastrophes during which many livestock are lost. Experience from Kajiado and other areas where subdivision has occurred suggest that there is a tendency for the Maasai to lose their land to speculators who take advantage of the crisis created by drought (Rutten 1993). Another situation that may stimulate selling involves the system of inheriting land. Traditionally, Maasai people did not consider the land as a commodity and, therefore, did not transfer it to offspring. The Maasai simply inherited the right to graze livestock in an area as members of a section. The Maasai therefore have to develop a system of inheriting land as a commodity. If land is subdivided among all the sons equally (please note that daughters are rarely considered in land ownership) the land size will soon become too small to be economically viable for supporting an individual Maasai family. The land will eventually be sold to outsiders. The results will be that more people among the Maasai will be engaged in wage labor, and livestock ownership will concentrate in the hands of a smaller number of herders. In

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fact, it is becoming evident that many of the wealthiest herders are now absentee-owners, who employ stockless members of the society to herd for them.

Pastoral production is in the hands of men, who have to make decisions on movement related to the needs of the livestock and other political or economic pressures. The women are involved with other activities of running the camp and/or taking care of the gardens. With individualization of land, the Maasai will have to adjust some of their customs. Since communal grazing grounds for the community as a whole are reduced and individuals more restricted to their property, the traditional migration with livestock herds will be reduced accordingly.

As people stay in one place longer, the settlements become permanent, which will also change the type of houses to more permanent types. The evidence that this is underway was clear from Figures 4.2 and 4.3, which show large numbers of permanent houses in some parts of the study area, which are manifestations of people who are transitioning from pastoralism to more sedentary life styles. As mentioned earlier, pastoralism assured women an important position in the Maasai society as managers of the traditional household (Kipury, 1991). However, the gradual transition of the pastoral subsistence economy to a more sedentary agricultural oriented production, will diminish the role of the house as a managerial system and an institution mediating rights in livestock. This may affect a major area of power held by women in the Maasai pastoral economy and jeopardize their position in the Maasai society by increasing inequality in female-male relations.

The tenure reform provides registration of titles to the land in the name of the head of the family who is almost always a man. This gives the man increased control over distribution of land and access to it. The access rights of women are merely transformed to those of laborers, and they are only guaranteed through marriage. Since women mostly work on the land but do not have the legal rights of ownership, their security of tenure is restricted.

#### Effects of Subdivision on Livestock Production

Subdivision of group ranches will influence livestock production strategies among the Maasai. Although many of the respondents indicated that they would continue keeping livestock, they also understand that the sizes of the small parcels that will result are not large enough to sustain this activity.

As indicated earlier in this section, many of the people expect communal grazing to continue, but this will only happen if they come up with a new strategy to facilitate this. It is very likely that over the long run, the herd sizes will have to be reduced -- a situation that most Maasai are unwilling to accept. Some respondents from Oloirien where most agro-pastoralism exist indicated that subdivision would offer the opportunity to improve their livestock production. These people understand that by getting deeds to their land they qualify for loans and would take advantage of the facility to improve their land for both livestock production and cultivation. It is important to note that Oloirien group ranch falls in an area where the land is capable of sustaining a more diversified production system. Some people in this ranch expect to improve their livestock through crossbreeding and where necessary, reduce their

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livestock. Although they admitted that this attitude was contrary to the traditional one that advocates more livestock as a sign of wealth, they believe that under the current circumstances, some customs could not be sustained, and it was time for the Maasai to change their attitude.

It is important to note that there are more non-Maasai people in the Transmara District and many of the Maasai in this part are in transition towards sedentarization as evidenced by the number of thatched and iron roofed houses. This is probably why more people from Oloirien group ranch are inclined towards sedentarization.

#### Purposes for Producing Livestock

Domestic livestock serve a variety of economic functions. In pastoral communities such as the Maasai, livestock are used for the specialized production of milk rather than beef enterprises. But livestock are also clearly seen as marketable commodities and clearly serve certain functions of “capital”, as reliable sources of value, as media for exchange, and objects of investment.

In this study, about 60% of the respondents indicated that they produced livestock for sale and/or as a sign of wealth. My own observation among the Maasai is that they like investing most of their income in livestock. It does not matter whether they practice agro-pastoralism or are salaried workers and urban dwellers, every Maasai tries to procure a position in the society by owning livestock. This tendency is not unique to the Maasai, and observation among the pastoral Taureg (Smith 1993) show that the need for grains forced a change in cultural practices by encouraging the herding of many more cattle as an economic resource, rather than the former reliance on camel

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husbandry. Cattle have thus become a source of cash, that enables the pastoralists to purchase what they need in the market place. Ironically, the notion of pastoral economic “irrationality” continues to have currency in the discourse of development, where the notion is used to justify development intervention which would increase pastoral market participation.

#### Effects of Subdivision on Wildlife

Wildlife conservation will suffer more if the land use in this area changes from communal, to strictly individual, especially if the landowners fence their land. Some respondents actually perceived this problem and indicated that wildlife would perish. Other people were understandably more concerned about their own fate as they believed that wildlife was already well cared for as there was an area already set aside for it. Some people argued that wildlife would continue grazing on their land, as they did not expect much fencing to take place, as this was too expensive for the Maasai to afford.

The survival of wildlife is tied to availability of natural habitat. For many years, this was facilitated by the Maasai pastoral practices, which left open areas for wildlife use. But, if this traditional practice breaks down, wildlife habitat outside MMNR will be lost which will jeopardize the survival of over 80% of the wildlife that depends on lands outside the Mara. What is required in areas around the MMNR is to encourage and develop land use strategies and projects that attempt to reconcile the protection of natural resources with the welfare of local communities. As noted above, the Maasai are reluctant to give up pastoralism and programs such as wildlife associations and

pastoralism/wildlife conservation easements should be designed to facilitate a more viable pastoral strategy, which will further ensure the survival of wildlife.

#### Expansion of Agricultural Practices

High population densities and rapid growth rates are centered in the northern part of Narok District where arable agriculture has become predominant. While the majority of the people involved in agriculture in the Narok are immigrants living in the northern part of the district, the predominant concern for wildlife conservation is centered on activities further south. The Maasai living in this marginal part of the district are gradually taking up cultivation (Table 4.7) as a means of attaining greater food security, to complement declining livestock production or to assert their rights of occupation.

Large-scale commercial farming poses a more serious threat to both pastoralists and wildlife in Narok and elsewhere in Masailand (Odienge 1988, Parkipuny 1991, Lado 1992, Rutten 1992) for two main reasons. First, a small community of medium scale farmers who mostly lease land from the group ranches dominates the production of wheat, which has become the most lucrative cash crop in Narok. These farmers strive for the highest yields, which they attain through heavy mechanization coupled with intensive application of fertilizers, herbicides and fungicides. Further, most wheat farmers do not invest in improvements to the land, they rarely apply soil conservation measures and invariably practice monoculture. As a result, the risk of soil erosion and declining fertility is very high. Since most of the wheat farmers are tenants, they will

eventually abandon the fields and move to new areas leaving the land in a condition that is no longer good for either livestock or wildlife.

Second, because many believe that commercial agriculture in southern Narok will open up the area to development. That is to say, when large scale production of crops becomes established in the area, good roads will be built, and this will attract reliable health facilities, schools, shopping centers, and the many other facilities which go together with a thriving commercial economy. The government will encourage cultivation for these reasons. This will result in wheat production taking over the areas that provided reliable dry season grazing and refuge from drought for both livestock and wildlife.

An important incentive for cultivation that has implications for wildlife conservation is that the Maasai are turning to agriculture for the financial prospects it offers, whether by cultivating the land or leasing it out. This is a real problem in areas adjacent to the Mara where more than 42% of the respondents admitted that they practiced some form of crop production, and more than 53% expected to take up the practice after subdivision of their group ranches.

Dyson-Hudson (1972) suggested that the mechanisms for choosing pastoralism over sedentary agriculture or visa versa, are not based upon a pastoral ideology. They appear to be a result on the one hand, of the profit that can be obtained through cattle ownership, and, on the other hand, on the survival needs that can be more easily filled by agriculture when an individual does not have enough cattle for support. For this reason, wildlife conservation must offer alternatives to agriculture that provide more

revenue to local communities if pastoralism is to be perceived as an advantage over agriculture. Advocates of conservation need to develop a system of wildlife management through which local communities would be able to secure direct benefits from the wild animals found outside protected areas. Considering that the Maasai culture is still, at least for the moment, strongly tied to pastoralism, a proposition that provides financial benefits as well as facilitating livestock production is likely to be more acceptable.

There are many avenues through which financial benefits from wildlife conservation can be obtained by landowners. A few examples for Mara region would be: leasing out land for campsites and lodges; charging fees for water used by lodges and camps; selling firewood and road gravel collected from ranches. More details on the various benefits that accrue to the Maasai through conservation are provided elsewhere in my study.

## F. CONCLUSIONS AND RECOMMENDATIONS

In this chapter, we have seen that Maasai traditional production system based on nomadic pastoralism has ensured sustainable livestock production as well as the survival of wildlife in Maasai land. However, this system is breaking down because of increasing population pressure resulting in the encroachment of crop production into areas that were exclusively used for livestock and wildlife grazing.

The main problem related to this study is a changing land tenure system where the trend toward individual land ownership will continue over much and possibly all of

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the Mara region. Changes in land tenure from communal to individual through subdivision of group ranches has been promoted by the government of Kenya to facilitate development in Masailand. Considering that the group ranch system did not secure their land from encroachment, the Maasai welcome subdivision with the hope that it will secure their land from further alienation. However, they are concerned that this move will affect their traditional livestock production strategies by reducing the amount of land available for livestock grazing and by eliminating the resource sharing strategy that has ensured their survival.

Subdivision will also result in landlessness as many Maasai will be forced by circumstances to sell land. Reduction in grazing areas will reduce livestock numbers and hence beef supplies for the country since pastoral areas are the main suppliers of this commodity. Further, subdivision will result in severe reduction in wildlife numbers because wildlife will be confined in small protection areas. This decline in wildlife numbers will curtail tourism.

While land tenure will play a significant role in wildlife conservation, other factors will be at play too. Neither ecological nor cultural factors favoring coexistence will persist in the face of development in Masailand. Individual economic and political interests will diverge progressively through adoption of new lifestyles, formal education and changing aspirations. Instead of a community characterized by relative homogeneity of interest (pastoralism) there will emerge a heterogeneous community of farmers, ranchers, entrepreneurs, civil servants etc. These changes represent the biggest challenge to the future of wildlife conservation in Maasai land.

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I believe that the survival of wildlife adjacent to the MMNR may not necessarily depend on retaining the group ranch system. After all, cultivation has continued to spread unabated as most of the ranches have leased parts of their land to commercial wheat farmers. Further, wildlife will have very little chance of survival under an individual tenure system. The only hope for wildlife rests on the Maasai reluctance to give up their livestock production strategy based on transhumance.

What is required in areas around the MMNR is to encourage and develop land use strategies and projects that attempt to reconcile the protection of natural resources with the welfare of local communities. Considering that the Maasai culture is still, at least for the moment, strongly tied to pastoralism, a proposition that provides financial benefits as well as facilitating livestock production is likely to be more acceptable.

As a first step, the management of the region will require an overall multipurpose plan that should zone the area to include (a) a central wildlife area composed of the reserve, this area should exclude all other uses; (b) a wildlife management pastoral area to accommodate livestock production and a game cropping scheme; (c) agricultural areas to allow people to cultivate for grain and vegetables. This will require a firm government support and should be backed by policy that prohibits activities other than those recommended for the particular area.

Formal plans and written contracts, will be required to ensure adherence to the plans. To facilitate this, I propose the introduction of conservation easements similar to those developed for the US by the National Research Council (NRC 1993). This should involve agreements between land owners and the government (through KWS) that

prohibit any land use other than livestock and wildlife within the designated areas.

These agreements should be binding upon successive owners with the purpose of retaining land predominantly for the designated uses.

For these arrangements to succeed, KWS must ensure that wildlife conservation offers income alternatives that are competitive with agriculture. The various alternatives are presented in chapter VI.

## **CHAPTER V**

### **CONFLICTS BETWEEN THE GOALS OF CONSERVATION AND THE NEEDS OF LOCAL COMMUNITIES**

#### **A. INTRODUCTION**

About 8% of Kenya's land is devoted to National Parks and Reserves, which represents the principal base for environmental protection in Kenya (KWS 1990). In addition to protecting the country's treasured genetic resources, these protected areas are the foundation that supports the country's valuable tourism industry. Despite their importance, protected natural areas comprise only a small part of the areas utilized by wildlife. Consequently, wildlife survival will increasingly depend on the tolerance of the people owning or occupying the lands outside the protected areas. These lands are crucial for wildlife migrations. For instance, the extent of the dispersal area for wildlife for Masai Mara National Reserve is over 4,000 square kilometers distributed over 8 group ranches. This implies that these protected areas are not self-sustaining. Consequently, for sound biodiversity conservation in these ecosystems, there must be workable integrated management plans that consider the interests of landowners in the wildlife dispersal areas and that mitigate conflicts between wildlife and people.

Various kinds of land use conflicts have resulted from encroachment on wildlife habitats by human activities. These can broadly be classified as either: human/wildlife or human/human conflicts. Crop destruction, livestock predation and injury or deaths to people characterize the human/wildlife conflicts. These conflicts are driven by

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competition for scarce resources such as water and land. When wildlife and people conflict or compete for resources, it is usually the wildlife that suffers. Reducing these conflicts is therefore an important wildlife conservation goal.

One of the problems related to the management of MMNR is trespass grazing by the neighboring Maasai. This problem has persisted despite the various methods the Narok County Council has employed to curb it including diligent surveillance and inducements like revenue sharing. The main objective of this part of my study is to describe the extent of trespass grazing and to determine why this practice continues.

Domestic and wild animals have coexisted in all the pastoral areas of the Maasai Mara region for many years, and this was well known when MMNR and other reserves in the region were set aside. In fact, when Maasai Mara was first gazetted, the authorities conceded the rights of the Maasai to retain their access to the protected area. In due course, however, the pastoralists were forced to vacate and stay out of the land within the reserve. This disrupted the rotational grazing system, which has been the backbone of Maasai range management practice and resulted in very serious conflicts between the Maasai and the management of the reserve (Aboud 1989, Berger 1989, Omondi 1994).

Despite this, the group ranches continue to provide critical dispersal areas for wildlife from both the MMNR and Serengeti National Park. Virtually the entire land area currently utilized by the pastoral Maasai supports wildlife grazing side-by-side with domestic stock. The only difference is that wildlife still have freedom of movement and continues their natural migratory grazing strategy throughout the region

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while the Maasai are restricted from using MMNR. This has resulted in severe reduction of range resources available for livestock and the breakdown of the system of rotational grazing.

Revenue sharing was introduced to compensate the Maasai for the loss of this important grazing area. However, revenue sharing by itself may not be an effective conservation strategy if it does not address cultural traditions and ecological constraints. For example, local people need access to certain resources found in a park like medicinal plants, firewood and building materials (Sindiga 1994, Shaw 1995). Revenue sharing may not adequately compensate for the loss of access to these resources. Similarly, revenue sharing may actually discourage desirable land use practices if they discourage sustainable nomadic lifestyles in favor of permanent settlements.

#### B. OBJECTIVES

The goals of this part of the study are to determine incidences of livestock incursions into MMNR and the problems caused by such trespass. This part also looks at the problems wildlife causes to people living adjacent to the reserve, including crop and livestock depredation. Further, it aims to find out the motivation behind people trespassing into the reserve and how this problem can be resolved.

#### C. METHODOLOGY

Data for this part of the study was obtained through questionnaire-based interviews. First, I determined people's perception of current densities and changes in numbers of selected wildlife species by asking them to tell me how frequently they encountered these animals. Animals encountered daily to weekly were considered very

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common, while those encountered at least monthly were considered common. Any encounters occurring less than monthly were considered rare. Further, changes in numbers were based on people's perceptions of encounters with the animals now compared to 10 years ago. All these were subjective because the responses were based on people recalling situations from the past. Nevertheless, I believe that the information is representative given the excellent knowledge the Maasai have of their environment.

