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**THE GOLINI-MWALUGANJE COMMUNITY ELEPHANT SANCTUARY: A
COMMUNITY CONSERVATION POISED FOR SUCCESS BUT PLAGUED BY AN
ELEPHANT MANAGEMENT DILEMMA**

INTRODUCTION

There is a growing consensus that the best way to encourage local communities to protect wildlife and natural habitats is to enable local communities to benefit from the existence and use of these natural resources. For example, in the case of elephants, Kreuther and Simmons (1994) conclude that: **A**The evidence strongly suggests that the best conservation strategy for African elephants is to promote them as a valuable resource which provides direct personal benefits to the people who face the cost of co-existing with them.**@**

Zimbabwe's Communal Areas Management Program for Indigenous Resources (CAMPFIRE) is the most often mentioned African community conservation effort. (Based on a review of the literature.) Community conservation in Kenya is not as well known, but it has also been relatively successful. Since 1992, the United States Agency for International Development (USAID) has been funding the Conservation of Biodiverse Resource Areas (COBRA) Project to assist the Kenya Wildlife Service (KWS) to develop and implement a strategy for working with communities who live with wildlife on their lands. With COBRA assistance, KWS has carried out dozens of small-scale community projects such as construction or rehabilitation of clinics and schools, and construction of water troughs and cattle dips. But the most interesting and promising initiatives have been in the identification and implementation of income-generating projects whose success is directly linked to the well-being of wildlife. This paper describes the formation and current status of one of the most important of these ventures, the Golini-Mwaluganje Community Elephant Sanctuary, and analyses its performance as community conservation project. The Golini-Mwaluganje Community Elephant Sanctuary is a relatively successful community conservation project poised for even greater successes, but it is plagued by unresolved elephant management problems.

GENERAL DESCRIPTION

Located near the southern tip of Kenya, the Golini-Mwaluganje Community Elephant Sanctuary (simply called the G-M Sanctuary or the Sanctuary from this point on) is critically important to the health and genetic viability of elephant and other animal populations that migrate between the Shimba Hills National Reserve and the Mwaluganje Forest.

LOCATION

The G-M Sanctuary is located in the Kwale District of Kenya's Coast Province, about 35 km southwest of Mombasa, Kenya's second largest city and the centre of coastal tourism. The G-M Sanctuary comprises about 24 km² of rolling hills through which meanders the Pemba River. The hills themselves slowly rise from the Shimba Hills National Reserve, a previously logged coastal rain forest remnant, toward the Mwaluganje Forest, a dry upland forest, protected by the local population as a kaya, a forest important in traditional religion. The G-M Sanctuary is bordered on the southeast by a steep escarpment, the Golini cliff face.

From a tourism standpoint, the G-M Sanctuary is located only twenty to fifty minutes away from numerous beach resorts that attract approximately 600,000 visitors a year. The roads from the coast to the G-M Sanctuary are relatively good, the facilities at the G-M Sanctuary are in place, and local people are ready to serve guests. Furthermore, once the newness of coastal resort experiences start fading, tourists are likely to welcome the diversity that a near-by safari offers.

CLIMATE

The area's average annual precipitation of 1200 mm is spread unevenly throughout the year, with the long rains occurring between April and July and the short rains occurring between October and November. Monthly temperatures range from approximately 24 to 28 degrees centigrade.

FLORA AND FAUNA

The G-M Sanctuary is home to a variety of plants and animals. The African elephant (*Loxodonta africana*) is the dominant animal species. (Three dimensions of the elephant's importance are discussed below.) One of Kenya's most attractive species, the endangered sable antelope (*Hippotragus niger harris*) is found in adjacent areas. The vegetation of the G-M Sanctuary is a mix of riparian plants along the Pemba River, with grasses, shrubs, and a few trees spread across the hills. In the Mwaluganje forest, numerous *Cynometra* trees have been felled by elephants. In the G-M Sanctuary, most of the Baobab trees, the most prominent large tree species, have been damaged by elephant.

THE BIOLOGICAL IMPORTANCE OF THE G-M SANCTUARY

Technically, the G-M Sanctuary is a corridor between one area, comprising the Shimba Hills National Reserve and the North and West Mkongani Forest Reserves, and another area, the Mwaluganje Forest Reserve. Together, these reserves and the G-M Sanctuary encompass 523 km². The Shimba Hills National Reserve is by far the largest of these five entities, accounting for 87% of the total land area. The much smaller G-M Sanctuary, approximately 24 km², however, is critically important to the health of the area's plants and animals. Without the corridor, wildlife migrations would be interrupted and the already diminished and threatened Shimba Hills

ecosystem would be so fragmented as to be rendered unsustainable.

