



HUNTING APPRENTICESHIP AS INDIGENOUS FORM OF EDUCATION FOR SUSTAINABLE CONSERVATION OF WILDLIFE IN MAU FOREST OF KENYA

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Abstract:

Mau Forest, the home of the majority of the Ogiek people is located in the Rift Valley Province and straddles Kericho, Nakuru, Narok and Bomet districts .Traditionally, the Ogiek as hunter-gatherers have distinctive histories of interaction with the natural environment. Over the years, the Ogiek have inhabited in the Mau Forest with little impact on the environment. The paper focuses on the influence of hunting apprenticeship as Indigenous Form of Education for sustainable conservation of Wild life in Mau Forest of Kenya. The study was informed by the General Systems Theory and the Cultural Ecology Theory. The argument of the general systems theory is that the intricate relationship of the parts cannot be treated in isolation from the whole. In this case, an analysis of the Ogiek superstructure affirmed that the society's institutions must be contextualized in their totality. Arguably, an understanding of the Ogiek in general is related to how the community interacts with nature. On the other hand, the cultural ecologists argue that there exist a clear link between the society's culture, mode of subsistence and the natural environment. An ethno-historical approach was employed in the design, instrumentation, data collection, analysis and interpretation. To achieve systematic collection of data, purposive sampling techniques were used. Forty-five (45) members of the Ogiek community, mainly key cultural consultants were interviewed for the study. Cultural consultants provided the most complete and representative information about particular aspects of Ogiek life because of their experience and training. The main instruments for data collection were observation and interview schedules. In addition to oral interviews, this study used a variety of

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documentary sources. The information obtained from the various sources was checked for validity and reliability using triangulation as well as external and internal criticism approaches to data analysis. The paper reveals that hunting apprenticeship as indigenous education as practised by the Pre-colonial Ogiek society facilitated sustainable conservation of wild life in Mau Forest of Kenya. In essence, it was arguably revealed that the Ogiek hunting practice and broader socio-cultural contexts as well as human-animal relations incorporated a number of conventions and practices that helped to support and sustain wild life populations.

Keywords: indigenous education, multilingualism, hunting apprenticeship, Mau Forest, Ogiek people

1. Introduction

Indigenous education was not only concerned with the systematic socialization of the younger generations into the norms, religious and moral beliefs as well as collective opinions of the wider community, but it also placed a very strong emphasis on learning practical skills and the acquisition of knowledge which was seen to be useful to the individual and the society. Just like the Alaska native people (Kowagley, 1995), the Ogiek of Mau Forest had their own ways of looking at and relating to the world, the universe, and to each other. The Ogiek people maintained their traditional adhere to the principle that wealth must be shared and that knowledge was communal and for the benefit of all.

Understandably, the transmission of knowledge and values was achieved primarily through apprenticeship and experiential learning, whether from subsistence activities or cultural practices. In this way, most of the successes in sustaining Ogiek culture and ecological conservation have been through the practice of keeping children close to their parents, with transmission occurring both passively and actively though imitation, copying, apprenticeship and practice. However, a widespread aspect of formal education was provided though apprenticeship schemes. Their indigenous education was carefully constructed around observing natural processes, adapting models of survival, obtaining sustenance from the plant and animal world. They did use natural materials to make their tools and implements. All these were made understandable through thoughtful stories and demonstration. Indeed, the Ogiek people have traditionally acquired their knowledge through direct experience with the natural environment (Kratz, 1989). Ideally, Ogiek indigenous education was meant for their immediate induction to the society and it was strictly utilitarian in nature.

Indeed, hunting and gathering peoples of Africa represented an environmental adjustment that is found in isolated areas of low population density (Ottenberg, 1960). This was a true reflection of the Ogiek of Mau Forest in Kenya who has heavily relied on simple technologies, usually owning no more material goods than they could carry on their own as they engaged in migratory search for food. They directly depended upon wild plants and animals for their survival.