Assessment of crop and livestock depredation involved two steps: 1) Family units within the study area were surveyed to determine frequency and extent of crop and livestock damage. 2) Government and civic officials were interviewed on reported cases of wildlife damage.

Assessment of the extent and impacts of livestock and human trespass into the reserve was accomplished by interviewing local people and park officials. Rangers at five gates leading into the Mara (Sikinani, Talek, Oloololo, Musiara and Ololaimutiai) were asked to identify incidences and frequency of people and livestock trespass into the reserve. This data was recorded each time I used any of the gates. At Sikinani, I kept records of every time I observed livestock entering the reserve.

Part of my questionnaire asked local people whether they entered the reserve for purposes other than game viewing. After explaining the nature of my study, most respondents felt comfortable revealing this information. I also employed the participant observation technique where I spent time with local residents (over a drink, by giving them a ride, or at their manyattas) and informally discussed many issues related to the Mara.

I defined “trespass” as incidences of people entering the reserve to hunt; collect firewood, building materials and medicinal plants; and driving livestock into the reserve for grazing, salt licks and watering. Park officials were asked to categorize, on a scale of 1 to 3 (where 1=low 2=medium and 3=high), different levels of trespass that occur along the park boundary during each season or the year. Using this preliminary information, each area was visited to verify the reported intensities and to divide the study area into zones based on trespass intensity. This intensity was based on how often I saw livestock each time I used any of these gates or drove along the boundaries of the reserve. Since I used some gates more frequently than others, the information based on my observations may have been biased. However, when combined with rangers reports, it provided a good estimation of the spatial distribution of the trespass problem.

Whenever possible, tour drivers were asked whether they observed livestock during their game drive. This information was combined with rangers’ reports and compared to interviews to estimate trespass into the reserve.

#### D. RESULTS

##### Trespass into the Reserve and the Purpose for such Trespass

The results of this study show that there was no difference in the rates of trespass among the five gates. I operated from Sikinani gate throughout the study, and I saw livestock either entering, inside, or leaving the reserve more than 75% of the time I was there. Over 50% of the drivers I talked to reported seeing livestock in the reserve, especially in the areas between Sikinani and Talek gate. Reports from Ololaimutiai,

Talek and Oloololo showed very high incidences of trespass. The rangers at these gates reported observing livestock within or at the border of the reserve at least once every week. The trespass incidences were very high during the dry season when people from as far as Mosiro had driven their livestock into Siana group ranch causing even more pressure on this ranch as well as the eastern parts of the reserve.

Almost three-quarters of the respondents in my study admitted entering the reserve to graze and water livestock, hunt for food, collect firewood, medicinal plants and building materials (Table 5.1).

Table 5.1 Percentage of respondents who trespassed into the reserve and their reasons for trespassing.

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Ever trespassed into the reserve										
Yes	71	84	46	69	22	79	29	50	168	71
No	14	16	21	31	6	21	29	50	70	29
<b>Total</b>	<b>85</b>		<b>67</b>		<b>28</b>		<b>58</b>		<b>238</b>	<b>100</b>
Purpose for trespassing										
Graze livestock	57	67	41	61	21	75	29	50	148	62
Hunt for food	4	5	2	3	0	0	0	0	6	3
Collect medicinal plants	6	7	0	0	0	0	0	0	6	3
Collect firewood	3	4	3	5	0	0	0	0	6	3
Collect building materials	1	1	0	0	1	4	0	0	2	1

Among those who trespassed into the reserve, about 84% encountered reserve officials and were arrested and warned, fined and/or beaten (Table 5.2). Despite these actions, most people repeated the offense because they believed they had no choice.



Table 5.2 Percentage of respondents who encountered reserve officials and action taken when caught

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Have you ever been caught										
Yes	62	73	43	64	21	75	15	26	141	59
No	23	27	24	36	7	25	43	74	97	41
Total	85		67		28		58		238	100
Were you punished										
Yes	59	69	42	62	20	71	16	28	137	58
No	26	31	25	37	8	29	42	72	101	42
Total	85		67		28		58		238	100
Kind of punishment*										
Arrested	48	57	34	51	14	50	10	17	106	45
Warned	18	21	9	13	7	25	6	10	40	17
Fined	38	45	23	34	9	32	7	12	77	32
Beaten	28	33	19	28	12	43	3	5	62	26

Table 5.3 Percentage of respondents who felt that local people should be allowed to graze in the reserve, the season when they should be allowed and reasons why

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Support grazing in the reserve										
Yes	65	76	53	79	26	93	36	62	180	76
No	20	24	14	21	2	7	22	38	58	24
Total	85		67		28		58		238	100
In which season?										
Year round	3	4	2	3	0	0	3	5	8	3
Wet season	0	0	1	1	1	4	0	0	2	1
Dry season	62	73	50	75	25	89	34	59	171	72
No response	20	23	14	21	2	7	21	36	57	24
Total	85		67		28		58		238	100
Why should they be allowed? *										
It is our land	47	55	19	28	10	36	24	41	100	42
More forage there	55	65	43	64	24	86	27	47	149	63
Wildlife graze on our land all year	7	8	4	6	1	4	6	10	18	8

\* Multiple responses

When asked whether local people should be allowed into the reserve to graze their livestock, over 75% of the respondents said they should be allowed to graze in the

reserve during the dry season. They felt that this was necessary because the reserve had more forage during the dry season, and furthermore, the land belonged to them in the first place. They wondered why they were not allowed to graze in the reserve during the dry season while wildlife grazed on their land year round.

#### People's perceptions about numbers and problems caused by wild animals

A wide variety of animals cause various livestock, crop and human related problems. In this study, I selected eight species, which are believed to interact most with the local people.

Results of this study show that about 90% of the respondents perceived elephants as very common both during the wet and dry season (Table 5.4). Most people (71%) also thought that these animals had increased over the last 10 years (Table 5.5). This perception is probably due to increased encounters between people and wildlife caused by increased human population and people encroaching further into areas formerly used exclusively by wildlife. This same fact may be contributing to the many problems these and other animals are causing to the people. Over 90% of the respondents in this study perceived the problems caused by elephants as very serious (Table 5.5).

#### Problems Caused by Selected Wildlife Species

##### (1) Elephants

In the past, the Maasai lived with elephants and there were very few attacks on the people. According to the Maasai, elephants have become bolder and attack people without provocation. The Maasai believe that this is happening because of

overprotection of elephants. Even when elephants attack people, it is illegal for people to fight back. Although historically elephants were not a major problem to the Maasai, they are now accused of causing all kinds of problems including killing people cited by 82% of the respondents in this study. Other problems associated with elephants are, damage to crops and fences, preventing access to water and forage (Table 5.5), and even blocking children's route to school and so on.

Table 5.4 people's perceptions about the status of selected wild animal numbers during dry and wet seasons

Species	Perception of numbers							
	Very common		Rare		Don't know		Total	
	#	%	#	%	#	%	#	%
<b>Wet season</b>								
Elephants	211	89	21	9	6	3	238	101
Wildebeests	190	80	23	10	25	11	238	101
Buffaloes	212	89	25	11	1	<1	238	100
Zebra	218	92	13	7	3	1	238	100
Baboons	197	83	21	9	20	8	238	100
Lions	221	93	16	7	1	<1	238	100
Hyenas	227	95	11	5	0	0	238	100
Leopards	198	84	38	16	2	1	238	101
<b>Dry season</b>								
Elephants	207	87	24	10	7	3	238	100
Wildebeests	217	91	18	8	3	1	238	100
Buffaloes	185	78	47	20	6	2	238	100
Zebra	208	87	23	10	7	3	238	100
Baboons	195	82	24	10	19	8	238	100
Lions	221	93	16	7	1	<1	238	100
Hyenas	229	96	7	3	2	1	238	100
Leopards	191	80	43	18	4	2	238	100

(2) Wildebeest

Most of the respondents (91%) believed that wildebeest were very common during the dry season, but there were still too many of them during the rainy season (Table 5.6). Wildebeest became a major problem when the migratory population arrived

from Tanzania and were considered a serious problem by three-quarters of the respondents. Although these animals came up in large numbers and hence competed with livestock for forage, the main concern by the Maasai is transmission of diseases to their livestock. This concern was cited by over 78% of the respondents (Table 5.7).

Table 5.5 people's perceptions about changes in the numbers of selected wild animal species over the last 10 years.

Species	Perception about changes									
	No change		More common		Less common		Don't know		Total	
	#	%	#	%	#	%	#	%	#	%
Elephants	22	9	169	71	30	13	17	7	238	100
Wildebeests	29	12	156	66	31	13	22	9	238	100
Buffaloes	21	9	119	50	80	34	18	8	238	100
Zebras	31	13	159	67	26	11	22	9	238	100
Baboons	44	19	146	61	23	10	25	11	238	100
Lions	18	8	166	70	38	16	16	7	238	100
Hyenas	21	9	179	75	24	10	14	6	238	100
Leopards	29	12	131	55	45	19	33	14	238	100

Table 5.6 People's perceptions about the seriousness of the problems caused by eight selected wild animal species

Species	Perception of the Problem Caused by Each Species							
	Serious problem		Moderate problem		No problem		Total	
	#	%	#	%	#	%	#	%
Elephants	220	92	14	6	4	2	238	100
Wildebeests	176	74	59	25	3	1	238	100
Buffaloes	187	79	49	21	2	1	238	100
Zebras	88	37	127	53	23	10	238	100
Baboons	84	35	68	29	86	36	238	100
Lions	222	93	15	6	1	<1	238	100
Hyenas	191	80	45	19	2	1	238	100
Leopards	181	76	48	20	9	4	238	100

### (3) Buffaloes

Buffaloes were believed to be more common during the wet season by about 90% of the respondents in this study. Half of the respondents thought that these animals had

increased in number while 33% thought they had declined (Table 5.5). About 90% of the respondents considered buffaloes a serious problem, and their main concern was that these animals injured or even killed more people now than in the past. About one quarter of the respondents cited disease transmission as a problem caused by buffaloes (Table 5.7). About half of the respondents considered buffaloes as competitors with livestock for forage.

(4) Zebras

Zebras were perceived to be very common year round by about 90% of the respondents. This species was considered to cause moderate problems, mainly in the form of competing with livestock for grazing (Table 5.7). An interesting observation is that people from Oloirien considered this animal to be a serious problem, causing serious crop damage. This is not surprising because people in this area practice more cultivation than the other regions studied.

(5) Baboons

Baboons were perceived by a majority of the respondents as very common in all seasons and more common now than 10 years ago (Table 5.5). This animal was considered to be either a serious or moderate problem by over half of the respondents. Baboons were accused of destroying crops and/or killing livestock by 45% and 43% of the respondents respectively. Most of those citing killing of livestock said that baboons killed and ate lambs and goat kids. As expected, people from Oloirien had more problems with baboons than people from the other group ranches (Table 5.6).

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Table 5.7 people's reports on the types of problems caused by caused by the eight selected wild animal species

Species	Type of Problem													
	Damage to crops		Kill livestock		Damage fences		Destroy forage		Compete with livestock		Transmit diseases		Kill or Injure people	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Elephants	91	38	84	35	92	39	131	55	45	19	-	-	194	82
Wildebeests	38	16	-	-	23	10	112	47	155	65	187	79	-	-
Buffaloes	55	23	-	-	28	12	95	40	116	49	61	26	146	62
Zebras	74	31	-	-	44	19	116	49	161	68	-	-	-	-
Baboons	107	45	103	43	-	-	-	-	-	-	-	-	-	-
Lions	-	-	211	89	-	-	-	-	-	-	-	-	152	64
Hyenas	-	-	216	91	-	-	-	-	-	-	-	-	88	37
Leopards	-	-	206	87	-	-	-	-	-	-	-	-	117	49

(6) Lions

Considering that all the people in my sample practiced some form of pastoralism, there were incidents of problems with predators. Over 92% of the respondents considered lions to be very common year round and the cause of very serious problems for the people in the area (Table 5.6 and 5.7). About 70% of the people believed that the lion population had increased greatly over the last 10 years. The main problems caused by this species is killing livestock cited by about 89% of the respondents and injuring or killing people cited by 63%.

(7) Hyenas

People perceived hyenas the same way as lions. About 96% of the respondents thought that hyenas were very common in this area, while three quarters believed that the population had increased over the last 10 years. About 80% of the respondents had serious problems with hyenas killing livestock and injuring and sometimes killing people (Table 5.7).

(8) Leopards

People within this study area also consider the leopard a serious problem (Table 5.6). Many of them (55%) believe that leopard population is higher now than 10 years ago. Leopards cause similar problems as the two other predators. However, these animals attacked manyattas at night and most of the injuries caused to people occurred while trying to defend livestock from leopard attacks at night.

The problems cited above were those generally perceived by people as being caused by wild animals. What is presented below, are specific losses experienced by individual respondents.

### Reports of Livestock Losses

Over 88% of the respondents in this study (Table 5.8) reported losing livestock to predators. These losses totaled 1,160 cattle, 2,469 sheep and goats and 295 donkeys valued at 9,647,800 Kenya shillings (US \$148,428.00 at Ksh.65.00 to US \$1.00) (Table 5.9). During the same period, about 40% of the respondents (Table 5.9) reported losing about 640 acres of wheat, maize and beans valued at about 7,657,800 Kenya shillings (US \$117,812.00) (Table 5.9) to wild animals. Oloirien group ranch had the highest (62%) incidences of crop loss compared to Siana's (25%).

Table 5.8 Percentage of respondents who cited loss of property to wildlife, reports of the loss and reasons for not reporting (N=211)

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
<b>Reports on property damage*</b>										
Livestock loss	77	91	60	90	17	61	56	97	210	88
Crop damage	22	26	28	42	9	32	36	62	95	40
<b>Reporting the problem</b>										
Yes	37	46	44	70	19	90	42	74	142	64
No	44	54	19	30	1	5	15	26	79	36
<b>Total</b>	<b>81</b>		<b>63</b>		<b>20</b>		<b>57</b>		<b>221</b>	
<b>Reasons for not reporting</b>										
No action taken	33	83	17	100	3	75	12	67	65	82
Not aware	7	8	0	0	1	25	6	33	14	18
<b>Total</b>	<b>40</b>		<b>17</b>		<b>4</b>		<b>18</b>		<b>79</b>	



Table 5.9 Livestock and crops lost to wildlife depredation during the last two years

Livestock species	# of livestock killed	Estimated value (Kenya shillings).
Cattle	1,160	5,800,000.00
Sheep/Goats	2,469	2,962,800.00
Donkeys	295	885,000.00
<b>Total</b>	<b>3,924</b>	<b>9,647,800.00</b>

Type of crop	# of acres destroyed	Estimated value (Kenya shillings).
Wheat	26.5	410,000.00
Maize/Corn	446.5	4,321,900.00
Beans	167.5	2,925,900.00
<b>Total</b>	<b>640.5</b>	<b>7,657,800.00</b>

Most of the people experiencing these losses reported the problems to either KWS, County Council, Chief, Politician, District Administrative Officer or Ministry of Agriculture (Table 5.10). Some 36% of the respondents did not bother to report because previous experience showed that no action is ever taken when such reports are received, and some people did not know who to report to (Table 5.10). Of those cases where losses were reported, 95% believed that no action was taken. According to the respondents, only in 5% of the cases did KWS officials remove the problem animal. No compensation was given in any of the cases because by the time of my study, the government had discontinued this option.

Out of 211 people who responded to the question of the kind of action they thought was appropriate for damages caused by wildlife, 77% preferred compensation. A small percentage (8%) thought removing the problem animal was a satisfactory action, while 15% preferred both actions (Table 5.11).