ELEPHANTS: THREE IMPORTANT ASPECTS

Elephant are a major tourist magnet, but in large numbers they are also destructive enough to significantly reduce the biodiversity within their habitat. To make matters worse, elephants kill and injure people and destroy property, including the crops and buildings of poor farmers. The following overview of these three aspects of elephants provides background for the following sections.

Human-Elephant Conflicts

As implied by the phrase **Ahuman-elephant conflict**,@the negative interaction between humans and elephants is unequivocally two-sided. It is also, multi-dimensional.

As a result of heavy poaching in Tsavo National Park during the 1980's, elephants migrated into the Shimba Hills area (Poole et al. 1992; Reuling et al. 1992). More recently, benefitting from enhanced protection, elephant numbers have increased as a result of natural reproduction. In addition, elephants have been compressed into a smaller area as a result of humans moving into areas that were formerly elephant habitat. Thus, during the 1990's, continued human encroachment into elephant habitat and increases in elephant numbers intensified human-elephant conflicts in the study area. (For an elaboration on this topic with special emphasis on the Shimba Hills National Reserve, see Kiiru 1995. We return to this topic later.)

Elephants as a Threat to Biodiversity

As a result of the just mentioned increases in elephant numbers and compression of elephants into a smaller area, elephant densities in the study area have increased, causing visible changes in the habitat. Elephant population estimates, the amount of habitat destruction, and what, if anything, should be done to manage elephant numbers are contentious issues that will be discussed later. For now, it is sufficient to note that elephant numbers have increased to the point that they are causing visible changes in the habitat of the study area.

Elephants as a Tourist Attraction

It is common knowledge that elephants, as the largest living land animal, are one of the species that tourists most want to see on their visits to Kenya. Although the G-M Sanctuary offers a variety of other attractions, including the endangered sable antelope, elephants are probably the most powerful attraction for Kenya coast wildlife safari tourists. Equally important, the G-M Sanctuary can guarantee tourists that, if they visit the Sanctuary, they will see elephants.

In general, the G-M Sanctuary has a topography, climate, and mix of wildlife that are attractive to tourists, and its close proximity to coastal resorts provides ample opportunities for increasing tourists visits to the G-M Sanctuary.

FORMATION AND OPERATION OF THE GOLINI-MWALUGANJE COMMUNITY

ELEPHANT SANCTUARY

Process Participants

One of the most interesting and challenging aspects of the G-M Sanctuary's formation is the diversity of participants in the process. Three distinct groups of local land owners, a variety of government agencies, and a non-governmental organisation (NGO) all played major roles in encouraging and forming the G-M Sanctuary.

The three land-owner groups are: (1) Asian settlers, European settlers, and affluent local people, primarily land owners living on the plateau; (2) Golini peasant farmers; and, (3) Dumbule peasant farmers.

Involved government agencies include: (1) the Kenya Wildlife Service (KWS), a semi-autonomous parastatal under the Ministry of Tourism and Wildlife; (2) the Coastal Development Authority (CDA), a parastatal responsible for planning and coordinating coastal development; (3) the Forest Department, a Kenya Ministry of Environment and Natural Resources department; (4) the Kwale County Council, the local government authority that has been holding the Dumbule peasant farmers' land in trust; and, (5) the United States Agency for International Development (USAID) through its COBRA Project.

As explained below, the Eden Wildlife Trust, a British conservation oriented NGO, also played an important role in forming the Sanctuary.

Physical Attributes

The topography and the natural resource base of the region played a major role in human development and the evolution of human institutions in the study area. As implied earlier, the soils and climate of the area are conducive to agricultural production, including tropical fruits and vegetables and forage for livestock. Of course, a variety of wild species, including elephant, also live in the area.

As described earlier, undulating hills rise from the Shimba Hills National Reserve, through what is now the G-M Sanctuary, to the Mwaluganje Forest. A steep cliff borders the south-east side of the G-M Sanctuary, and the Pemba River meanders through the area.