The Ogiek lived in small isolated settlements inside the dense, high-altitude evergreen forest, their permanent home and wet-weather hunting ground. According to Kratz (1986), the forest has been mentioned as the place the Ogiek regarded as their domain, contrasting sharply with their neighbors' spatial understandings. Hence, closely related to the space itself was the way in which the Ogiek made their life in it, by hunting and gathering honey. They largely depended on hunting and to a lesser extent on gathering for their food. Hunting was an important and integral part of the Ogiek pre-colonial economy and diet. Traditionally, three-quarters of their diet consisted of game meat while honey contributed less than a quarter of it (Blackburn, 1974). Therefore, as the Ogiek continued practicing their ancestral life style as hunters and gatherers (Astill, 2002) in the Mau Forest, the survival of the Ogiek heritage was of great importance, and its preservation for posterity was highly enhanced and valued.

Further, the Ogiek indigenous management system of wildlife conservation incorporated prescriptions against the killing of big animals. Moreover, the sacred animals were spared too, as defined within their totemic and clan based systems. Indeed, mothers with the young ones were not allowed to be killed for whatever purpose and likewise those in their late gestation period. The rules and regulations governing Ogiek's system of wildlife management were regularly monitored by the council of elders. During social ceremonies particularly on the onset of initiation period, boy initiates were reminded of the code governing the administration of hunting and violation of the same were not tolerated. Instead, punitive and severe punishment measures were stipulated and written in people's hearts. Essentially, obedience was seen as the guiding philosophy. Evidently, with all these regulations being clearly defined, the Ogiek, understood best the importance and benefits of their detailed indigenous knowledge of conserving their natural environment for posterity and for their survival as a distinct ethnic group.

2. Methodology

This study employed an ethno-historical design. It is the systematic and objective location, evaluation and synthesis of evidence in order to establish facts and draw

conclusions concerning past events. The study sought to investigate the socio-cultural aspects of Hunting apprenticeship as indigenous education as practiced by the Ogiek that were able to engender sustained management of wild life resources in Mau Forest.

The subject of inquiry was based on the assumption that individuals construct social reality in the form of meanings and interpretations and that the reconstructions tend to be transitory and situational (Cohen, 1993; Gall, 2003; Payne & Payne, 2005; Parkash, 2007). This was the study of a people's representations of their history and hence linked to the study of their oral tradition.

An ethno-historical design typically combined two research strategies, the *emic* (local viewpoint) and the *etic* (scientist-oriented) approach. On the one hand, the *emic* approach investigated how the local people explained, thought, perceived and categorized their ecological worldview. From this, the researcher identified the rules of behavior and the meanings attached to them.

On the other hand, while in the field the researcher used the *etic* (scientist-oriented) approach that shifted the focus from the local categories, expressions, explanations and interpretations to those of the ethno-historian. This approach counterchecked the defects of the first approach taking into account that members of a culture are often too involved in what they are doing to interpret their culture impartially. Operating ethically, the researcher emphasized what was observed and seen to be important to this study. In this way, the researcher tries to bring an objective and comprehensive view point to the discussion.

The research sample was drawn from seven sites in Eastern and Western Mau Highlands: Teret, Sururu, Nessuit, Mariashoni, Bararget, Tinet and Kiptororo. These are the areas, where the majority of the Mau Ogiek reside (Towett, 2004). These areas also took into account the distribution of the major clans, which were represented by the research sites (Blackburn, 1971; Kratz, 1990; Ronoh *et al.*, 2010b). For instance, in Eastern Mau notable clans include: "*Mariashonik, Sururu, Kipasisek, Kimeitek, Kipchesang*" while in Western Mau are the *Kaplelach* and "*Kipchornwonek*". To ensure an objective and comprehensive data, selection of the informants was done using purposive sampling technique. Using this technique, the researcher identified forty five (45) elderly Ogiek men and women whose ages range from 65-120 years, provided useful information on specific issues that this study sought to investigate (Babbie, 1986 and Gall, 2003). These people were then used as informants to identify others who qualified for inclusion in the study and these, in turn, identified yet others, hence the number kept on snowballing (Dalen, 1979; Cohen, 1994; Gall, 2003). Some of the informants were identified from the Kenya National Archives (KNA) in Nairobi while undertaking collection of archival sources. The others were mentioned in the course of the fieldwork.