Table 5.10 Where respondents reported when wildlife destroyed their property and the action taken (N=142)

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Reported to*										
KWS	9	6	18	13	3	2	24	17	54	38
County council	19	13	12	8	4	3	15	11	50	35
Chief	8	6	12	8	3	2	6	4	29	20
Politician	6	4	6	4	9	6	6	4	27	19
Administrator	2	1	5	3	1	1	3	2	11	8
Agriculture	2	1	2	1	1	1	4	3	9	6
Action taken										
None	34	94	39	93	14	88	48	100	135	95
Removed animal	2	6	3	7	2	12	0	0	7	5
Total	36		42		16		48		142	

Table 5.11 The kind of action people would have liked to be taken when they reported property damage by wildlife (N=211)

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Appropriate action										
Compensation	57	73	49	82	7	41	49	87	162	77
Remove animal	5	6	6	10	5	29	1	2	17	8
Both actions	16	21	5	8	5	29	6	11	32	15
Total	78		60		17		56		211	

## E. DISCUSSION

Results of this study have shown that the Maasai trespass into the reserve as a necessity because the area now occupied by the reserve formed part of their traditional grazing region. The severe punishment they receive has not deterred them. Trespass grazing continues, because the Maasai living near MMNR believe they must practice

their traditional grazing strategies to ensure the survival of their livestock. It is important to note that the Maasai are not opposed to conservation. However, they object to conservation practices that require them to stay out of the reserve and interfere with their pastoral production strategies.

Pastoralists occupy many of the regions with abundant and diverse wildlife communities remaining in East Africa. While livestock-herding people have coexisted with wildlife for thousands of years (Collett 1987), the potential for conflict over land use has increased in recent decades, following the intervention of modern governments in pastoral lifestyles (Sandford 1983). Some biologists and conservationists have concluded that pastoralists now compete severely with wildlife for food, water and living space (Huxley 1961, Simon 1962, Lamprey 1983). They advocate the reduction of perceived conflicts by the exclusion of livestock and settlement from contested areas. Certain wildlife populations have been protected in this way in the short term, but this enforced exclusion can create hardships for local herdsman and new conflicts with conservation interests (Myers 1972). In recognition of the potential antagonism between the goals of nature preservation and the right of indigenous people to land tenure and use, some conservationists have proposed that the human neighbors of nature protection areas should receive direct, compensatory benefits from the reserves (Myers 1972, IUCN 1980). The aim of this policy is to return to a sustainable coexistence between people and wildlife. While this provides a great incentive for local people to tolerate and/or conserve wildlife, it may not satisfy some very important needs that require access to certain resources in the parks. It was obvious from this study that the

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motivation to graze in the reserve had very little to do with revenue sharing. On the contrary, it is simply a struggle by the Maasai to ensure the survival of their livestock. The Maasai in this area continue to graze in the reserve mainly during the dry season because this constitutes part of their traditional grazing pattern.

The wildlife in the reserve seem to follow a grazing pattern too. Immediately after the rains when grass in the reserve is very tall and dense, the smaller species like Thomson and Grants gazelles and impalas preferred grazing on the group ranches where the grass was shorter. Later in the drier periods these animals retreated into the reserve, but the Maasai did not have this option. The Maasai perceived this situation and part of their arguments for wanting to be allowed access into the reserve is that they continually share pastures in their ranches with wildlife. The wildlife populations of the Mara are clearly seasonally dependent on grasslands outside the reserve boundaries. From a conservation perspective, one must question whether the long-term goals of the reserve can ever be accomplished without the collaboration of the Maasai who live adjacent to MMNR.

The arguments for excluding livestock from nature reserves are based on the belief that livestock damage the range through overgrazing. However, there is no conclusive evidence to support this contention--at least in Mara where nomadic pastoralism has been practiced for centuries. Some work by Noy-Meir (1982) and Walker and Noy-Meir (1982) has shown that savannas are characterized by low stability (with frequent major changes due to flood, fire, heavy grazing, major fluctuations in herbivore numbers, etc.), but are highly resilient with a strong tendency to return to a

central equilibrium despite disturbance. This resilience is attributed to higher reproductive rates of savanna plants under stress conditions, increased growth rates of vegetation at low biomass, spatial heterogeneity which encourages herbivore migration and provides habitat refuges and recolonization sources, underground water reserves and plant dormancy mechanisms (Homewood and Rodger 1987). It can also be attributed to "prey switching", and the flexibility of the diverse herbivore community in exploiting the multi-species plant biomass. Attempts to protect savanna against disturbance or to reduce heterogeneity may damage this resilience. For example, protection against fire renders the range vulnerable to much more severe eventual fire damage through a buildup of dry matter (Collett 1987).

The process of excluding the Maasai from areas sliced from their lands for conservation purposes is not unique to Kenya. In Tanzania for example, the Ngorongoro Conservation Area (NCA) was designed to be a joint wildlife conservation/pastoralist land-use area program (Homewood and Rodgers 1984, Homewood et al. 1987). Plans were later made to expel the 19,000 pastoralists and their livestock because they were believed to be responsible for environmental degradation and because of their impacts on conservation values. This was done despite earlier studies (Arhem et al. 1981, Rodgers and Homewood 1986, Homewood and Rodgers 1987, Homewood et al. 1987), which found that pastoral activities had in fact facilitated the survival of wildlife in the region. These studies found that it was wildlife and not livestock population increases that had resulted in the escalation of competition between the two. Looking back at the Kenyan situation, the ban on hunting may have caused certain wildlife species to

increase in numbers and resulted in more competition with livestock. Although this view does not agree with government figures, people's perceptions in my study indicated a significant increase in wildlife numbers (Table 5.5).

Traditional management systems among the Maasai have existed relatively intact until recently. The Maasai have several different strategies for managing range resources. Jacobs (1980) indicated some of these as: elaborate grazing sequences (including irregular rotation as well as simple alteration) based on systematic reconnaissance of, and movement to grazing flushes in order to create standing hay in the dry-season reserves.

In addition to the pastoral practices, the Maasai have a system of reserved grazing areas called *olopololi*, which can range in area between 100 ha and 800 ha. (Pasha 1983, de Souza 1984, de Souza and de Leeuw 1984). The *olopololi* is located near a homestead (or collection of homesteads) and was traditionally reserved for calf grazing. During the dry season, producers must seek permission from the homestead heads associated with a particular reserved area before they can move animals across it. In recent times, adult cattle and small stock have begun to utilize the *olopololi*, which, as noted above, were traditionally reserved for calves. Within the *olopololi*, the grazing is sub-divided and certain stock species are restricted to grazing only on certain parts of the *olopololi*. The basic objective in the management of reserved grazing areas (*olopololi*) is that grazing resources are used in a manner to ensure conservation and annual regeneration of critical forage species. Wildlife is never driven out of this area and continue grazing even when livestock are excluded. It is clear that the Maasai are

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careful guardians of their own environment, including the wildlife. In fact, some respondents in my study viewed the reserve as an *olopololi* which should be open for use during dry seasons

Most people in this study perceived all the wild animal species to be common, or very common and in general wildlife are believed to have increased tremendously over the last ten years. This perception does not agree with national wildlife census data, which shows that most wildlife species numbers have either remained constant or declined (DRSRS 1995). Various factors may influence this perception. For example, due to the increasing human population and encroaching croplands, there is probably more contact between people and wildlife, which has made people perceive more wildlife than is really there. Further, based on observations from my study, people in areas where cultivation is practiced perceive more wildlife. This is probably because the effects of conflicts between wildlife and agriculture are more obvious. This may account for more people from Oloirien perceiving more wildlife than those from the other group ranches.

The results of my study have also shown that the amount and type of problems an animal causes will influence people's perception of its abundance. For example, although elephants and the three large predators are not as frequently observed as zebras and wildebeest, they are considered more common. An obvious explanation is because they pose direct danger to people. Buffaloes were also perceived to be very common and increasing in numbers and again, this species is a direct threat to humans.

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Various factors may be responsible for the negative attitude people have developed towards wildlife. First, protection of wildlife from utilization by landowners through legal mechanisms has intensified the view that wildlife is of little value to the community. The Maasai for example traditionally utilized certain wildlife species for cultural and other purposes (Appendix 2). However under current laws, such uses are considered poaching.

Protection has also resulted in another form of conflict between the Maasai and wildlife. Traditionally, the Maasai coexisted with wildlife with very few incidents of wild animals attacking people. This, the Maasai believe is because wild animals knew who the masters of the landscape were. The Maasai reinforced their position as the masters by spearing elephants, killing buffaloes, lions and other wild animals for cultural purposes. According to my study, the absence of hunting has resulted in increased numbers of elephants and other wild animals, and the animals have lost their fear of people. Consequently, these animals (particularly elephants) have become bold, and invade human settlements and attack people without provocation. This has made people think that the Government, by protecting wildlife, "love animals more than people".

The problems with elephant attacks on people are not limited to the Mara area. KWS data shows that in Taita Taveta for example, elephants killed or injured 36 people between 1989 and 1993 without any compensation for death or injury (Kangwana 1995). Although KWS animal control units killed 23 elephants during the same time, (KWS 1994), the loss of human life tends to diminish tolerance of wildlife by the local

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population. Moreover, there is ample evidence that Kenyan authorities who have been in-charge of wildlife in the past have managed human/wildlife conflict with little sensitivity to human suffering (KWS 1994).

The type of land use practiced by the people will also influence attitudes towards wildlife. Results of this study show that there were more cases of animal damage complaints in Oloirien group ranch than the other ranches. As mentioned earlier, there is more cultivation in this ranch therefore more crop damage complaints. Surprisingly though, there are also more complaints on predation meaning that people in this area are less tolerant of wildlife. Since the current trend is towards more cultivation throughout Maasai land, it is likely that this will cause more damage by wildlife and hence more animosity towards wildlife conservation and MMNR.

The increasing pressure on land for settlement and the need for sufficient food caused by increasing human populations continues to diminish the land that is available for wildlife conservation -- particularly in areas of high and medium agricultural potential. With diminishing availability of prime land for agricultural production, people have spilled over into the fragile marginal areas in search of opportunities to make a living. This situation impinges upon wildlife migration areas from national parks and reserves and jeopardizes wildlife survival in their key dispersal areas.

The problem of compensation has also contributed significantly to the negative attitude people have towards wildlife. Wildlife is, by law, the property of the government. Consequently the government is responsible for any damages it causes to people or their property. Government authorities have addressed the issue of wildlife

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conflict through compensating the families of people killed or injured, but the mechanisms have left much to be desired. Paltry sums like Kenya shillings 30,000 (Approximately 400 \$ US) for loss of human life have been paid by the government authorities. This has been perceived as inadequate compensation for the bereaved family. Furthermore, the process of payment has been very slow and cumbersome, at times taking more than six months and involving several government authorities. Most of the injured and or bereaved families are unaware of any compensation available and have not bothered to report their loss (Table 5.10). The process of compensation has therefore been inadequate to engender tolerance for wildlife among the local human communities.

#### F. CONCLUSIONS AND RECOMMENDATIONS

The results of this study have shown that the Maasai are not opposed to having MMNR as a wildlife protection area. Further, wildlife access to Maasai lands in the group ranches is essential to wildlife and accepted by the Maasai. Likewise, Maasai access to the reserve during the dry season is essential for their livelihood although not permitted. The logical action under these circumstances is to allow the Maasai access to resources in the reserve. However, allowing such access will encourage increased exploitation by people from the region and also attract those living further away. During the period of my study, people from as far away as Mosiro had converged into the ranches adjacent to the reserve increasing the number of livestock trespassing into MMNR. Under these circumstances, opening access to the reserve's resources may

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actually promote a dependence on the reserve that will inevitably grow beyond sustainability

Most people in my study justified trespass into the reserve on the need to ensure the survival of their livestock. The real reason however, has much to do with people's response to current management strategies that portray them as enemies of conservation. This has made people view wildlife as an unnecessary nuisance that destroy their property and life. The fact that people are denied the use of wildlife, while wild animals continue to destroy property without compensation has increased negative attitudes towards conservation.

The main challenge to conservation is to be sensitive to landowner's rights and interests but its goals should also continue to focus on the viability of the ecosystem. This will require close collaboration between conservation agencies and the local people.

Some possible solutions will include those given in Chapters IV and VI as means of discouraging encroachment of agriculture into areas previously used exclusively for livestock and wildlife grazing. In addition I recommend the following:

- Give local people, through wildlife associations, the responsibility to manage wildlife on their land and assist them to establish and manage a wildlife damage insurance policy or other schemes for compensating members for wildlife related losses.
  - Explore limited seasonal use of MMNR pastures as an extractive resource (e.g. collection of grass for hay) which can be sold to the people at subsidized prices.
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- Where the Maasai still practice traditional ceremonies that require the use of wild animals allocate them some level of traditional wildlife use. This should be managed through the wildlife associations with close supervision of KWS.
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## CHAPTER VI

### RELATIONSHIP BETWEEN MMNR AND ITS HUMAN NEIGHBORS

#### A. INTRODUCTION

The most important shortcoming in the establishment of protected area systems in the past was related to human and institutional issues. Protected areas in Africa were established without any form of participation or consent of local people and in many cases, locals were forced out of the areas (Murphree 1992, Western 1994). Park management proceeded without linkages to local land use plans and with no consideration for creating a system that could provide opportunities for sustainable development as well as biodiversity conservation.

Conservationists realize that although parks and reserves are essential for protecting wildlife areas in the face of expanding human population and the developments, these areas are not adequate for preserving biological diversity in the long term (IUCN 1980). Consequently, conservation must depend on adjacent lands that people use for agriculture, livestock production and other human enterprises. Further, while wildlife enjoy unlimited access to all areas, people are denied access to lands and resources within parks. Furthermore, in many cases the wildlife from the parks damage crops, compete with livestock and threaten human lives nearby. In view of this, the success of wildlife conservation will depend on people tolerating wildlife on their land, and this can happen only if they are sufficiently compensated for the loss of land and resources taken up by the wildlife.

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Managers of protected areas recognize the need to extend conservation activities beyond the boundaries of protected areas (McNeely and Miller 1984, Wells and Brandon 1993, Barrow et al. 1995, Sharma and Shaw 1995) Presently, numerous examples exist that demonstrate the potentials for incorporating wildlife conservation with other land uses (Ack 1991, Murphree 1993, Shaw 1995, AWF 1994, Western and Wright 1994). More and more, conservationists are making efforts to build sustainable community systems for conserving biodiversity by creating alliances with local communities. To create meaningful alliances, land owners must be offered alternatives to use their land that are economically viable, sustainable and compatible with wildlife conservation.

Wildlife-based tourism is one important strategy that has been used as an inducement for conserving biodiversity, especially in the less developed nations where wildlife and protected areas must compete with other income generating land use practices (Boo 1990a and b). It can, and has been used in some situations as a marketing strategy for selling natural values and wilderness qualities (Child 1995, Brohman 1996). Through wildlife tourism, wildlife conservation can provide benefits to local communities in both economic terms and environmentally, helping influence public and political opinion. Economic benefits from wildlife may encourage decision makers to develop tourism that is in sympathy with the natural environment

In Kenya, revenue sharing between conservation agencies like KWS and the local people is used to induce support for conservation. But sharing revenues may not be adequate if they are not carefully planned and administered. For example, the Narok

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and Transmara County Councils manage a revenue sharing program with communities around the Mara. Ideally, these councils contribute 19% of their revenues to the group ranches to finance various programs. However, in 1988 a study of the sustainable use of the Maasai Mara National Reserve and its adjacent pastoral lands documented that less than one percent of the revenues generated from the Reserve went to the local people sharing their lives with wildlife (Berger 1989). A revenue-sharing program was launched in 1989 to streamline the distribution of a portion of gate-receipts to the group ranches in the wildlife dispersal areas. This study evaluated the effectiveness of this scheme in influencing people's attitudes towards MMNR as a wildlife preserve and wildlife conservation in the entire Mara region

#### B. OBJECTIVES

The main objective in this part of the study was to find out whether the revenue sharing program influenced the behavior and attitudes of MMNR neighbors. To accomplish this, I explored ways in which wildlife-related income could be used to encourage a wider and deeper understanding and appreciation of the need for wildlife conservation and environmental protection among the Maasai. I focused on the magnitude and distribution of wildlife-based revenues coming into the region, emphasizing the degree to which the local Maasai perceive the revenue sharing program and other wildlife-based benefits. This I accomplished by determining attitudes, knowledge and activities of people living near MMNR that relate to the management of the reserve and wildlife conservation in general, exploring the role played by tourism in promoting the welfare of the local Maasai and comparing attitudes towards wildlife

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conservation between groups that have received wildlife-related benefits with those that have not. Finally, I used local people's suggestions to develop recommendations for the improvement of the CWP so as to ensure conservation of wildlife resources in the area

### C. METHODOLOGY

A questionnaire based interview was used to determine the level of participation in wildlife conservation by local people (see Chapter IV for detailed description of the method), respondents were interviewed on issues pertaining to participation in conservation. First, the people were asked whether they were ever consulted on matters pertaining to the management of MMNR. They were also asked to mention any activities they performed that they perceived as constituting participation in conservation. Other areas covered were attitudes towards the revenue sharing program. The respondents were also asked to make recommendations for improving the management of the Mara by suggesting an organization they thought was most efficient in managing the reserve, and by recommending methods of improving the revenue sharing scheme to ensure more benefits to locals and facilitate good wildlife conservation.