Land Ownership and Use Patterns

During the late 1980's and early 1990's, Asian and European settlers and affluent local people purchased land on the picturesque Godoni Cliff for residential purposes and probably to tap the tourism potential of the area (Kiiru, 1995). Kiiru goes on to contend that this group did not need to farm their land for subsistence because they have other sources of income (Kiiru, 1995). For a variety of reasons, including the fact that they donated land for the project, these affluent landowners were key players in formation of the G-M Sanctuary.

The peasant farmers from Golini hold freehold title deeds to land that is now part of the G-M Sanctuary. They had cultivated this land, primarily for coconut production, but did not reside upon it. Because of the tree shading effects and the poor quality of the soil, few other crops can

be grown there. In addition, some farmers leased their palm groves to Awine tappers and, therefore, could not grow their own crops on this land. Thus, the land the Golini farmers owned and farmed in the G-M Sanctuary corridor was very important for sustaining their families (Kiiru, 1995).

The Dumbule peasant farmers also owned and cultivated land in what is now the G-M Sanctuary but they did not hold formal title, the land being held in trust by the Kwale County Council. Even though some Dumbule farmed land outside the corridor, it was used only for dry land farming. Their land within the corridor, however, was close enough to the Pemba River to permit irrigated agriculture (Kiiru, 1995). Thus, the land they farmed within the corridor was more productive and critically important to their well-being.

This, then, was the land ownership and use pattern that existed in the early 1990's. Asian and European settlers along with a few locals had built residences on the Godoni Cliff (actually a plateau). This relatively wealthy group of people did not need to farm their land for subsistence because they had other sources of income (Kiiru, 1995). Conversely, the land within the corridor was critically important to Golini and Dumbule peasant farmers.

The Sanctuary Formation Process

During the late 1980's and early 1990's a confluence of intertwined interests and activities were instrumental in starting the G-M Sanctuary formation process. One of the plateau residents, the executive director of the Eden Wildlife Trust, motivated the other plateau residents to begin working with the Eden Wildlife Trust and KWS to start the G-M Sanctuary formation process. From the beginning, KWS was an integral part of the Sanctuary formation process. By 1991, and possibly earlier, KWS was convinced that it needed to do more both to address the human-elephant conflict problem in the area and to find a way to allow elephants to move through the corridor. As previously noted, plateau residents donated land for the project; in collaboration with KWS, they started a process to convince local people to give up their land for conservation (Kiiru, 1995).

The Eden Wildlife Trust took the first concrete steps toward establishing the sanctuary by funding the construction of a four-kilometre electric fence along the western side of the Pemba River. As Kiiru describes it:

The local people who owned the land between the proposed fence line were provided with building materials and asked to seek alternative land for settlement. Families cultivating the Golini cliff face mainly resided on alternative family plots on the plateau and thus they were not affected by the relocation process. Out of twelve families who owned land inside the fence, five did not have alternative land outside and they either leased space outside the area or were given temporary residence by relatives. (Kiiru, 1995)

This statement is a bit confusing. For example, what is meant by the phrase land between the proposed fence line is not clear. However, it is clear that the fence did not solve the human-elephant conflict problem. As reported by Kiiru, the fence helped reduce crop raiding, but

elephants still walked around the end of the fence and damaged crops. In addition, severe crop raiding continued to the north and east of the Mwaluganje Forest (Kiiru, 1995).

The search for a solution to the human-elephant conflict continued. During 1993, the first year of USAID's COBRA project, the newly appointed COBRA Enterprise Development Specialist, spent much of his time trying to organise and promote what became the G-M Sanctuary (DeLucco, personal communications). In that same year, after a series of lengthy, sometimes contentious meetings, among the land owners, KWS, the Kwale County Council, local politicians, and representatives of the Coast Development Authority, the Golini-Mwaluganje Community Reserve was formed. However, a formal proposal was not submitted until the next year. In 1994, the Kwale District Warden forwarded a proposal to form the Golini-Mwaluganje Community Conservation Ltd. as the organisation responsible for operating the proposed G-M Sanctuary. Within this context, the G-M Sanctuary was officially incorporated on September 14, 1994.

As specified in the accepted proposal, the overall objectives for the G-M Sanctuary were to reduce human-elephant conflicts and generate benefits for community members, while permitting movement of elephants between the Shimba Hills National Reserve and the Mwaluganje Forest Reserve. Management objectives included forest preservation, good environmental management, provision of recreation and education facilities for visitors, containing wildlife within the G-M Sanctuary as a way to minimise human-wildlife conflicts, providing financial benefits to land owners, and winning the good will of local people (Kiiru, 1995). Even though some of these objectives are so vague as to be of little practical use, others obviously are specific enough to guide development of management policies. Overall, they also provide useful perspective on the thinking and intentions of key participants in the G-M Sanctuary formation process.