Most informants were interviewed individually as often group interviews were susceptible to biases and distortions of information. Such biases could occur because of informants' over-glorification, oversimplification and over-generalization of the events that took place during the period under study (2005-2007).

The main instruments that were used to collect the data were an observation schedule and interview schedules. The researcher administered observation and interview schedules for each of the targeted groups; the council of elders, hunters, herbalists, initiation experts and religious leaders who were chosen because of the specific knowledge they were bestowed with as key cultural consultants of the Ogiek community. The items in the instruments were designed in such a way that they were relevant to each of the group of informants mentioned above and were ultimately useful in achieving the research objectives outlined thereof.

The data was collected by interviewing individuals, observing events (skills and techniques of hunting, hunting parties, ecological settings). Further, in the field, observation focused on council of elders' meeting, herbalists' gatherings, preparing herbs and caring for the sick, material culture used in hunting, hunting related songs, proverbs and folksongs.

The observation schedule was employed to supplement interview schedule and it was administered together with an interview schedule. These instruments entailed a core set of questions that were posed to all the selected informants. Specific questions related to this discussion were formulated in advance before undertaking the fieldwork. This was to guard against the contention that, "observations could easily be mired in a hopeless array of competing events" (Zanden, 1988:41). Therefore, unobtrusive observation was utilized in this study whereby behaviors of those selected individuals to be studied were observed without them knowing. This in turn brings about data that are more accurate since the subjects may not change. Moreover, sensitive social issues (as identified above) were suitably addressed using observational research. As a result, daily records of things observed were written down in form of short notes. Hence, an observation schedule being an analytical form (or coding sheet) was filled by the researcher based on structured observations. Thus, it carefully specifies beforehand the categories of behavior outlined above or events under scrutiny as well as what circumstances they should be assigned to those categories highlighted thereof. Observations were then coded into more manageable pieces of information, constituting themes and categories. As a "site-specific" knowledge, observation provided the researcher with a valuable opportunity to learn more about the practices and contexts about the Ogiek indigenous education as it relates to hunting apprenticeship. Apart from obtaining information through oral sources by

administering an interview and observation schedules, the study also critically analyzed documentary (primary and secondary) sources.

The critical undertaking in analyzing qualitative research was for the researcher to manage and organize the data. The researcher constructed patterns that emerged from the data and tried to get meaning out of them. Starting with a large set of issues and data, the researcher progressively narrowed them into small and important groups of the key data as acknowledged by earlier scholars and based on the research objectives (Dey, 1993; Bogdan, 1998; Krathwohl, 1998; Kottak, 2002; Gall, 2003). Following Patton's (1990) and Gay & Airasian's (2003) approaches to data and content analysis, the investigator undertook a multistage process of organizing, categorizing, synthesizing, and interpreting the data. Each of these processes were found to be iterative as the researcher cycled through these stages more than once in a continual effort to narrow and get meaning of the emerging themes and categories that formed the organizing frame work in this study. Gay and Airasian (2003:229) identify four steps in analyzing qualitative research data, which were utilized in this study, namely: reading or memoing, describing, classifying and interpreting.

3. Results and Discussion

The paper critically examines the influence of hunting apprenticeship as indigenous education for sustainable conservation of wild life in Mau Forest of Kenya. The presentation of results and discussion has been done based on three major sub-headings namely: Acquisition of hunting skills and techniques as regulatory learning imperatives; Hunting as cultural 'control' learning strategy for sustainable conservation and finally the role of oral literature in ecological learning strategies was extensively discussed.