To determine the role played by tourism in promoting the welfare of local communities, individuals were surveyed to record their perceptions of the benefits they derive from tourism. Cultural manyattas<sup>1</sup> were surveyed to determine the role played by tourism in promoting small local enterprises and employment. Where possible, officials

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<sup>1</sup> Cultural manyattas are Maasai model settlements established for tourism attraction. In these manyattas, selected families live their traditional lifestyles.



from hotels and lodges were interviewed concerning their sources of employees (local or not) and whether they obtain supplies locally.

#### D. RESULTS

##### Attitudes on the management of MMNR

Kenya Wildlife Service's current approach to conservation stresses the importance of involving local people in conservation matters. In order to find out how successfully NCC, TMCC and KWS have implemented this concept, people in my sample were asked various questions relating to how much they have been involved in the management of MMNR. About 90% of the respondents in this study indicated that they were never consulted on matters pertaining to the management of the Mara or on any issues relating to wildlife conservation. The few who were consulted (Table 6.1) said that this happened only during workshops held in the Mara or when researchers approached them seeking various information. Most of the respondents indicated that the only time the reserve officials interacted with them was while arresting them for trespass or to advise them to keep off the reserve.

Table 6.1 Percentage of respondents who were consulted on matters pertaining to the management of the Mara

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Never consulted	73	86	64	95	28	100	49	85	214	90
Consulted at least once	12	14	3	5	0	0	9	15	24	10
Total	85		67		28		58		238	100

For quite sometime, there has been a major controversy between KWS and the NCC concerning the ownership and management of the Mara. This problem has proceeded without the input of the local people. In this study, I asked the people in my sample to give me their opinion about which organization or group they thought was most qualified to manage MMNR. The highest percentage of respondents (42%) cited a combined effort between the local county councils and residents (Table 6.2). It was very clear that the respondents believe that the best management was possible only when the local residents were involved. It was also clear that people wanted their local county councils involved (Table 6.2). Very few people (2%) thought the reserve should be handed to KWS. However, a larger percentage (17%) recommended a combined effort by residents, KWS and the local county councils. The reason why KWS was not favored is because it is considered a government agency, and experience has made the Maasai believe that government takes away from people.

Table 6.2 Respondents' recommendations for who should be given the responsibility to manage MMNR

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
Who should manage MMNR?	#	%	#	%	#	%	#	%	#	%
No Opinion	4	5	4	6	0	0	1	2	9	4
County Council (CC)	16	19	6	9	1	3	0	0	23	10
KWS	3	4	1	1	0	0	1	2	5	2
Residents	19	22	26	39	10	36	5	9	60	25
CC and Residents	27	32	21	31	7	25	44	76	99	42
CC, KWS and Residents	16	19	8	12	10	36	7	12	41	17
KWS and Residents	0	0	1	1	0	0	0	0	1	<1
<b>Total</b>	<b>85</b>	<b>101</b>	<b>67</b>	<b>99</b>	<b>28</b>	<b>100</b>	<b>58</b>	<b>101</b>	<b>238</b>	<b>100</b>

Various reasons were given for the choices made concerning who should manage the reserve. Those in favor of their local councils managing the reserve indicated experience and employment of locals as their main reasons. People in favor of various combinations of the councils, residents and KWS, cited efficient management as their main reason (Table 6.3). Many respondents commented that local people should be involved because they are the real owners of the land where the reserve is situated (Tables 6.3)

#### Participation in Wildlife Conservation

More than 92% of the people interviewed believed that they participated in wildlife conservation in one way or another. Members from the four group ranches (Table 6.4) portrayed this attitude almost equally. Most of the respondents (67%) indicated that they participated in wildlife conservation by not cultivating their land. The others associated participation with not killing wildlife, membership in a wildlife association, having wildlife graze freely on their land and involvement with some kind of tourism business (Table 6.4). There was no major difference in the proportion of respondents giving these responses. However, Oloirien had a lower number of respondents who did not cultivate their land. In fact, I expected even fewer than (55%) to have given this response. Oloirien is in the higher and wetter parts of the study area, and more cultivation takes place there than in the other group ranches.

Table 6.3 Reasons given by respondents for their choice of who should be given the responsibility to manage MMNR

Reasons for the choice	Choice of who should Manage MMNR															
	No response		Local County Council		KWS		Residents only		CC and Residents		CC, KWS and Residents		KWS and Residents		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
No response	9	100	0	0	0	0	1	2	1	1	0	0	0	0	11	5
Experienced	0	0	18	78	2	40	3	5	18	18	6	15	0	0	47	20
Employ locals	0	0	4	17	0	0	0	0	0	0	0	0	0	0	4	2
Efficient	0	0	1	4	3	60	5	8	31	31	35	85	1	100	76	32
Real Owners	0	0	0	0	0	0	51	85	24	24	0	0	0	0	75	31
Work well together	0	0	0	0	0	0	0	0	25	25	0	0	0	0	25	10
<b>Total</b>	<b>9</b>	<b>100</b>	<b>23</b>	<b>99</b>	<b>5</b>	<b>0</b>	<b>60</b>	<b>100</b>	<b>99</b>	<b>99</b>	<b>41</b>	<b>100</b>	<b>1</b>	<b>100</b>	<b>238</b>	<b>100</b>

Table 6.4 Percentage of respondents who thought they participated in wildlife conservation and how they participated

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Participate in conservation										
Yes	77	91	62	92	28	100	53	91	220	92
No	8	9	5	8	0	0	5	9	18	8
<b>Total</b>	<b>85</b>		<b>67</b>		<b>28</b>		<b>58</b>		<b>238</b>	<b>100</b>
How you participate										
Don't cultivate	64	75	42	63	20	71	32	55	159	67
Wildlife Association	7	8	39	58	11	39	35	60	92	39
Tourism business	4	5	19	28	2	7	14	24	39	16
Don't kill wildlife	50	59	29	43	12	43	28	48	119	50
Accommodate wildlife	28	33	24	36	9	32	25	43	86	36

#### Knowledge about Formation of Wildlife Associations

As a way of ensuring that local people participate in wildlife conservation, some group ranches (Koiyaki and Oloirien) have formed Wildlife Associations. These associations fall under the Societies or Companies Acts (Republic of Kenya 1970) and are registered by KWS. The associations are authorized by the director of KWS to participate in the conservation, management and utilization of wildlife in their areas of jurisdiction. When a group ranch forms a wildlife association, all its registered members become shareholders. The Associations are meant to facilitate participation by all members of the community. More information on the mechanics of wildlife associations will be given later.

This part of my study attempts to find out whether members of the community are aware of the existence of these associations and their general attitudes towards these associations. Out of the 238 people interviewed, 125 came from Koiyaki and Oloirien

group ranches, which had already formed Wildlife Associations. Out of these, 97 (78%) were aware that their group ranch had formed such an association.

With regard to attitudes towards the formation of associations, 95% of the respondents supported the idea for various reasons. The reasons given (Table 6.5) included that it would ensure more benefits from wildlife, facilitate efficiency in revenue distribution, improve wildlife management, and provide more control over the use of reserve and ranch resources. Please note that a thorough explanation of all the benefits that can accrue from the formation of an association was given before the respondents answered this question. This may have contributed to the overwhelming support for the formation of associations. But whether or not this response was influenced by the

Table 6.5 Knowledge, attitudes and reasons for supporting the formation of Wildlife Associations

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
<b>GR formed an Association</b>										
Yes	8	9	44	66	7	25	38	65	97	41
No	74	87	16	24	19	68	16	28	125	52
Don't know	3	4	7	10	2	7	4	7	16	7
<b>Total</b>	<b>85</b>		<b>67</b>		<b>28</b>		<b>58</b>		<b>238</b>	<b>100</b>
<b>Support Associations</b>										
Yes	80	94	65	97	27	96	54	93	226	95
No	5	6	2	3	1	4	4	7	12	5
<b>Total</b>	<b>85</b>		<b>67</b>		<b>28</b>		<b>58</b>		<b>238</b>	<b>100</b>
<b>Reasons</b>										
More benefits from wildlife	56	66	38	57	20	71	37	64	151	64
Streamline revenue sharing	56	66	45	67	9	32	36	62	146	61
Improve wildlife management	31	37	16	24	13	46	12	21	72	30
More control of revenues	11	13	13	19	3	11	16	28	43	18

interview process, these results suggest that the people would support any wildlife management activity that also benefits local people.

It was surprising that more respondents from Olkinyei (46%) and Siana (36%) indicated efficient wildlife management as a motivation for forming an association compared to Koiyaki (24%) and Oloirien (20%) considering that the latter group ranches are the two that already have wildlife associations. It was expected that members of these two group ranches already know that the formation of an association would facilitate efficient wildlife management.

#### Attitudes of MMNR Neighbors on the Revenue Sharing Program

In recent years it has become clear that better relations between parks and people are badly needed to overcome conflicts that are detrimental to both sides. This can be achieved by changing peoples' attitudes and improving their relationship with conservation. One important way to improve relations is through "community conservation" programs and concerted efforts by park and conservation workers to open up communications with local leaders and their communities (Lewis, et al. 1987). Obviously, another important strategy is providing economic benefits through revenue sharing programs. As much as 85% of the gross income of Narok County Council is earned from the reserve through fees chargeable for: aircraft landing, entrance for vehicles, entrance for every visitor, camping, guides, filming and balloon safaris, together with business licenses and lodge tariffs. According to the county council, about 19% of this income is given back to the 18 group ranches adjacent to the reserve for various developments. The group ranch committees use these revenues to develop and

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maintain public amenities such as schools, livestock dips, hospitals and others. The money is also used to provide bursaries (scholarships) for the education of group ranch members' children.

In principle, this flow of revenue should engender positive attitudes of the Maasai toward the Mara and make them tolerate wildlife on their land and view its conservation as a beneficial activity. This part of the study attempts to answer the following questions. 1. How do the local people feel about the setting aside of MMNR for wildlife conservation? 2. How has the revenue sharing with the county council influenced the attitudes of the Maasai toward wildlife conservation? 3. What kind of benefits do the Maasai realize from MMNR? 4. Are the people satisfied with the revenue sharing program, and what recommendations do they have for improving the program?

#### Attitudes towards Setting the Mara aside as Wildlife Preserve

More than half of the respondents in this study favored the setting aside of Mara for wildlife conservation. Only about 29% thought it was a bad idea (Table 6.6). Interestingly, the reasons given in favor of the reserve dealt with social and economic benefits rather than conservation. For example one reason many people support MMNR is that it acts as a buffer, protecting people from cattle rustlers from Tanzania (Table 6.6). Those who considered it a bad idea indicated that it took away dry season grazing grounds, they derived no benefits from it, and they were not allowed to graze in the reserve during drought. The concerns about access to grazing in the reserve received greater prominence in other parts of my study.



Koiyaki and Oloirien group ranches had the highest percentage of people in favor of setting the reserve aside for wildlife conservation. These two group ranches have formed wildlife associations and raise revenues, which they distribute to their members. It therefore is not surprising that the majority of the respondents citing financial benefits came from these ranches (Table 6.6 and 6.7). Siana group ranch had a reasonable number of its members also favoring the idea of setting MMNR aside. This ranch is in the process of forming a wildlife association. Conversely, Olkinyei has no Wildlife Association and on this group ranch only one fourth of the respondents favored MMNR.

Table 6.6 Reasons given by respondents for the attitudes they have towards setting MMNR aside for wildlife conservation

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Good reasons	35	41	53	79	7	25	25	57	128	54
Security	30	35	11	16	3	11	2	4	46	19
Financial benefits	19	22	45	67	7	25	31	53	102	43
Bad reasons	35	41	10	15	12	43	11	19	68	29
Took away good land	24	28	9	13	5	18	8	14	46	19
No benefits from park	20	24	5	8	11	39	5	9	41	17
Denied dry season grazing	4	5	6	9	1	4	5	9	16	7

Compared with the other group ranches studied, more people from Siana cited security from cattle rustlers from Tanzania as an important advantage of having MMNR as a wildlife protection area. People from this ranch have experienced incidents of cattle thefts and the rangers from the reserve have always assisted them in recovering their livestock. They also believe that the presence of the reserve with its armed rangers

deters cattle rustlers from using the reserve as a route to their ranch. People from this ranch also believe that since most of the rangers in the reserve are locals, they are more committed to protecting their property.

#### Attitudes towards Living Adjacent to the Mara

Table 6.7 presents details concerning attitudes toward MMNR. The most frequently cited positive benefits were financial. Over 30% of all the respondents indicated financial benefits including personal (e.g. school fees) and amenities for the entire community (e.g. schools, dips, roads, water etc.).

Table 6.7 Percentages of respondents from each group ranch citing specific benefits or disadvantages of living next to MMNR

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Those citing at least one benefit	36	42	53	79	7	25	36	62	132	56
Type of benefit *										
Financial	19	22	33	49	4	14	26	45	82	35
Transport	8	9	10	15	3	11	6	10	27	11
Health facilities	17	20	19	28	4	14	11	19	51	21
Other										
Graze in the reserve	3	4	0	0	0	0	1	2	4	2
Sell things at lodges	10	12	7	11	3	11	10	17	30	13
Cultural manyattas	0	0	4	6	0	0	4	7	8	3
Can develop camps	1	1	6	9	1	4	2	4	10	4
Employment	7	8	17	25	3	11	5	9	32	14
Those citing at least one disadvantage	77	91	62	93	25	89	40	69	204	86
Type of disadvantage *										
Predation	65	77	57	85	21	75	36	62	179	75
Diseases	41	48	18	27	12	43	21	36	92	39
No cultivation	6	7	8	12	1	4	5	9	20	8
Other										
No grazing	30	35	22	33	7	25	13	22	72	30
Cattle rustlers	0	0	7	11	0	0	2	4	9	4
Water pollution	0	0	4	6	2	7	1	2	7	3
Cultural degradation	3	4	3	5	2	7	2	4	10	4
Harassed by reserve officials	2	2	5	8	4	14	3	5	14	6

\* Multiple responses

Other important benefits (Table 6.7) included selling things to lodges and to tourists, health facilities at lodges, employment opportunities and assistance with transportation for the sick. The opportunity to establish cultural manyattas and campsites to attract tourists was also cited as a positive benefit from tourism. The negative effects of living next to the Mara relate mainly to interactions with wild animals (Table 6.7). Over three-quarters of all the respondents mentioned problems with predation, followed by transmission of diseases by wild animals to livestock. Other concerns include crop destruction, cultural degradation, cattle rustlers, water pollution and harassment by reserve officials (Table 6.7). Access to grazing in the reserve during the dry season was considered very important and 27% of the respondents complained that they were denied this access.