A lengthy document, the Memorandum and Articles of Association of the Golini-Mwaluganje Conservation Reserve, was eventually written by the constitutional sub-committee (elected by the members of the Corporation) and an attorney who represented local farmers. It required landowners to give legal right of vacant possession of their parcels of land to the Corporation, and agree to not dispose of their land or use it for collateral without the consent of the Corporation.

More specifically, Golini-Mwaluganje Community Conservation Ltd., was formed with share capital of Ksh 22,000 divided into two classes of stock: Class A, 1,000 shares, Ksh 20 each; and Class B, 20 shares, Ksh 100 each. Most of the Class A stock is held by people who own land in the corridor between the Shimba Hills North Reserve and Mwaluganje Forrest Reserve. Class B shares are held by five founding members of the Company, who are also original subscribers to the Memorandum and Articles of the Company.

Corporation business is overseen by the Board of Directors who are appointed by subscribers to the Memorandum of Association. Each subscriber is allowed to appoint an equal number of Directors. Currently, the Board is composed of ten members. (Unless altered at a Corporation general meeting, the maximum allowable size of the Board is eleven.) The management decisions of the Board are ratified by the Corporation general membership at a

meeting that is called once a year unless otherwise decided by the Board. The general meetings are conducted and called to order only when there is a quorum of seven or more members present in person or by proxy. Unless a poll is demanded by the Chairman or a member present in person or by proxy, a resolution is voted upon by a show of hands. When a resolution is voted upon every member present in person or by proxy has one vote and shall, on a show of each share of which he is the holder, vote accordingly. A resolution is declared carried by simple majority.

As of 1995, significant progress had been made. Fifty indigenous families had become members of the Corporation and G-M Sanctuary development was well under way (Kiiru, 1995). The Sanctuary had been fenced, game-viewing tracks had been completed, and an entry gate with two ticket offices had been constructed. On October 27, 1995, the gates were officially opened to tourists. Development continued; to attract and serve tourists, a cultural centre and kiosk were added. By 1997, the G-M Sanctuary was fully operational.

Successes and Challenges

The forgoing section describes the involvement of a wide variety of people and institutions and the complicated process that led to the formation of the G-M Sanctuary. Here we elaborate on some of the challenges and problems faced by the Sanctuary, and assess its potential for future successes.

The most amazing thing about this project is that such diverse groups were actually able to get together and agree to establish the G-M Sanctuary. For example, a 1993 planning meeting was attended by over thirty owners of private land (including representatives from the landowner groups listed earlier), representatives from the Kwale County Council, the Kwale Urban Council, the Forestry Department, the Coastal Development Authority, KWS, and the Eden Wildlife Trust.

The G-M Sanctuary has overcome numerous challenges; others remain and still threaten the success of the Sanctuary's operation. For example, as far back as 1992 rumors that KWS was going to forcibly take control of the corridor lands resulted in some landowners panicking and selling their land, almost destroying the project. In 1996 and 1997 delays in land adjudication and the failure of the Board of Directors to set up effective and accountable management stressed relationships between KWS and the Corporation.

To elaborate, between the November 1996 and December 1997, over Ksh 1,700,000 (approximately US\$ 29,000) was collected as gate fees. However, since the amount of land legally owned within the Sanctuary is the basis for determining how many shares of stock an individual owns, delays in adjudication and processing of title deeds for many community members, including almost all of the Dumbule farmers' trust land, made it impossible to determine how to share the income from the Sanctuary, consequently, the money remained in the Sanctuary's bank account. Resulting revenue sharing conflicts nearly caused a mutiny among shareholders (DeLucco, pers. comm., 1997).

The contentious land adjudication problem was partially solved in 1997 when most of the land on the east bank of the Pemba River was surveyed and adjudicated. The Board of Directors moved quickly to re-instill confidence in the project by distributing approximately one million Ksh to

share holders. Payments ranged from Ksh 60,000 to 200,000 per family. Only the Pemba River East-bank lands, however, had been surveyed and adjudicated. The West-bank Trust Land, composed of small plots owned by Dumbule people, still had not been surveyed. Since the incorporation agreement calls for sharing profits in proportion to the amount of land contributed to the Sanctuary, settling land ownership issues remains critically important for success of the project. Unfortunately, there are indications that titles to the remaining plots will not be issued in the near future.