3.1 Acquisition of Hunting Skills and Techniques as Regulatory Learning Imperatives

The Ogiek hunted in groups within their various demarcated territorial areas. *Loket* as the name suggests referred to a process of communal participatory hunting whereby the young members of the Ogiek community were inculcated with skills and techniques of hunting governed by a set of rules and regulations thereof. The rules and regulations governing the hunting economy among the Ogiek of Mau Forest ensured that there was systematic hunting that paved way for sustainable use of wild life products. The rules that the hunters were to observe (Maina, 2006) include: hunting in bands of ten to twenty individuals (especially in Eastern Mau, while in South Mau hunting bands were

smaller, mostly with a maximum of ten) under a leader whose role was to ensure that the hunters (especially the new recruits) obeyed the set instructions. These leaders controlled the hunting from the beginning to the end. The hunters were not allowed to shoot or spear an animal without the permission of their leaders.

In the same vein, each hunter was required to have at least ten arrows in his quiver before being allowed to join the others in the hunting expedition. Only experienced hunters were allowed to use spears and to carry poisonous arrows (though, these were used only when hunters came into contact with dangerous animals). In light of this, the youth were cautioned against ambushing dangerous animals, as they could charge and corner members of the group who were not following very closely the minute details of every manouvre taken by the hunting band. Such miscalculated undertaking could bring about untold miseries on the innocent hunters. To be able to deal with dangerous animals, inexperienced hunters were inculcated with knowledge and skills using a small bushy environment (acted as classroom or an educational center, where hunters were inculcated varied hunting methods before being allowed to practice the actual hunting) near their homesteads. On the handling of weapons and the actual hunting, it was largely a learning process where only the experienced hunters and specialists could instruct the rest about when the hunting begins and when it ends, including how to use the weapons appropriately for the intended purpose.

Dogs were important for hunting and each individual was expected to have at least five dogs before joining the hunting expeditions. Dogs easily smelt and identified animals hidden deep in the forest which could not have been easily noticed by the hunters. It was also a fundamental requirement that hunters be skilled in symbols, signs and language. Indeed, hunters were cautioned against shouting unnecessarily or causing commotion as an animal would sense danger and take off. Shouting and commotion would also motivate dangerous animals to attack the hunters.

Lazy and uncooperative hunters were disqualified from hunting, since the activity called for co-operation. In fact, most learning was done through observation and participation. As a result, the Ogiek developed coded and precise methods of communication suitable for hunting. Whistling was one medium of communication among the hunters. Other Ogiek words and phrases that were extensively used in conversation include:

Alach mento, meaning go northwards;

Ogich buget legem, meaning move faster southwards;

Kakome, meaning it is dead;

Koromi tiondo Ochei, meaning dangerous animal, get prepared (Kipnai, 2006; Chelule, 2006).

Based on these rules described, there were other rules that were vividly followed to repackage the earlier ones mentioned. The hunters were taught to engage in systematic hunting by forming a circle and moving towards the target animal in a 'cow-horn' formation starting first with experienced hunters, followed by the apprentices (mostly newly initiated morans) and lastly older children. The essence of perfecting this systemic and orderly sequence of hunting technique took the central stage in the teaching-learning processes among the Ogiek at the homestead level. The efficacy of this strategy was to place the hunters at various strategic positions and this enabled them to be closely monitored by the instructors so that they did not engage in indiscriminate hunting of the 'endangered' animal species. This strategy had also a dual responsibility in that it assisted the hunters not to be mistakenly speared or shot in the ensuing process as the hunters struggled to kill the targeted animal.