#### Benefits from the Revenue Sharing Program

Narok County Council officials indicated that they returned 19% of the revenue earned from the reserve to be shared among the group ranches adjacent to the reserve. This part of the study was designed to find out whether people in the study area perceived this scheme and whether they really benefited from it. Out of the 238 people interviewed, 196 (82%) knew about the existence of a revenue sharing program. A good number of them admitted benefiting individually from the program in the form of bursaries (either to them or for their children), having their hospital bills paid and/or receiving cash (Table 6.8). Most of the respondents perceived higher benefits towards the group ranches in the form of school construction, health facilities, the construction

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and/or maintenance of dips and roads. Other group benefits perceived were in the forms of cash and water supply.

Table 6.8 Percentages of respondents who are aware of the revue sharing program and the types of benefits they received from the program

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Those aware of revenue sharing	69	81	58	87	22	79	47	81	196	82
Those not aware of revenue sharing	16	19	9	13	6	21	11	19	42	18
Total	85		67		28		58		238	100
Those receiving individual benefits	30	35	33	49	9	32	23	40	95	40
Type of benefit*										
Bursaries (Scholarships)	22	26	28	42	6	21	17	29	73	31
Hospital bill paid	9	11	3	5	5	18	5	9	22	9
Transport	6	7	6	9	0	0	7	12	19	8
Those receiving group benefits	66	78	56	84	20	71	51	88	193	81
Type of benefit*										
School	46	54	40	60	15	54	39	67	140	59
Hospital	21	25	4	6	2	7	11	19	38	16
Dip	3	4	23	34	2	7	30	52	58	24
Road	3	4	12	18	3	11	10	17	28	12
Other benefits group benefits										
Cash	27	32	38	57	6	21	20	35	91	38
Water supply	0	0	1	2	0	0	6	10	7	3

\* Multiple responses

#### Satisfaction with the Revenue Sharing Program

As seen above, 81% of the respondents were aware that a scheme under which the County Council was supposed to share revenues with the local people existed. Some of the respondents (Table 6.9) admitted receiving a share of these revenues in various forms. The question is whether the people are satisfied with the way these revenues are distributed. Satisfaction with CWP can be linked to the amount of benefits derived from revenue sharing program either through the CC or Association. It is not surprising therefore that more people from Koiyaki (16%) and Oloirien (17%) compared to Siana

(9%) and Olkinyei (14%) admitted satisfaction with the revenue sharing program. It is surprising however that the majority of the respondents from all the ranches were dissatisfied with the program (Table 6.9).

According to this study, 85% were not satisfied for various reasons (Table 6.9).

The people interviewed were dissatisfied because they believe that these revenues are not shared equally among those deserving. Other reasons for dissatisfaction given included the belief that most benefits were going to areas far away from the Mara, misuse by group ranch committees who stayed in office for far too long, and some individuals not getting anything (Table 6.9). Those who were satisfied with the program constituted about 12% of the respondents and cited personal benefits as their reason.

Table 6.9 Reasons given for dissatisfaction with the revenue sharing scheme

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
<b>Satisfaction with revenue sharing</b>										
Satisfied	8	9	11	16	4	14	10	17	33	14
Not Satisfied	76	89	56	84	23	82	48	83	203	85
No response	1	1	0	0	1	4	0	0	2	1
<b>Total</b>	<b>85</b>	<b>100</b>	<b>67</b>	<b>100</b>	<b>28</b>	<b>100</b>	<b>58</b>	<b>100</b>	<b>238</b>	<b>100</b>
<b>Reasons for satisfaction</b>										
I benefit	7	8	11	16	5	18	6	10	29	12
We all benefit	1	1	0	0	0	0	4	7	5	2
<b>Reasons for dissatisfaction</b>										
Unequal shares	33	39	30	45	13	46	21	36	97	41
No benefits to me	38	45	12	18	2	7	15	26	67	28
Most benefits go out of this area	11	13	23	34	6	21	20	35	60	25
Misuse by group ranch officials	23	27	27	40	11	39	21	36	82	34

#### Recommendations for Improving the Revenue Sharing Program

To rectify this problem, 56% of the respondents suggested that revenues be shared equally among all the members of group ranches adjacent to MMNR (Table 6.10). Other

recommendations included a combination of providing cash and financing development projects, retaining all the revenues within the Mara and changing the group ranch committees more often. Many people in this area complained that group ranch committees remained in office too long and were the cause of the problems with revenue sharing. They accused their group ranch committees of misappropriating revenues and recommended that such committees be changed more often -- preferably every 2-3 years.

Table 6.10 Suggestions given by respondents on how to solve the problems with revenue sharing among group ranches adjacent to MMNR

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
Suggestions given										
Give equal shares	52	61	36	54	14	50	31	54	133	56
Finance projects	1	1	5	8	0	0	1	2	7	3
Both Cash and projects	23	27	6	9	5	18	12	21	46	19
Retain all revenues within Mara region	2	2	16	24	2	7	9	16	29	12
Change group ranch Committees more often	0	0	2	3	0	0	4	7	6	2
No suggestion	7	8	2	3	7	25	1	2	17	7

### Influence of Tourism on the Local People

#### 1. Benefits from Tourism

Over 88% of the respondents in this study admitted that they encountered international tourists on a regular basis (Table 6.11). This is not surprising, as Maasai Mara is one of the most visited parks in Kenya. Among those who encountered tourists, more than half (Table 6.12) admitted benefiting from the tourists in at least one way.

Table 6.11 How often respondent saw international tourists

How often the respondent saw tourists	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
No response	24	28	0	0	0	0	4	7	28	12
Occasionally	15	18	22	33	6	21	13	22	56	24
Often	46	54	45	67	22	79	41	71	154	65
Total	85	36	67	28	28	12	58	24	238	100

The majority of the people benefited from selling artifacts to the tourists. About 35% and 36% of the respondents from Koiyaki and Oloirien respectively (Table 6.12) knew that they obtained tourism benefits from gate and campsite fees. These two ranches have formed wildlife associations, and having an association may increase awareness of tourism benefits.

Table 6.12 Benefits local people derive from tourists

Did you benefit from tourists	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
No	53	62	29	43	9	32	17	29	108	45
Yes	32	38	38	57	19	68	41	71	130	55
Total	85		67		28		58		238	100
Kind of benefit										
Campsite and gate entry fees	9	11	24	36	5	18	21	36	59	25
Gifts and donations	14	17	5	8	5	18	12	21	36	15
Take photographs for a fee	6	7	4	6	2	7	21	36	33	14
Purchase artifacts	24	28	25	37	9	32	24	41	82	35

Linking tourism to conservation requires that economic gain be coupled with additional goals. For example, a tourism/conservation program ideally should extend the economic benefits of development to a broad base of the local human population through employment, compensation fees, or the development of social services. This

part of the study examines the potential for tourism to generate local jobs. The results show that about 18% of the respondents had a close relative working for a tourist-related establishment (Table 6.13). A majority of these relatives worked in tourist lodges and camps as waiters, security guards or manual laborers. Others worked as sales persons in curio shops or as drivers with tour companies.

Table 6.13 Members of subject's family working for the tourist industry and the employing agency and type of job

	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
<b>Employer</b>										
None	72	85	54	80	23	82	46	79	195	82
Tour company	0	0	1	2	0	0	4	7	5	2
Hotel/Lodge	8	9	3	5	2	7	4	7	17	7
Curio shop	4	5	2	3	1	4	2	4	9	4
Tented camp	1	1	7	11	2	7	2	4	12	5
<b>Total</b>	<b>85</b>	<b>100</b>	<b>67</b>	<b>101</b>	<b>28</b>	<b>100</b>	<b>58</b>	<b>101</b>	<b>238</b>	<b>100</b>
<b>Type of job</b>										
None	72	85	54	81	23	82	46	79	195	82
Waiter	3	4	5	8	1	4	3	5	12	5
Security guard	3	4	2	3	1	4	1	2	7	3
Manual labor	2	2	2	3	2	7	3	5	9	4
Driver/Guide	1	1	2	3	0	0	3	5	6	3
Sales person	4	5	2	3	1	4	2	4	9	4
<b>Total</b>	<b>85</b>	<b>101</b>	<b>67</b>	<b>101</b>	<b>28</b>	<b>101</b>	<b>58</b>	<b>100</b>	<b>238</b>	<b>101</b>

## 2. Impacts of Tourism on Maasai Culture

Masai Mara attracts thousands of tourists from many different societies every year. Tourism brings both problems and benefits to an area. This section describes the negative impacts of tourism on the Maasai people living near MMNR. To do this, respondents were asked to list the kinds of problems they thought were caused by tourists. Ninety percent of the respondents did not have any problems with tourists.



Those who thought that tourists caused them problems cited interference with their daily activities by entering their Manyattas at any time (Table 6.14). They also cited taking pictures of naked children and destroying the habitat by driving over the grass to reach their manyatta.

Table 6.14 Problems Tourists Cause to Local People

Type of problem	Group Ranch									
	Siana		Koiyaki		Olkinyei		Oloirien		Total	
	#	%	#	%	#	%	#	%	#	%
None	79	93	55	82	25	89	55	95	214	90
Photograph naked children	1	1	2	3	1	4	0	0	4	2
Interfere with our activities	5	6	8	12	0	0	3	5	16	7
Habitat destruction	0	0	2	3	2	7	0	0	4	2
Total	85	100	67	100	28	100	58	100	238	101

### 3. Role Played by Hotel and Lodges

Interviews with hotel and lodges managers show that although the Maasai raise large numbers of livestock, all food items for the hotels including meat and milk were obtained from Nairobi. Local sources for meat were not used because of poor quality control. The main contribution the hotels made is employment of locals. These positions are mainly in the lower paying jobs like watchmen, laborers, and in some cases waiters. The local Maasai could not obtain the higher paying jobs because they lacked the necessary education.

## E. DISCUSSION

As mentioned earlier, MMNR falls under the jurisdiction of Narok and Trans-Mara County Councils. All the revenues from tourists visiting the Mara go directly to the councils. The revenue sharing program between the councils and the people is

mainly through a donation of 19% of their earnings to the group ranches. The group ranch committees determine the distribution and allocation of the funds.

#### Local People's Involvement in the Management of MMNR

Although it is generally accepted that local people should be involved in all levels of protected area management, results from this study show that this is not the case in MMNR. In this reserve, there is very little interaction between the reserve officials and the local people except in cases of trespass. It is interesting however, to note that most of the respondents in this study believe that the local county councils in collaboration with the local people are the best qualified to manage the reserve. The people are wary of having KWS take over the management of the reserve.

People's reluctance to trust KWS with the management of MMNR is probably influenced by what happened with Amboseli National Park. When Amboseli was designated a National Reserve in 1948 under the management of Olkejuado County Council, the Maasai continued to herd legally in Amboseli. However, in 1971 the reserve was declared a national park through presidential decree and assumed full national park status in 1974. This was done without the approval of the Maasai and sparked serious protests and retaliatory killing of large numbers of wild animals (Western 1982, Lindsay 1987). With the new designation, the Maasai were denied access into the park.

People in my study area are afraid that if KWS takes over the reserve, it will be more difficult for them to graze in the reserve as they do now, even though they know it is illegal. Although they are arrested from time to time, they believe that the local

councils empathize with them because they are the same tribe. Further, it will be more difficult to retain as many jobs for the locals under a national park status since employment is open to all Kenyans depending on qualifications. Given that the Maasai are not as educated as many Kenyans, they will fill very few positions.

Mara is one of the conservation areas run by a local County Council and the one in this category enjoying the highest revenues from tourist visitation. Considering the inadequacy of local councils as wildlife managers (see Chapter I for more information), KWS has consistently attempted to take over the management of this reserve. This may be justified considering that according to Kenya's policy, KWS is, on behalf of the government, the custodian of all the wildlife in the country. The agency must be concerned about the survival of wildlife. It is unfortunate however that neither the county council nor KWS consulted the local people on matters pertaining to wildlife conservation.

During the period of this study, KWS was involved in an aggressive campaign of organizing people from Siana to form a Wildlife Association. The exercise was going on quite well especially because the Community Wildlife Officer is a Maasai and the people trusted and accepted him. I do not believe that KWS has to take up the management of MMNR to facilitate wildlife conservation in the area. The agency's move to focus on the neighboring communities that support over 80% of the region's wildlife is visionary. Nevertheless, KWS must collaborate with the councils since these local authorities have very strong influence on the local communities.

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### Attitudes towards Participation

The results of this study show that the Maasai are quite consistent in their attitudes towards participation in conservation. The Maasai in this area believe that their livestock production activities facilitate wildlife conservation because they have occupied the area together for years. That is why, according to them, they do not cultivate crops and instead continue to interact with wildlife daily. This to them, constitutes participation in wildlife conservation.

The Maasai do not kill wildlife except for special ceremonies and during periods of serious famine when they turn to wildlife as an alternative source of protein. It is not surprising therefore that over 90% of the respondents in this study believed that they participated in wildlife conservation.

### Wildlife Associations

As a way of ensuring that local people participate in wildlife conservation, some group ranches (Koiyaki and Oloirien) have formed Wildlife Associations. These associations fall under the Societies or Companies Acts and are registered by the director of KWS. The associations are authorized by the director of KWS to participate in the conservation, management and utilization of wildlife in their areas of jurisdiction. When a group ranch forms a wildlife association, all its registered members become shareholders. The Associations are meant to facilitate participation by all members of the community.

The formation of wildlife associations is likely to build some tension between KWS and the local county councils with the people caught up in the middle if not

carefully planned. Since the formation of associations, involves establishing alliances between KWS and the local people, the councils may view it as a calculated move by KWS to eventually take over Masai Mara. Secondly, since over 85% of the NCC revenues come from Mara, the establishment of associations will redistribute revenues to the ranches, which have enough wildlife to sustain a full-fledged tourism operation. This will reduce the amount of revenue collected by the councils. Some evidence of this problem may already exist because some respondents suggested that the council, through the councilors and chiefs were making it difficult for KWS to hold meetings with members of Siana to discuss formation of an association. It is important to note that NCC is very protective of its role in managing the Mara. The good thing is that these associations have very strong support from the people as evidenced by the fact that over 95% of the respondents in my study considered it an excellent idea.

For the wildlife associations to accomplish their objectives, KWS and the councils must work together. It must be made clear to the councils that these associations are meant to encourage the people to conserve wildlife by opening up channels for them to realize financial benefits from wildlife. Successful wildlife conservation in the group ranches will facilitate the survival of wildlife in the region and ensure sustainable tourism in the reserve. KWS should be careful that the local county councils do not perceive the campaign for forming wildlife associations as the agency's calculated move to take over the reserve because this can jeopardize the success of wildlife conservation in the region.

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### Attitudes towards Setting the Mara aside as Wildlife Preserve

Although the local people living next to MMNR harbor many negative feelings towards the establishment of the reserve, there exist some positive feelings and many of my respondents supported its establishment as a wildlife preserve. The most important reasons for supporting the establishment of the reserve are financial benefits mainly in the form of development and security from cattle rustlers from the neighboring Tanzania. Although the amount of revenue trickling back to the people is small, at least some people are aware that it originates from the Mara.

It is interesting that the reasons given in favor of the reserve dealt with social and economic benefits rather than conservation. The reason the Maasai did not consider the establishment of MMNR as an advantage for conservation is probably because for years they have coexisted with the wildlife as part of the ecosystem. In their opinion therefore, setting it aside did not make a difference as far as conserving wildlife was concerned. Since there is more wildlife outside the reserve than inside, it does not make sense to separate conservation from their normal lifestyle and livestock production practices. Economic benefits have become important because wildlife has attained a new value through tourism. The Maasai are well aware that the tourists they see going into the Mara pay to do so and that is probably why financial benefits have become important to them.