In addition, by the end of 1997 a management committee had not yet been formed and a project manager not yet been hired. Decisions were being made by the Board of Directors, a body made up of relatively wealthy landowners and representatives of the West-bank small plot landowners, and the ability of this body to make good enterprise management decisions was being questioned (DeLucco, personal communications). The continued stalemate in appointing the Sanctuary manager was hurting operation of the Sanctuary. Some routine fence maintenance was not being performed, some customer services were inadequate, and day-to-day business decisions were still not being made. This may hurt the Sanctuary in the long run. Thus, in 1997, hard won agreements on the formation and management of the G-M Sanctuary were once more threatened by unresolved land ownership issues and inadequate management.

Recently, two additional developments, one positive and one negative, have become particularly important. On the negative side, due to concerns about political and social unrest and El Nino induced flooding and related health problems, Kenya's tourism revenue has recently dropped by approximately 70%, seriously affecting hotels and related businesses and their employees. While this is obviously an extremely serious problem, it is beyond control of the Corporation and the individuals and organisations that have supported development of the Sanctuary.

On the positive side, an investor has agreed to build a lodge in the Sanctuary and has guaranteed a payment of Ksh 50,000 (currently, approximately US\$ 800) per month for this concession. Plans include employing up to fifty local people full time. Local community members will also be able to earn income from the sale of curios and the staging of cultural events such as traditional dancing. Obviously, this new development has the potential to increase Sanctuary income and benefits to Corporation members and other local residents.

In summary, the recent precipitous overall decline in tourist visits to Kenya, unresolved land ownership issues, and the need to improve Sanctuary management remain the greatest challenges to the success of this community conservation project. The first two of these challenges are, for the most part, beyond the control of the Corporation. However, with the recent national elections over and dissipation of the detrimental El Nino weather effects, there is hope that tourism in Kenya will rebound from current depressed levels. Corporation members and the local community can, and probably will, continue requesting resolution of the unsettled land claims. But, as noted above, titles to the remaining plots probably will not be issued in the near future. Nevertheless, the fact that the Sanctuary has continued to operate in the face of this obstacle suggests that, even if all land claims are not settled, the Sanctuary will be able to continue to operate in the future.

The third challenge is within the control of the Corporation and support organisations, and

warrants elaboration. Appointing a Sanctuary manager has become a Board of Directors priority. Furthermore, with the signing of a lease for construction of a lodge within the sanctuary, pressure for hiring a manager has increased. The Board has approved the appointment of the manager and selection is in process. It is likely that a Sanctuary manager will be appointed this year, 1998. Obviously, how effective any new manager will be remains to be determined. Nevertheless, appointment of a manager represents the best opportunity so far to improve management of the Sanctuary.

Thus, there is room for optimism. The Sanctuary has successfully met serious challenges to its formation and continued existence. With the signing of a lease for construction of a lodge within the sanctuary, a manager is likely to be appointed in the near future. Improved management is possible. Increased income and other benefit from the Sanctuary are likely. The overall decrease in Kenya's tourism remains a serious problem. However, even if this decline is not reversed, enough tourists are still visiting coastal resorts to constitute an adequate source of demand for the lodge and Sanctuary to become financially viable operations. Success is not guaranteed, but the Golini-Mwaluganje Sanctuary has successfully met a variety of challenges and is poised for financial success.

ELEPHANT MANAGEMENT CHALLENGES IN THE SHIMBA HILLS AREA

As noted earlier, the two major elephant management problems in the Shimba Hills area are human-elephant conflicts and habitat alteration by elephants. Here we describe the chosen solution to the human-elephant conflicts and its relationship to the habitat alteration problem.

Fencing as a Solution to the Human-elephant Conflict Problem

During the early 1990's human-elephant conflicts increased and, after complicated and sometimes contentious negotiations between KWS and local communities, fencing was chosen as the solution to the problem. Fences were built in several (sometimes delayed) stages, but in 1997 electrified fences around the entire area was complete. As they are now totally enclosed, the Shimba Hills National Reserve, Mwaluganje Forest, and G-M Sanctuary can be considered a single elephant management unit. The fences, of course, are designed to keep the elephants from leaving the area. They are not being properly maintained in some places, but there are plans for improving maintenance and they are effectively restraining the elephants along most of their length. If properly maintained, it is likely that the fences will effectively restrain the elephants. In turn, if they effectively restrain the elephants, the fences will significantly reduce human-elephant conflicts. Consequently, there is reason to believe that fencing may be an effective solution to the human-elephant conflict problem.