There were also animals that were not hunted by the Ogiek because the community regarded and treated them with contempt such as monkey, baboon and warthog. However, there were also others that were not eaten by the community, including birds and snakes. There were also fierce animals that were hunted only when necessary: lion, hippopotamus, buffalo and rhinoceros. With dangerous animals, hunting took a radical twist (more technical and professional in orientation) with only experienced and skillful hunters (preferably leaders of various '*Konoituek*' councils) being allowed to participate in the hunting expeditions. This was where a variety of skills and techniques were displayed with particular emphasis being the use of weapons such as spears and on very rare occasions, poisoned arrows would be used when an animal had proved difficult to subdue and required the combined efforts of different bands of hunters. In such circumstances, the meat would be burnt and people were prohibited from touching or eating meat of such an animal (Soy, 2006; Sang, 2001). To kill such animals required the team spirit and bravery among the hunters. For that matter, hunters were inculcated with skills that were commensurate with assigned task.

These professional hunters were equipped with skills in shooting an animal at a tangent angle, either at close or long range. They acquired these skills and techniques as children accompanied their fathers to the hunting grounds. They perfected the skills and techniques during initiation when they were in seclusion in the bush. They were imparted with physical skills such as running, jumping and climbing tall trees for safety when attacked by dangerous wild animals and enemies. They also learned to climb down fast when pursued by angry bees after they had been disturbed in their colonies. In every team or group of hunters, there were the leads instructors who were the most experienced and respected members within each *Konoito*. They were therefore listened to and issued instructions on hunting to the newly initiated morans.

As earlier explained, instructors determined when the hunting expedition began and when it ended. In some instances, hunting could be ended prematurely and abruptly like whenever an individual has speared a person or a dog by mistake. This was considered bad omen and whoever did that was disqualified from hunting for life. However, a cleansing ceremony was conducted for the injured individuals and for the offenders. The victims were exempted from hunting for at least five years so as to gain strength (Tuei, 2006). It was equally a punishment for not displaying artistry in hunting. In such an event, elderly and experienced hunters supervised the slaughtering of animals to be used during the cleansing ceremonies. The young hunters were taken through a learning process of observation and participation with a view to gaining knowledge and understanding of the various parts of an intestine and to equip the learners with skills in the dissection process.

For instance, hunting of such a magnitude sometimes lasted for one or many days depending on the strength and resistance waged by the animal as well as the combined tactics and strategies displayed by the professional hunters. In such an event, some participants may be wounded in the process and that explained why, experienced herbalists would accompany the hunters to the hunting grounds (Ntoror, 2006; Rop, 2006). These herbalists were expected to be knowledgeable in treatment of fractures. In the same vein, it was only trained, mature and experienced elderly dogs that were allowed into the hunting arena while dealing with such fierce animals.

Inexperienced dogs were kept at bay or within their homesteads. Dogs generally were instrumental in guiding the hunters in which direction the animal has taken in the bushy environment to avoid unexpected causalities. The treatment of the wounded were administered instantly and various '*Konoituek*' contributed in paying for the treatment of the victims, hence demonstrating the philosophy of communalism where hunting as a mode of subsistence was treated as a communal and not as an individual affair. After every hunting expedition, young hunters were engaged in physical exercises so as to be swift in subsequent performance of hunting-related and other apprenticeship activities. They were trained on numeracy and rapid calculation skills that assist in positioning themselves with a view to shooting an animal at an angle without missing it. This technique was ultimately imperative for all the hunters to acquaint themselves with. They were further inculcated with normative and ethical values on the need to share the meat they have collectively hunted equally as joint participants.

The Ogiek were celebrated as specialized hunters who used a variety of techniques and those different clans favoring different hunting methods (Mackenzie, 1993:54-85). Methods commonly used include; pit falls, weighted spears, traps, snares,

bows and arrows as well as throwing sticks. Learners were instructed to perfect such learning techniques through observation and participation. However, most of these techniques were later prohibited by the colonial government as being dangerous to humans. The Ogiek were famous for digging game pits ('irimet') along the fringes of the forest (Sang, 2006). They dug the pit close to where a trunk of a tree had fallen across the path (Ogot, 1978:4; Blackburn, 1982 and Kratz, 2000). Grass or twigs were then used to conceal the pit. They could also organize large hunting expeditions masterminded by the newly initiated *muranik* at lineage level.