It is not surprising that those who thought it was a bad idea to isolate the Mara for wildlife use cited loss of grazing areas as a major reason for their objection. As mentioned above, when the area was set aside, the objective was to allow some level of

access by the local people. The people were therefore not happy when they were denied access because this interrupted their traditional grazing strategy, which included access to the area where the reserve lies.

In many areas where local people were forced to move outside the protected areas, tension arose between authorities assigned to safeguard the parks and communities whose existence and traditions were tied to the land and the wildlife (Asibey and Child 1990, Murphree 1992, Western 1994). The points of dispute have differed from place to place, but both communities and park managers have had their complaints. Local residents have complained about loss of access to park firewood, water resources, grazing lands and fishing sites (Wells, 1992). They have criticized the sometimes heavy-handed tactics used by game wardens and rangers to stop poaching and enforce park regulations (Lewis et al. 1990). This problem was observed in my study where (30%) complained that they were denied access to good grazing in the Reserve (Table 6.6). Given that the Maasai are pastoralists, access to dry season pastures is a very high priority and being denied such an access can result in serious conflict.

An important question is whether receiving benefits from the Reserve actually influences people's attitudes towards conservation. The results of my study show that Koiyaki and Oloirien group ranches, where extra revenues accrue through wildlife associations, were more supportive of the establishment of the Mara than group ranches that did not have these benefits.

One fact that my study identified is that people perceive a benefit based on the problems it solves. Siana experiences frequent raids from cattle rustlers originating in

Tanzania, and one of the social benefits they perceived from the Mara was protection from these bandits. During the period of this study, the NCC rangers were disarmed and the security of the reserve turned over to the police. There were four raids in Siana where hundreds of cattle were stolen and driven across the border into Tanzania. Although a regiment of the Police and KWS rangers managed to recover the cattle, the local people felt that this should not have happened in the first place if the County Council rangers were armed. They have more faith in the rangers who are all Maasai and most of them from the region. On the other hand, some respondents from Koiyaki felt that the reserve acted as a refuge for the bandits.

#### Attitudes towards Living next to MMNR

According to the results of my study, there are both advantages and disadvantages of living next to the Mara. The advantages are the same as those cited in support of establishing the Mara for wildlife conservation. In addition, a good number of respondents in my study admitted receiving bursaries for either their own or their children's education. Other benefits cited were access to essential services available in the Reserve like hospital facilities at the various lodges and at the park head-quarters at Sikinani.

Some of the hotel managers I talked to informed me that as part of their contribution to the welfare of the area, their health facilities were accessible to the local people at a highly subsidized cost. The people also benefit by obtaining transportation for various purposes including transporting the sick to the health facilities at the lodges. One local person informed me that before the lodges were established in the area, many



people died from ailments that could have been cured if they had access to health services and the transportation to get the sick to the health centers.

The people of Narok and Transmara also benefit directly from the reserve through employment in lodges and safari camps. In short, the Mara Reserve constitutes a vital employment area in familiar surroundings for the Maasai of Narok District. While this provides income to individuals, it is worth pointing out that given the cultural framework, these earnings are shared and go a long way to improving the quality of life for the extended families of the local communities.

Most of the respondents did not mind coexisting with wildlife. After all, they have done so for thousands of years. The main concerns for a significant number of people are lack of access to dry season grazing lands.

It is interesting that there is considerable concern over predation and transmission of diseases from wild animals to livestock considering that the Maasai have coexisted with wildlife for years. I believe that the reason for these concerns is that with the formation of the protected area and enactment of laws prohibiting any form of use by local people, wildlife has assumed a new status. As far as the Maasai and other local people are concerned, wildlife has become a government property, which interferes with the activities of the people. This problem is compounded by the fact that due to increased human population, cultivation, and other forms of land use are taking over grazing lands. Furthermore, there are more encounters between the people and wildlife.

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As indicated to me by some of the locals, traditionally, people were able to avoid livestock diseases, especially those carried by wildebeest, by moving their livestock away from wildlife concentration areas. This luxury does not exist anymore and the people have to put up with wild animals because they have no where to drive their livestock when the wildebeest migrate north from Tanzania.

This problem will be more serious after the subdivision of group ranches -- especially if people choose to fence their portions. These attitudes towards wild animals are the same among the group ranches, whether they have a wildlife association or not. However, the people were quick to inform me that they wouldn't mind the problems caused by wildlife if they benefited from it. The following is a statement made by one respondent regarding wildlife:

"We have no problem with wild animals, the only problem is that they do not belong to us. Tell me, to whom would I complain if my cow gored my wife my child or me? No one, because the cow also belongs to me. Similarly, if wildlife proved to be useful, I will have no reason to complain if it killed one of my cows because this would be an internal problem. You know among the Maasai, we give our livestock to friends to take care of them for us, and while this livestock is under our care, we milk them and draw blood for consumption. Under these circumstances, we treat such livestock as our own and take as much care of them as our own. Tell me, why should we live with these wild animals while the only benefits we get from them is the luxury of seeing all kinds of vehicles full of wazungu (white people) drive back and forth? We have been told that wildlife is like a cow that gives milk year after year never drying. Please tell me where the milk goes, who drinks it, I know my children and I have not."

#### Satisfaction with the Revenue Sharing Program

The results of my study confirm that the Narok and Transmara County Councils share some of the revenues they receive from MMNR with the group ranches

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surrounding the reserve. Yet despite this involvement in the welfare of the people, there is a strong sense of discontent amongst those pastoralists who live nearest the reserve and suffer the most from the Mara's wildlife. This is due to poor public relations and the failure to explain the economic and social dynamics of these revenues to the local people.

Many people are not aware that these benefits originate from wildlife conservation programs. Further, local people believe that the Council's revenue sharing scheme and development initiatives are lopsided, in that they tend to favor those communities living further from the Mara, especially those closest to the town of Narok and other urban centers. Even when funds are allocated to the ranches, members complained that the group officials misappropriated the funds. Some respondents felt that although the council claimed to effect development in the area, this could not be viewed as benefits to individuals because it did not benefit anyone personally. According to the people in the Mara region, the county councils did not do anything special for them as the custodians of the wildlife that brings millions of shillings to the district.

There are several approaches for reducing conflicts between local people and conservation programs including revenue sharing and providing access to certain renewable resources found within a wildlife protection area. Another very important strategy is to involve local communities in the planning and management of protected areas so that they have a personal interest in their success. As my study proves, local people have great ideas on how to manage resources for the benefit of the entire

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community. Unfortunately, the management of MMNR and revenue sharing have proceeded without adequate consultations with the people and the people resent being left out. In many cases, conservation and development agencies have the same ideas as the local people regarding solutions to local problems. However, when such solutions are implemented without consultation, they become external impositions in the minds of local people and hence unacceptable.

The recommendations given by my respondents for streamlining the revenue sharing program included ensuring that benefits from wildlife are retained within the Mara region and that they are distributed equitably among the ranches and the people. The people also recommended the financing of certain kinds of projects (Table 6.10). Proper management is important to the people, and they believed that group ranch committees remained in office so long that they became inefficient and corrupt and recommended changing membership to these committees more often. This suggests that given the opportunity, local people are capable of making sound natural resource management decisions -- after all, they have done this for centuries.

#### Benefits from Tourism

Local people in my study area are well aware of the existence of tourism. As the results of my study show, almost 90% of the respondents saw tourists either often or occasionally going or coming from the Mara. They are also aware that these tourists bring a lot of money to the area.

This study revealed that some local people benefited from tourists through the sale of handicrafts, photography fees and access to Maasai cultural manyattas.

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However, respondents reported that frequently tour drivers exploited the local people by confiscating the fees the tourists paid for access to the manyattas. This constitutes a significant amount of money. One example was a situation where a group of tourists paid Ksh. 10,000 (about 150.00 \$ US) to a manyatta, and the tour driver gave only Ksh. 300 (about 4.50 \$ US) to the manyatta. One member of a Maasai cultural manyatta told me that the tour drivers have negotiated a price of Ksh. 300 per driver regardless of the number of tourists. Although the tourists pay the money directly to the manyattas, the driver always goes back for the money and those who refuse to pay are excluded from the next itinerary.

The people explained to me that they did not do anything about this exploitation because they needed the money earned from selling crafts to tourists even if they did not earn a fair fee for access to their manyattas. The drivers know that the people are too poor to resist the little money they give them, and this is a general problem in all the areas visited by tourists. I have suggested a solution to this problem later in this chapter.

#### Impacts of Tourism on Maasai Culture

Tourism brings new problems such as degradation of cultures and the environment. Degradation of cultures is cited as a negative impact of living next to MMNR. For example, the mushrooming of small towns next to the reserve is attracting people from different cultural backgrounds and introducing some social situations that are contrary to the Maasai tradition (e.g. prostitution). The youth appear to be very vulnerable to the potential social impacts of tourism. They are more likely to blindly

copy values and lifestyles that are foreign to their traditional cultures. This has been a "burning national issue" in Kenya and many other African countries (Teye 1988).

According to Butler (1974), the magnitude of social impacts associated with tourism increases with the number of visitors and also reflects the degrees of difference between hosts and guests in such attributes as wealth, race, and language. The potential for social impacts is great when people from the First World visit residents of the Third and Fourth World (Graburn 1976). Usually, the concern over cultural impacts focuses on the contrast between tourists and the local people. But there is another dimension of this problem that is evident in Maasai land. In this study, an important impact was not from the interactions between the locals and tourists, but between the local people and Kenyans from other parts of the country. As mentioned earlier, for a long time there was very little interaction between the Maasai and other Kenyan tribes. This situation started changing after independence when Maasai southern reserve was abolished and all Kenyans were given the freedom of movement. The presence of parks and reserves and their associated tourism which offered both employment and business opportunities for all Kenyans speeded the encroachment of different tribes deep into Maasai land.

#### Impacts of Tourism on the Environment

My study did not address environmental impact resulting from tourism, but a review of literature on this subject brings various points to light. Ecological impact studies on Amboseli National Park found the main problem to be crowding and concentration of visitors in a small area at specific times. This resulted in severe stress on the cheetah and lion populations, unnecessary habitat destruction, and deteriorating

visitor satisfaction (Western 1984). To correct this problem, the carrying capacity for Amboseli, for instance, was established on the basis of an estimate of the park's vehicle capacity, since vehicles constituted the principal mode of transportation for tourists. The estimate, which was based on park size, desired level of vehicle density, and assumptions about visitor behavior and preferences (Henry 1982), gave a possible capacity of 95,000 vehicles per year (Western and Thresher 1973). The problem of vehicle crowding and mobbing of wild animals, especially predators, was very evident in the Mara during the period of my study.

Diversifying tourist attraction options through promoting tourism in the group ranches can alleviate this problem and redistribute benefits to more people. This however requires good planning, otherwise it can result in spreading the problems. For example, observations made by (Jeffries 1982) in Sagarmatha, Nepal showed that trekkers were utilizing the natural resources available in an unsustainable way. The development of tourism in this area created a new demand for fuel and timber by lodge operators and trekking groups, which resulted in widespread destruction of forests. Trekking off of trails causes deterioration of the vegetation. A visible problem is the litter left by trekkers, in part a result of the large volumes of canned and packaged goods used by trekkers and climbing expeditions. The litter problem was observed in the Mara area mainly as a result of carelessness by tour drivers who discarded litter in the group ranches on the way to Nairobi.

### Justification for Promoting Tourism

In Amboseli, (Western and Henry 1979) found that when used as a tourist attraction, wildlife could produce an annual income 18 times greater than production of beef assuming optimal development and commercialization of both industries. A study by Sayer (1981) however, warned against excessive emphasis on the economic value of parks, arguing that this would lead to the belief among decision-makers that parks existed primarily for economic profit. Consequently, if tourism to a park does not fulfill economic expectations, tourist activities could be replaced by other economic activities, often not advantageous for conservation, such as agriculture or cattle ranching. This provides a good argument for promoting the integration of tourism and pastoralism as complementary but not competing land use options for the group ranches adjacent to MMNR. Tourism can be a viable economic alternative for rural populations in dire need of income and can slow the depletion of resources due to short-lived agricultural development (Cohen 1978). Proper planning however, is necessary to achieve maximum benefits at the local level and to mitigate the detrimental environmental and sociocultural impacts of tourism.

While it appears that nature tourism can be a tool for conservation and rural development, the only way that this will materialize is if a concerted effort is made to incorporate local populations into the tourism industry. This should be done by developing local institutions to control tourism operations at this level. Cultural tourism should be managed and controlled at the local level and make use of native guides. Involvement with local people and consequent rural development will not happen



automatically. There are many cases where tourism to protected areas is not benefiting the surrounding population because they are not involved (Boo 1992). Nature tourism will not contribute to rural development unless rural people are brought into the planning and development phases of the industry.

#### Utilizing Local Resources

Tourism can aid the economic development of a region through use of as many local materials, products, and people as possible. For example, Saglio (1979) quoted in (Boo 1990) described a highly successful tourism project in West Africa that emphasized simple accommodations built of traditional materials and managed by local people. This project not only required little capital investment, but also attempted to include the local economy in all tourism activities, such as the provision of canoes for transportation and the preparation of meals planned around local products and traditional cuisine.

All the hotel managers interviewed in my study admitted that they did not utilize any local products in the hotel meals. Their main reason being that such products did not meet quality control standards. The interesting thing is that all the meat consumed in the hotel was actually from cattle sold by the Maasai and other pastoralists to slaughterhouses in Nairobi<sup>1</sup> at very low prices.

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<sup>1</sup> Nairobi is Kenya's capital and the largest city in the country. It is situated about 200 miles from the study area. The road connecting the two areas is so bad that during rains, it takes weeks for supplies to reach the hotels within the reserve

Quality control for meat is mainly inspection to ensure that it is free of diseases. With proper planning, it is possible that the Maasai living adjacent to the Mara could supply some of the meat products required by hotels.

The tourism industry has contributed significantly to providing jobs for local Maasai. However, the only jobs they qualify for are low paying due to their low level of education. As explained elsewhere, through the revenue sharing program the county council provides bursaries (scholarships) for education. This program could be extended to provide scholarships for Maasai to train in the hotel and tourism industry to enable them to take up higher paying jobs. This lack of access to higher paying jobs is illustrated by the fact that out of all the hotels, lodges and camps around and within the Mara, there is only one Maasai Manager and he is not from the local region.

Participants in ecotourism spend a great deal of money but very little of this money reaches the destination areas because, a large proportion of it is spent at the place of origin, primarily to pay for travel (Wall 1994). Consequently, the local economic benefits of ecotourism are likely to be small. However, even though sums of money may not be large, it should be acknowledged that their consequences may be substantial when they are injected into economies that are also small. The magnitude of this impact will vary with the type of traveler. For example, Lemky (1992), in a study of ecotourism in the Amazon rain forest of Ecuador, found that, because of smaller economic leakages, independent travelers have a more positive economic impact than those on organized tours. The group ranches adjacent to the Mara have the potential to provide attractions for this kind of tourism through bird shooting, foot or camel safaris.

If ecotourism is to benefit local residents in the study area, means must be found to facilitate local participation in the industry. At a minimum, this will require the provision of appropriate training and access to capital. According to Boo (1992), many tour operators and lodge owners have come to realize that having the added dimension of local involvement is appreciated by tourists and also affords a significant marketing opportunity.

In the majority of parks at present, tourists are not given enough opportunities to spend money locally because the hotel industry provides all their requirements. In cases where a visitor center, a gift shop, a snack bar, or lodge would provide opportunities for tourists to spend money, this money still leaves the area because all the provisions are bought in Nairobi and furthermore, the businesses belong to people living far away from the park. As observed in this study, even where tourists visit cultural manyattas, the money they leave behind leaks out of the local economy through tour drivers who exploit the local people.