HABITAT ALTERATION BY ELEPHANTS

Unfortunately, with the elephants confined by the fence, habitat destruction is increasing. The concurrent biodiversity reduction threatens the integrity of the ecosystem. In a 1995 Masters degree thesis, Kiiru discussed this topic at length. She cites numerous references and used them along with her own elephant counts to arrive at the following conclusions (Kiiru, 1995):

1. Elephant immigration from Mkomazi and Tsavo National Park, caused by severe

poaching during the 1980's, coupled with the compression of elephants into a smaller area by human encroachment into elephant habitat, have increased the elephant density in Shimba Hills.

2. The 1995 density of elephants in the Shimba Hills was probably over 1 per km².
3. Studies of other eastern and southern African areas have shown that elephants damage vegetation at densities well below 1 per km². Elephants have reduced woodland cover and biodiversity over wide areas of their range, particularly where elephant densities have increased as they have been compressed into areas that are smaller than their traditional ranges.
4. As of 1995, elephants had caused significant, but uneven, habitat destruction that resulted in biodiversity losses in the Shimba Hills and Mwaluganje forests.
5. Assuming the elephant population continues to grow at four percent per year for ten years, the elephant population will grow to 400 and a density of 1.7 per square kilometre.
6. In general; habitat destruction by elephants in Shimba Hills is inevitable and once the fence is completed the rate of destruction will be accelerated (Kiiru, 1995).

More recently, Kamanga (Kamanga, 1997) used two relatively sophisticated models to estimate the Shimba Hills elephant population and analyse the habitat destruction problem. (As a basis for his analysis, Kamanga also summarised most of the recent Shimba Hills ecosystem studies.) His population estimates are significantly higher than those reported by Kiiru. He estimated that there are about 550 elephants in the area, a density of about two elephants per km², and concluded that:

An elephant density of 1.4 elephants per square kilometre is at equilibrium with maximized plant biodiversity in this Reserve. The current density of about 2 elephants per square km is therefore too high and this study recommends a removal of 200 elephants in a period of two years.@

Before arriving at this conclusion, Kamanga considered and rejected other management options. More specifically, he considered and rejected @translocation@ (moving live elephants from one location to another), contraception, and expanding elephant habitat. Nevertheless, the possibility of killing 200 elephants is a highly emotional and controversial issue.

In addition, the validity of Kamanga's population estimates have been and will continue to be challenged. (At least in part, this challenge is probably due to the controversial nature of his culling recommendation.) Our judgment is that Kamanga's population estimates are defensible. However, no matter what controversies swirl around Kamanga's population estimates or culling recommendation, several points are clear:

1. With the fence in place, the elephants are enclosed in an area that is smaller than

their traditional range.

2. Elephant damage to trees and other vegetation within the Shimba Hills Reserve, the G-M Sanctuary, and the Mwaluganje Forest Reserve is apparent and extensive.

3. To maximize the area's biodiversity, it will eventually be necessary to remove some elephants from within the fenced enclosure. (Even if Kamanga's estimates are judged indefensibly high, natural population increases will eventually result in numbers as high and probably higher than Kamanga's recent estimates.) If some elephants are not removed, the area's biodiversity will continue to decrease and eventually some elephants may starve to death because of the high elephant densities and associated habitat alterations.

4. In Kenya, culling and sport hunting of elephants is illegal. (KWS policy does permit killing of elephants for certain management purposes.) Translocation is very expensive and not considered feasible, particularly within the hilly and/or forested areas typical of almost all of the study area. Birth control is not technically feasible at this time. There are no apparent opportunities for expanding elephant habitat. Allowing elephants to increase without interference from humans with the expectation that natural controls (diseases, forage/habitat degradation, drought, etc.) will take care of the problem may be acceptable to some, but others clearly considered this unacceptable and more cruel than culling. Thus, there is no agreed upon solution to the conflict between elephant population growth and biodiversity maintenance.