In fact, these newly initiated hunters joined the older hunters for guidance and further instructions were given to them of what animals were to be hunted and those not (Sangwea, 2006). However, during the dry season, the Ogiek hunted outside the forest in the vast grasslands of Maasai plains where the game was grazing. They were sometimes set upon by the hunters and herders (warriors) of the other ethnic groups who did not like competition. For this reason, the Ogiek guarded their territorial rights so that others could not engage in indiscriminate hunting within their demarcated territorial (*Konoituek*) areas. And, above all, they had adequate reputation for being able to disappear into the forest and re-appearing at their own will (Chepchilat, 2006 and Kipnai, 2006). The Ogiek were indeed, very secretive in their undertakings and endeavors including, a well-organized and developed selective and complex hunting expeditions. In this way, protection of environmental resources included restrictions of killing of wild animals and cutting down of trees which were perceived and regarded highly as the abode of these wild animals.

While hunting in the nearby plains, the Ogiek could see and stalk animals before the animals knew they were there. The plains provided a clear means of escape if one of the large dangerous animals charged at them (Blackburn, 1982). In contrast, it was quite impossible to hunt an animal before it would flee in a dense forest and for this reason; forest hunting ultimately required the use of dogs. The Ogiek were experts in the training of hunting dogs. As a result of prolong learning; the dogs acquired adequate and good tracking skills and knowledge of the forest (Sang, 2001). In this way, the dogs could chase the animal and bring it to the bay so that they could be speared by the hunters. Therefore, dogs were trained in acquisition of skills and techniques in jumping, earmaking and attacking the animal.

The Ogiek were also taught to detect the different sounds produced by the dogs especially when they were in danger. For instance, the Ogiek were able to adequately distinguish signals and sound produced by the dog when either attacked by a dangerous animal, or when it got into a trap or when it has been shot or speared by mistake by the hunters. The hunters would be able to rush to the site to save its life.

Giant forest hogs and Bush pigs were frequently hunted in that manner, though the Ogiek ensured that they had the conceptual understanding frame of the essence of tomorrow. For this to be effective, they were to avoid indiscriminate hunting of young animals. They were given time to mature and thus hunting was selectively done to ensure that very rare animals were not hunted anyhowly.

In order to enforce this directive, the council of elders ensured that all hunting band leaders were answerable to the lineage council tribunal committee which was charged with adjudicating the legal affairs dealing with cases of environmental degradation. In fact, hunting band leaders were co-opted as members of this tribunal and bestowed with the responsibility of ensuring that hunting was selectively administered. However, it was significant to note that without dogs, perhaps, the Ogiek would not have been able to live in the forest after all. The Ogiek mode of hunting was to wound an animal and then followed it up with a pack of dogs, but the *modus operandi* of each lineage differed to a certain extent, some setting traps while others dug pits (KNA, DC/BAR/4/l; 1902). The youth were also taught how to set traps of wild animals by observing the older members of the society doing the same.

As part of their socialization, the youth observed how older boys climbed tall trees and participated in trapping small animals and rarely big game. They did these activities bearing in mind the regulations (already discussed) governing the philosophy of hunting. However, when they had shown enough physical ruggedness, they were allowed to join the older members of the society in hunting expeditions. According to Huntingford (1955), the Ogiek displayed an affinity with and care for the wild animals in their forests. They only killed the wild animals to meet their domestic needs. Predominantly, only those species with buoyant populations such as warthog and tree hyrax were hunted. They were very happy in situation of isolation in the forest where birds, trees and wild animals provided them with good ‘neighborhood’ that one may seek from becoming a member of a larger community.