As mentioned earlier, political stability within and around a country is an important factor in influencing travel to the region. Due to its long-standing political stability and problems in the neighboring countries, Kenya enjoyed significant growth in tourism during the 1970s and 80s. During this period, Kenya made significant investments in development and maintenance of infrastructure, including airports, ground transportation, lodging and communications. Since hunting was banned in 1977, the country relies on only one form of tourism, game viewing and photography, which was suitable when Kenya enjoyed some degree of monopoly in the region. The

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situations changed as countries like Uganda and South Africa stabilized politically and now offer more diversified tourism attractions. Kenya needs to reexamine its tourism development strategies and strive to diversify. New opportunities could include safari hunting, more opportunities to visit cultural manyattas and other programs to promote development in rural areas. This would provide an excellent opportunity to incorporate local communities in the tourism industry and in wildlife conservation in general and ensure that Kenya competes effectively with other countries within the region.

If tourism is diversified to include safari hunting, it would attract different kinds of people. Safari hunters are more adventure oriented and will probably tolerate more difficult rural conditions than game viewers. Also, tourism can be an extremely beneficial complement to pastoralism since both can coexist.

#### The Role of Tour operators

There are opportunities for new relationships between conservationists, trying to protect areas including local cultures, and tour operators trying to bring more people to these areas. Traditionally, these groups have not only failed to work together, but also have often been in direct opposition. Tour operators accuse conservationists of imposing unreasonable restrictions on their pursuit of providing maximum satisfaction to their clients while conservationists find some of the strategies employed by tour operators very destructive to the environment. In many situations, tour guides have employed very unorthodox means including interference with animal breeding and feeding to provide their clients with unique experiences. For tourism to be sustainable, tour operators must become more actively involved with the conservation of wildlife

areas by providing environmental education for their tour guides and clientele and donations to conservation efforts. It is in the best interest of the industry that local people perceive tour operators and conservationists as important partners in conservation.

#### F. CONCLUSIONS AND RECOMMENDATIONS

The success of MMNR can be attributed to the Maasai who have contributed significantly to the survival of wildlife in the region through their pastoral land use strategies. This strategy has persisted to a larger extent due to availability of sufficient land that could sustain transhumant resource exploitation. It has been shown elsewhere that various factors including changes in land tenure and encroachment of agriculture are straining both pastoralism and conservation. Revenue sharing was introduced to encourage people to support wildlife conservation. Unfortunately, the present system of representation in the revenue sharing program is inadequate. The primary problem with the revenue program is the absence of people's participation in its management.

Although most of the respondents in my study suggested direct benefits to individuals in the form of cash handouts, the revenues collected may be too low to go around. Furthermore, such a system would do little to engender local support for conservation because it would be viewed as simply a government handout. Nevertheless, people should be involved in deciding how the revenues should be distributed. It is only by this approach that solutions can be found that satisfy all the parties involved. The best solution appears to be wildlife associations. These associations should be used to design a system where each landowner becomes a

shareholder in commonly held stock (wildlife), which yields annual dividends. All the members of these associations should be signatories to conservation easements (see chapter 4 for more details about easements) to ensure compliance with conservation objectives.

It is important to note that NCC is very protective of its role in managing the Mara and may view the formation of wildlife associations (spearheaded by KWS) as a calculated move to take over the management of MMNR. Please note that there has been serious confrontations between the two agencies regarding the management of the reserve. Since it is widely believed that neither the county council nor KWS adequately consult local people on matters pertaining to wildlife conservation, it is tempting to believe that the scramble for the control over the management of MMNR by the two agencies is driven more by the desire to control revenues earned from the reserve than by the concerns for conservation and the needs of the local people.

I do not think KWS has to take over the management of MMNR to facilitate wildlife conservation in the area. The agency should direct its conservation efforts on the dispersal areas adjacent to the reserve that support over 80% of the region's wildlife. This should be done in very close collaboration with the councils and the local communities. On their part, the councils should acknowledge the role the local people have played in sustaining large wildlife numbers that have made Mara very attractive to tourists. The councils should assume active roles in facilitating the management of wildlife in the region. After all, they are the primary beneficiaries from it.

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Although the local people living next to MMNR harbor many negative feelings towards the establishment of the reserve, there exist some positive feelings and many of my respondents supported its establishment as a wildlife preserve. Further, my study confirmed that although insufficient, the local county councils share some of their revenues with the group ranches adjacent to MMNR. Yet despite this involvement, there is a strong sense of discontent amongst those pastoralists who live nearest the reserve and suffer the most from the Mara's wildlife. This again is due to poor public relations and the failure to explain the economic and social dynamics of these revenues to the local people. A wildlife management committee exists for the Mara where local people are represented. Unfortunately, there is no mechanism in place to ensure feedback between the community and this committee. Such a mechanism should be developed and facilitated. The best approach should include public meetings before every committee meeting to gather peoples' views and after the meetings to report recommendations and receive peoples' reactions.

There is evidence from this study that the amount of benefits derived from wildlife will influence attitudes towards conservation. All the group ranches adjacent to the Mara receive benefits from the councils in the same fashion, but the fact that those ranches that have formed associations have extra benefits has made them more positive towards the existence of the reserve. KWS and the councils should collaborate to speed up the formation of wildlife associations and strengthen those that already exist.

Tourism can aid economic development of Mara region by incorporating the local populations into the industry through the use of as many local materials, products,

and people as possible. This has not materialized in most cases for various reasons including:

- All the tourist hotels in the Mara obtain their supplies from Nairobi mainly because of quality control problems.
- Although cultural manyattas provide the only avenue for the locals to collect revenue from tourists, exploitation by tour drivers has severely curtailed this source.
- While many people from Mara region benefit from employment in lodges and safari camps, lack of adequate education qualifies them for only low paying jobs.
- Tourism attraction is confined to MMNR and only for game viewing.
- Tourism is the only option offered for wildlife utilization.
- There is no link between the tourism industry and the local people supporting the wildlife this industry depends on.

To address these problems, I recommend the following:

- The associations can use the wildlife revenue funds to build and operate a meat packing facility that meets all the necessary quality control standards. This would benefit both the local people by providing markets for their livestock and the hotels by supplying meat at a lower cost. Further, such an arrangement would boost peoples' appreciation of wildlife as a beneficial resource.
  - Diversify tourist attraction options and develop local institutions to control tourism operations at the local level. Cultural tourism (e.g. cultural manyattas) should be managed and controlled at the local level and make use of native guides. Tour
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operators should recognize cultural manyattas as tourist attraction spots by including them in their official itinerary. This will solve the problem of exploitation by tour drivers.

- The group ranches should be encouraged and assisted to provide attractions for nature tourism through bird shooting, foot or camel safaris.
- Use funds from the revenue sharing program to provide bursaries (scholarships) to train some Maasai in the hotel and tourism industry to enable them to take up higher paying jobs.
- Tourism by itself may not be a sufficient justification for conservation. Therefore, appropriate consumptive uses of wildlife should be explored and introduced to diversify wildlife uses. This will help redistribute financial benefits to include Maasai living away from the reserve, where there is no prospect of tourist income. Support for conservation is not limited only to people living adjacent to the reserve, and all the Maasai should perceive benefits from wildlife.
- It is in the best interest of tourism that local people perceive tour operators and conservationists as important partners in conservation. Therefore, tour operators should become more actively involved with the conservation of wildlife areas by supporting conservation efforts. This they can do by providing environmental education and ethics for their tour guides and helping promote local tourism.

Raising awareness about conservation issues and sharing ideas and techniques is an important part in community conservation. This can be achieved through various programs including the following:

- Wildlife Clubs found in many schools, can be used to create conservation awareness among school children, which eventually filters to parents.
- Now that people around the Mara are forming Wildlife Associations, these can be used as channels for conducting public education programs to raise awareness about the need for conserving wildlife for economic benefits of its members.
- It is possible that most people in this region do not realize the significance of the resources they have helped sustain. Excellent documentaries have been filmed in the region, these should be shown to people in the area to instill awareness of the wealth of their natural resources.

Plenty of research has already been conducted in the region, in fact many of the Maasai are tired of answering questions which result to nothing.

- Adequate arrangements should be made to coordinate the dissemination of the results of all scientific studies on conservation in the area.
  - Pool all research findings, synthesize them and develop a data base for the Mara region. Follow-up research should be developed to strengthen and advance this data base.
  - KWS has an excellent research facility situated in the Mara. This facility should be revitalized and equipped to handle all the research in the region.
  - This effort should incorporate all university colleges in collaboration with governmental agencies and with other academic or research bodies in the country.
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## APPENDICES

Appendix 1. Names of mammals mentioned in the dissertation and those found in the Mara region (scientific names based on Dorst and Dandelot 1972)

Common Name	Scientific Name	Maasai Name
Baboon	<u>Papio anubis</u>	Oekenyi
Black and white colobus	<u>Colobus abyssinicus</u>	Olkoro
Vervet monkey	<u>Cercopithecus aethiops</u>	Enarokutuk
Aardvark	<u>Oryctoropus affer</u>	Enaishiri dama
Porcupine	<u>Hystrix spp</u>	Oeai
Jackal	<u>Canis adustus</u>	Embarie
Bat Eared Fox	<u>Otocyon megalotis</u>	
Ratel	<u>Mellivora capensis</u>	
Spotted hyena	<u>Crocuta crocuta</u>	Olng'ojine
Lion	<u>Panthera leo</u>	Olng'atuny
Leopard	<u>Panthera pardus</u>	Olouwuaru keru
Cheetah	<u>Acinonyx jarbatus</u>	Olouwuaru kiti
Wild dog	<u>Lycaon adjustus</u>	Osuyiani
Burchells zebra	<u>Equus burchelli</u>	Oloitiko
Grevys zebra	<u>Equus grevyi</u>	
Wild boar	<u>Sus scrofa</u>	Olbitir
Warthog	<u>Phacocoerus aethiopicus</u>	Olbitir
Elephant	<u>Loxodonta africana</u>	OIntome Olkanjaoi
Black rhino	<u>Diceros bicornis</u>	Emuny
White rhino	<u>Ceratotherium simum</u>	Emuny
Hippopotamus	<u>Hippopotamus amphibius</u>	Olkinos
Maasai giraffe	<u>Giraffa camelopardalis</u>	Olmeut
Cape buffalo	<u>Syncerus caffer</u>	(Olosowuan) Olaro
Eland	<u>Taurotragus oryx</u>	Osirwa
Greater kudu	<u>Tragelaphus strepsiceros</u>	
Bush buck	<u>Tragelaphus scriptus</u>	Empuayi
Sitatunga	<u>Tragelaphus spekei</u>	
Bongo	<u>Boocercus ueroceros</u>	
Common waterbuck	<u>Kobus ellipsiprymnus</u>	Olkibukeny
Roan antelope	<u>Hippotragus equinus</u>	
Sable antelope	<u>Hippotragus niger</u>	
Cokes hartebeest	<u>Alcelaphus busephalus cokii</u>	
Topi	<u>Damaliscus korrigum</u>	
Bridled gnu	<u>Connonchoetus tauranus</u>	Oinkat
Grants gazelle	<u>Gazella granti</u>	Enkolii
Thomsons gazelle	<u>Gazella thomsoni</u>	Enkolii
Impala	<u>Aepyceros mellampus</u>	Entarakwet
Forest duiker	<u>Cephalophus spp.</u>	
Kirks dik dik	<u>Rhynchotragus kirki</u>	
Hedgehog	<u>Atelerix albiventris</u>	Enjolis
Rock hyrax	<u>Procavia capensis</u>	

Appendix 2. Animals utilized by the Maasai (based on personal knowledge and interviews)

Species	Uses
Giraffe (Olmeut)	The Maasai sometimes killed giraffes and used the skin to make leather straps and other leather based artifacts. Bone marrow was fed to boys as the Maasai believed that this strengthened their bones. The meat was also eaten and fat used for various domestic purposes
Eland (Osirwa)	Eland products were utilized in the same manner as the giraffe's. The Maasai also believed that feeding eland's fat to baby boys made them strong and fast.
Buffalo (Olaro)	Buffalo skin was used for making shields for warriors. Horns were curved into small containers used for grinding herbs. A powder obtained by scraping the horn was fed to baby boys with the believe that this would make them as strong as a buffalo. Buffalo meat was sometimes consumed
Wildebeest (Oinkat)	A newly born wildebeest calf was sometimes killed and the hide was buried at the entrance of the kraal where the cows passed into the homestead. The Maasai believed that this protected their livestock from diseases spread by wildebeest when they gave birth (malignant catarrh fever).
Lion (Olng'atuny)	Warriors killed lions for many purposes and its products had many traditional uses. The skin of a lion was cut into thin straps that were tied together to surround the manyattas to protect the cattle from predators. The claws from the right paw (the big toe) were made into necklaces worn by young boys as the Maasai believed this gave them the strength and wits of a lion. Oil was used to treat people with rib injuries. The mane was made into a special headdress worn by the brave warrior who inflicted the fatal wound to the lion.
Leopard (olouwaru keri) and Cheetah (Olouwaru kiti)	Claws were used just like those of the lion. The skin from the forehead was curved out and prepared into facial masks worn by boys as a sign of bravery. Oil was mixed with herbs and used as medicine to treat rib injuries
Zebra (Oloitiko)	The oil from a zebra was mixed with herbs and used to treat malaria. The meat was never eaten
Ostrich (Esidai)	Ostrich feathers were made into a traditional headdress. The Maasai considered the ostrich a bird of fertility and its broken egg shells were sprinkled around cattle kraals to bless the animals with fertility. Pieces of the eggshell were curved and strung into a necklace that was worn by girls to bless them with many children. Ostrich oil was used to treat ear infections

Appendix 2. Animals utilized by the Maasai (based on personal knowledge and interviews) - *Continued*.

Species	Uses
Colobus monkey (Olkoroi)	The skin of a Colobus monkey was made into headdresses and leg bands and used to decorate warriors.
Greater Kudu (Emaalu)	The horn of greater kudu was blown to summon warriors for wars and raids
Elephant (OIntome)	Elephants were never killed but when found dead, the tusks were collected and utilized for various purposes. Tusks were used to make bells for barren cows to restore their fertility. They were also curved into snuff containers, such containers were highly valued and were passed to offspring through generations
Rhino (Emuny)	Rhinos were also never killed but when found dead the horns were collected. The base was curved into a bungle and the tip made into a necklace that was placed around the neck of white Billy goat for beauty
Birds (Motonyi)	Small birds were killed by newly circumcised boys and used to prepare a head-dress which they wore throughout the healing period
Warthog (Olbitir)	Warthog tusks were curved and placed on a black Ram for beauty. When a cow rejected its calf, the skin of warthog was placed on the calf so the mother could accept it.
Aardvark (Enaishiri dama)	They are very rare and nocturnal, therefore difficult to find. Any one who found it was considered very lucky. If found, it was caught alive and brought home and killed there. The blood was sprinkled in the boma (homestead) and the carcass burnt outside so that its smoke could spread throughout the cattle shed. The skin was sliced into narrow leather straps and placed around the home. Since the animal was difficult to find, the Maasai believed that performing such a ceremony protected their livestock from predators. The claws were made into necklaces worn as good luck charms. Oil was used as a lotion

Appendix 3 Plants Commonly Used by the Maasai for their Medicinal Value (some of the names have not been translated) (extra sources Kokwaro 1976 and Kipuri 1996)

Plant Species	Used as Treatment For
Olkiloriti ( <i>Acacia nilotica</i> )	Used as an antibiotic and to aid in digestion.
Olkokola ( <i>Rhamnus spp</i> )	common colds
Olkonyil ( <i>Rhamnus prinoides</i> )	gonorrhoea, colic and rheumatism
Esumeita, Iseketek ( <i>Myrsine africana</i> )	common colds Stomach problems, eliminating worms. also taken often just to maintain good health.
Osokonoi, ( <i>Warburgia ugandensis</i> )	Mixed either with milk, water, or soup and taken often just to maintain good health and for treating various stomach problems
Olchani lolpurkel	common colds
Olmakutukut	venereal diseases
Olamuriaki ( <i>Carisa edulis</i> )	Polio and venereal diseases
Olchani onyokie	Venereal diseases
Olmugutan	Stomach worms
Oltiamae	Used to treat scabies
Enkilenyai ( <i>Euclea divinorum</i> )	The sap from this tree and the other two below is used to treat trachoma and other eye ailments, which are very common among the Maasai because of the prevalence of flies
Olorrondo	Trachoma, other eye ailments
Osuguroi.	Trachoma, other eye ailments.
Esumeita,	Malaria
Olkinyei	Malaria
Oiti ( <i>Acacia mellifera</i> )	Malaria
Olmisigiyoi ( <i>Rhus natalensis</i> )	Stomach problems
Olmorijoi ( <i>Acocanthera longiflora</i> )	Syphilis, but treatment must be administered with caution since the plant is toxic. An infusion of bark and roots is used as an arrow poison.
Olkitoloswa ( <i>Garcinia livingstonei</i> )	Stomach pains during pregnancy and immediately after giving birth.
Esumeita ( <i>Cassia italica</i> )	Gonorrhoea
Olmunishui ( <i>Acacia senegal</i> )	stomach problems

Appendix 3. Plants Commonly Used by the Maasai for their Medicinal Value (some of the names have not been translated) – *Continued*.