In summary, the solution has now become the problem. With the elephants confined by the fence, habitat destruction is increasing. The concurrent biodiversity reduction threatens the integrity of the ecosystem. There is no agreement on how to control increasing elephant densities, thus there is no agreed upon a solution to the habitat destruction problem.

While elephant management is not the major focus of this paper, what happens to elephant populations will not only affect other animal and plant species within the G-M Sanctuary, it will determine the parameters within which the financial success of the G-M Sanctuary will be pursued. Elephant management and G-M Sanctuary management can not be separated.

SUMMARY AND CONCLUSIONS

Kenya's Golini-Mwaluganje Elephant Sanctuary is one of a growing number of community-based conservation projects. Its formation was encouraged and facilitated by a combination of factors: (1) a growing consensus that the best way to encourage local communities to protect wildlife and natural habitats is to enable local communities to benefit from the existence and use of these natural resources; (2) the need to find a solution to human-elephant conflicts; and (3) the willingness of a variety of individuals and organisations to cooperate in forming the Sanctuary. In fact, the most amazing thing about this project is that such diverse groups were actually able to get together and agree to establish the Sanctuary. The Eden Wildlife Trust, USAID's Conservation of Biodiverse Resource Areas Project, the Kenya Wildlife Service, other government agencies, individual advocates, and three distinctly different local land owner groups all played major roles in encouraging and forming the Sanctuary.

The Sanctuary was established in 1992. Since then it has faced and surmounted numerous challenges. However, the recent precipitous overall decline in tourist visits to Kenya, unresolved land ownership issues, and the need to improve Sanctuary management remain the greatest challenges to the success of this project. The first two of these challenges are, for the most part, beyond the control of the Sanctuary Corporation. With the recent national elections over and dissipation of the detrimental El Nino weather effects, there is hope that tourism in Kenya will rebound from current depressed levels. Even if this decline is not reversed, enough tourists probably will still visit coastal resorts to constitute an adequate source of demand for the lodge and Sanctuary to become financially viable operations. Corporation members and the local community can, and probably will, continue requesting resolution of the unsettled land claims, but titles to the remaining plots probably will not be issued in the near future. Nevertheless, the fact that the Sanctuary has continued to operate in the face of this obstacle suggests that, even if all land claims are not settled, it will be able to continue to operate in the future.

The third challenge is within the control of the Corporation and support organisations, and may be resolved in the near future. The lease for construction of a lodge within the Sanctuary has been signed, and this has increased pressure for hiring a manager. It is likely that a Sanctuary manager will be appointed in the near future. Obviously, how effective any new manager will be remains to be determined. Nevertheless, the pending appointment of a manager represents the best opportunity so far to improve management of the Sanctuary.

Besides the possibility of generating benefits for local people from wildlife through tourism, the other major incentive for cooperation was interest in reducing human-elephant conflicts. Unfortunately, this aspect of the project has produced mixed results. With the elephants confined by the fence, human-elephant conflicts have been significantly reduced, but habitat destruction has increased. The concurrent biodiversity reduction threatens the integrity of the ecosystem. There is no agreement on how to control increasing elephant densities, thus there is no agreed upon solution to the habitat destruction problem. As far as elephant management is concerned, the solution has now become the problem.

While elephant management is not the major focus of this paper, what happens to elephant populations will not only affect other animal and plant species within the Sanctuary, it will determine the parameters within which the financial success of the Sanctuary will be pursued. Elephant management and Sanctuary management can not be separated.

As a source of benefits for local people, the foundation for success has been laid. The Corporation has been formed; the Sanctuary has been established and the fence has been built; some benefits have already trickled down to local people and given them hope for additional benefits; the location of the Sanctuary near coastal resorts is ideal for attracting safari tourists; the roads between the coast and the Sanctuary are relatively good; functionally useful game viewing tracks and ticket offices have been built; an attractive cultural center and kiosk are in place and operating; the Sanctuary can guarantee tourists that they will see elephants and other attractive wildlife species on any visit to the Sanctuary; a contract has been signed for building a tourist lodge within the sanctuary, thus improving opportunities for additional financial benefits; and

there is a real possibility for improving Sanctuary management. While a solid foundation has been laid, long term success is not guaranteed. The key to success, however, has been identified and lies in a single operational element: improved Sanctuary management. Clearly, with effective and responsible management the Golini-Mwaluganje Sanctuary is positioned and poised for success.

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