Plant Species	Used as Treatment For
Olkujuk ( <i>Prunus africana</i> )	Fever, stomach ache and for improving appetite
OIntulelei ( <i>Solanum mauense</i> )	Pneumonia and anthrax
Ntulele ( <i>Solanum incanum</i> )	Stomach problems and polio
Osupukiai ( <i>Dombeya kirkii</i> )	indigestion
Ositeti ( <i>Grewia bicolor</i> )	Chest pains, snake bite and colds
Osinoni ( <i>Lippia javanica</i> )	Fever and malaria. Leaves sniffed to relieve stuffy nose
Enkaidedeyiai ( <i>Aneilema aequinoctiale</i> )	Kwashiorokor, eye problems and colds
Olmorogi ( <i>Acocanthera schimperi</i> )	Syphilis, administered very carefully because the plant is very toxic also used as an arrow poison
Olpopongi ( <i>Euphorbia candelabrum</i> )	Used by women after birth to clear out the afterbirth. Done very carefully since it is poisonous

It is clear from these examples that the Maasai have an extensive knowledge of their environment. The availability and uses of environmental products are, in fact, indicators of the deep appreciation among these people of the vitality and sustainability of their environment

Appendix 4 QUESTIONNAIRE

1. Reference Number \_\_\_\_\_ 2. Interviewer \_\_\_\_\_ 3. Date: \_\_\_ / \_\_\_ / \_\_\_  
 4. District: \_\_\_\_\_ 5. Division: \_\_\_\_\_ 6. Group Ranch: \_\_\_\_\_

**I. Background Information**

7. (a). Sex: Male (1) \_\_\_\_\_ Female (2) \_\_\_\_\_  
 8. Age or age group \_\_\_\_\_  
 9. Family Status: 1=Father \_\_\_ 2=Wife \_\_\_ 3=Son \_\_\_  
 4=Daughter \_\_\_ 5=Other (specify) \_\_\_\_\_  
 10. Highest education completed: 0=none \_ 1=Primary \_ 2=High School \_ 3=College  
 4=University \_  
 11. Occupation: 1=self-employed \_\_\_ 2=Work for Wages \_\_\_\_\_ 3=Other (specify) \_\_\_  
 12. If self employed, what is your primary occupation?  
 13. If you work for wages, whom do you work for? :

**II. Areas of Conflict Between the Reserve and Local Communities**

A. Problem Wild animals

14. I am interested in learning what types of wild animals you encounter on your land and whether they have caused you any problems in the past 12 months and the type of problem they caused. Please use the following scale:

How common: 0=Don't know 1= Rare 2 = Common 3 = Very common.

Changes in numbers in the last 10 years: 0 = No change 1 = More common

2 = Less common 3 = Not sure

Problem: 0 = Not problem 1 = Moderate problem 2 = Serious problem.

Type of problem: 1=crop damage 2= kill livestock 3= damage to fences

4= destroy forage and water for livestock 5= compete with livestock

6= injured or killed relative 7= diseases 8= other (please specify) \_

Wildlife species	How common		Changes in #	problem	Type of problem
	Wet	Dry			
Elephants					
Wildebeests					
Buffaloes					
Zebra					
Baboons					
Lions					
Hyenas					
Leopards					
Other (specify)					



15. How many livestock have you lost to wild animals over the past 12 months?

Species	Number	Value in Ksh.
Cattle		
Sheep/Goats		
Donkeys		
Others		

16. How many acres of crops have you lost to wild animals over the past 12 months?

Type of crop	Number of acres	Value in Ksh.
Wheat		
Maize		
Beans		
others		

17. Have you reported any of the problems you indicated above? 1=Yes \_\_\_ 0=No \_\_\_

18 (a). If yes, to whom? \_\_\_\_\_

b). If no, why? \_\_\_\_\_

19. What action was taken? (Check all that apply): 0=None \_\_\_ 1=Was compensated \_\_\_  
2=Removed the problematic animal \_\_\_ 3=Other \_\_\_\_\_ Specify \_\_\_\_\_

20. Were you satisfied? 0=No \_\_\_ 1=Yes \_\_\_

21. If not, what action did you want to be taken? 1= compensation \_\_\_  
2=kill the wild animal \_\_\_ 3=Other \_ Specify \_\_\_\_\_

#### B. Attitudes/Relationship With MMNR

22. Do you think the setting of Mara aside for wildlife Conservation was a good idea?  
0=No \_\_\_ 1=Yes \_\_\_

23. Why? \_\_\_\_\_

24. What are the good things about living next to Maasai Mara National Reserve?  
\_\_\_\_\_

25. What are the bad things about living next to Maasai Mara National Reserve?  
\_\_\_\_\_

26. Do you ever enter the reserve? 0=No \_\_\_ 1=Yes \_\_\_

27. If yes, for what purpose? (Check all that apply): 1=Graze and water livestock

2=Hunt for food \_\_\_ 3=Collect firewood \_\_\_ 4=Collect medicinal plants \_\_\_\_\_

5=Collect building material \_\_\_ 6=Other (specify) \_\_\_\_\_

28. Have you ever been caught trespassing into the reserve? 0=No \_ 1=Yes \_

29. If yes, what transpired? 0=Nothing \_\_\_ 1=Arrested \_\_\_ 2=Warned \_\_\_\_\_

3=Fined \_\_\_ 4=Beaten \_\_\_ 5=Other \_\_ (specify) \_\_\_\_\_

30. Should people from here be allowed to utilize the reserve? 0=No \_\_\_ 1=Yes \_\_\_

31. During what season? 1=year round \_\_\_ 2=wet season \_\_\_ 3=dry season \_\_\_  
4=other \_\_\_ (specify) \_\_\_\_\_

32. Why? \_\_\_\_\_

### III. Strategies For Improving Relationship Between Wildlife Conservation And Local People

#### A. Management of the Maasai Mara National Reserve

33. Have you ever been consulted on any matters pertaining to the management of MMNR? 0=No \_\_\_ 1=Yes \_\_\_

34. In your opinion, how would you like the management of the reserve to proceed. Please choose the statement that best describes your opinion and give your reasons.

Opinion	Reasons
No opinion	
Leave the responsibility with NCC	
Transfer responsibility to KWS	
Transfer responsibility to residents	
Joint management between CC and locals	
Joint management between NCC, TMCC, KWS and local people	
Other (specify)	

#### B. Revenue Sharing

35. Are you aware of any revenue sharing by the NCC/KWS? 0=No \_\_\_ 1=Yes \_\_\_

36. (a) Have you received any benefits from the program? 0=No \_\_\_ 1=Yes \_\_\_

(b) In what form? 1=Cash \_\_\_ 2=Bursary \_\_\_ 3=Hospital bill \_\_\_

4=Other \_\_\_ (specify) \_\_\_\_\_

37. (a) Has your GR. received any benefits from the program? 0=No \_\_\_ 1=Yes \_\_\_

(b) In what form? Check all that apply: 1=Cash \_\_\_ 2=School \_\_\_ 3=hospital \_\_\_

4=Dip \_\_\_ 5=Road \_\_\_ 6=Other \_\_\_ (specify) \_\_\_\_\_

38. Are you satisfied with the way revenues are shared? 0=No \_\_\_ 1=Yes \_\_\_

a. Why? \_\_\_\_\_

b. How would you like to see these revenues shared?  
\_\_\_\_\_

#### C. Participation

39. Do you consider yourself actively involved in wildlife management activities?

0=No \_\_\_ 1=Yes \_\_\_

40. How do you participate? 1=Have left open areas for wildlife/I don't cultivate \_\_\_

2=We have a tourism business 3=A member of a Wildlife Association \_\_\_

4=Other Specify \_\_\_\_\_

41. Has your Group Ranch formed a Wildlife Association? 0=No \_\_\_ 1=Yes \_\_\_

2=I don't know \_\_\_

42. Do you like the idea of forming a wildlife Association? 0=No \_\_\_ 1=Yes \_\_\_

42. Why? \_\_\_\_\_
43. In general, how do you feel about the revenue sharing program as it is now:  
1=Like it \_\_\_ 2=I don't like it \_\_\_ 3=Undecided \_\_\_
44. What suggestions do you have on how this program could be improved? \_\_\_\_\_

#### IV. TOURISM

45. How often do you see international tourists? 0=Never \_\_\_ 1=Occasionally \_\_\_  
2=Often \_\_\_\_\_
46. Do you or your family receive any economic benefits from tourists?  
0=No \_\_\_ 1=Yes \_\_\_
47. In what form? 1=Money donations \_\_\_ 2=Take pictures for a fee \_\_\_ 3=Gifts \_\_\_  
4=Buy artifacts \_\_\_ 5=Camping fees \_\_\_ 6=Other specify) \_\_\_\_\_
48. Do tourists cause any problems for you and your family? 0=No \_\_\_ 1=Yes \_\_\_  
b. What Kind of Problem? \_\_\_\_\_
49. Is any member of your family employed in the tourism industry? 0=No \_\_\_ 1=Yes \_\_\_
50. Who is the employer and what type of job? 1=Tour company \_\_\_  
2=hotel/lodge \_\_\_  
3=Curio shop \_\_\_\_\_ 4=Tented camp \_\_\_ 5=Other (specify) \_\_\_\_\_

#### V. Land Ownership And Land Use Practices

51. Which one of the following best describes your land ownership? : 1=Individual land  
2=GR. Member \_\_\_ 3=Leased \_\_\_ 4=Communal land \_\_\_ Other  
(Specify) \_\_\_\_\_
52. How do you use your land? 1=Livestock \_\_\_ 2=Cultivation \_\_\_ 3= hotel/camp \_\_\_  
4=Other (Specify) \_\_\_\_\_
53. Are there plans to subdivide this GR.? 0=No \_\_\_ 1=Yes \_\_\_ 2=Don't know \_\_\_
54. How do you feel about subdivision of your group ranch. 1=I like the Idea 2=I don't like the idea
55. If the GR. is subdivided, how do you plan to use your portion of the land?  
1=Livestock \_\_\_ 2=Cultivation \_\_\_ 3=Tourism \_\_\_ 4=Sell \_\_\_ 5=Lease \_\_\_  
6=Other (Specify) \_\_\_\_\_
56. Overall, would subdivision of your GR. be good or bad for each of the following  
(Please explain)

	Good	Bad	Don't know	Reasons
1. Women				
2. Younger generation				
3. Livestock				
4. Wildlife				

57. How many livestock do you own? 1=Cattle \_\_\_\_\_  
 2=Goat/Sheep \_\_\_\_\_ 3=Donkeys \_\_\_\_\_
58. What do you produce your livestock for? Check all that apply. 1=Sale \_ 2=Status  
 3=Domestic consumption \_ 4=Other (specify) \_\_\_\_\_
59. Please check all that describe your livestock production strategies

Production strategy	season		Reasons
	wet	dry	
Split into herds			
Graze on Own land			
Graze on Leased land			
Graze on public land			

60. Please tell me the kind of crops you grow:

Type of crop	Number of Acres
Wheat	
Maize/Corn	
Beans	
Other	

61. Any comments you would like to make about wildlife management and the Mara

Thank you for your cooperation.

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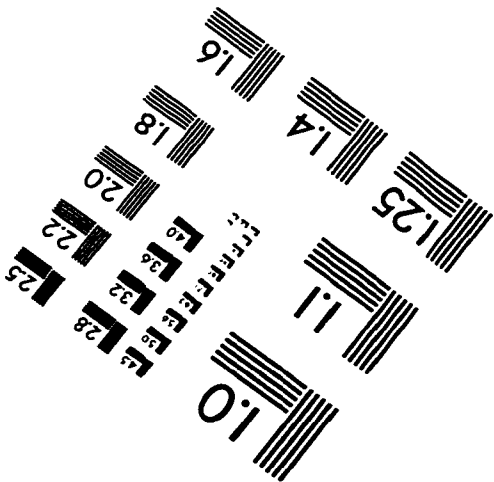
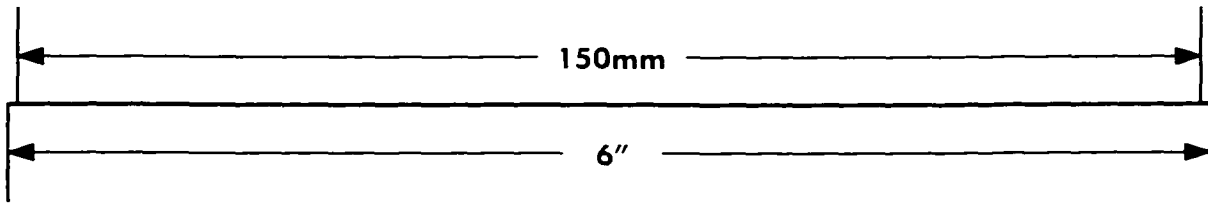
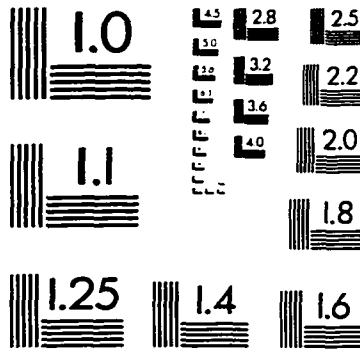
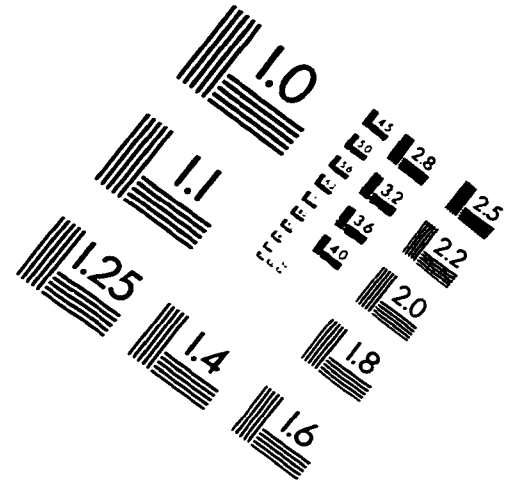
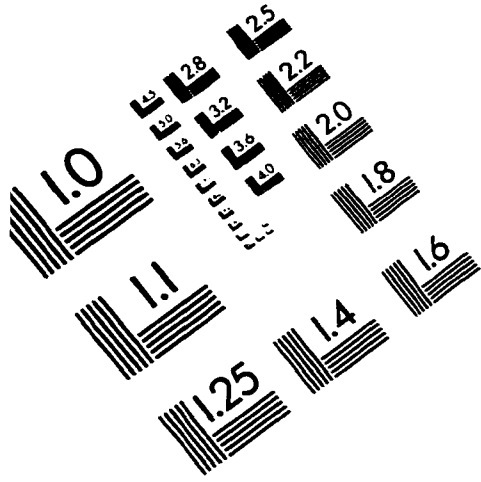
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