In essence, every adult hunter required training not only in the skill itself but also in making the requisite tools of the trade. For example, a hunter’s son would not only be trained in matters like hunting techniques but also on how to understand methods of meat preservation, predicting weather conditions as well as being taught how to make and use hunting tools. More importantly, the young were given instructions on how to repair when these tools were damaged. Even more complicated was the fact, that the hunters were inculcated with skills and knowledge on the virtues of self-reliance, especially on the administration and treatment of fractures, when an individual was injured during the hunting expeditions.

3.2 Hunting as Cultural ‘Control’ Learning Strategy for Sustainable Conservation

A fundamental learning mechanism with regard to systematic hunting was captured within the philosophical understanding frame of totemic principles. This was the scenario where members of a certain clan were taught not to hunt or kill an animal with which they shared the same totem. For example, ‘Motoborink’ clan was not allowed to kill hyenas, while the ‘Kapkoon’ clan embraced frogs. Similarly, the ‘Kibawanek’ clan associated the eagle with their destiny while *Kapkolkwolek* clan kept snakes (Chelule, 2006).

During field work, some informants and key cultural consultants told this researcher that some members of ‘*Kapkolkwolek*’ clan still keep snakes in their homes, though that was a top guarded secret and neither such individuals nor their families were ready to admit the fact. This was the case because they feared that such revelation would land them in troubles as they could be stoned, hanged or ex-communicated for breaking social norms. In fact, it was through such mythological revelation that the members within each clan principally obeyed the natural justice processes of their lineages and clans without much questioning by following the law of precedent. They admitted that if their fore fathers had adored such animals, then they had no option but to abide by the same regulation. This normative and conceptual understanding became the core reinforcing educational force in making them to perpetuate the same activity for the prosperity and continued existence of the future generations. This in practice facilitated the conservation of these particular species of animals.

Youths were instructed to observe the principles governing totems with a view to understanding their essence. In fact, ordinary greetings emphasized totems. For instance, each individual would be reminded to keep the totem they acknowledged (*Iwole tindo ainon*). It was through such a learning process, that the young were taught to conserve their heritage by recognizing the role of a totem in their lives, thus becoming a strategy in management and conservation of wild life. Totemic aspect played a critical role as a strategy in wildlife conservation among the Ogiek of Mau Forest. One informant, (Soy, 2006) observed that when the Ogiek wanted an animal, they took just one and not all at once. He further observed that a clan was allocated an animal to protect as a totem. No member of a clan would be allowed to hunt its totem animal. In a way, this constituted an important strategy in the conservation of wild animals.

Failure to observe hunting norms had consequences such as an individual choking on the game meat when eating, sometimes leading to one’s death; one could also become insane and other related detrimental effects (Lesan, 2006). It was observed that an individual’s death as a result of violation of this action was considered to be a

serious curse to the injured members of that lineage. It was equated to such serious offences as killing a kinsman. Because of the seriousness of the said offences, the Ogiek developed a clear philosophy of, '*Keyakta mugetut*' as a guiding frame in the administration of punishment. This was a guiding contextual understanding where members of the clans or lineages, in acknowledging the seriousness of the crime committed and its hereafter consequences that would befall members of those clans, decided to pay the victims compensation, often in kind. In this way, each lineage or clan member equitably share the cost of contributing either a beehive each, two debes of honey or giving out part of their '*konoito*' to clear such debts (Bargochut, 2006; Rogony, 2006; Marindany, 2006), depending on the magnitude of the offence committed.

Once payment of compensation has been settled, members of that particular clan would hold a big festival where the offenders were brought and paraded for cleansing. They were the ones to meet the cost of conducting and organizing the festival. Locally brewed wine called, "*Maiwek ab Kipketinik*", formed the climax of that occasion. In mitigation processes, the offenders were taken through the general confession phraseology (Chumo, 2006) as, "*Mutyo, inyoyamkotencho inyowon katt moroketyini kogeny*". This principle of confession was the highest form of asking for forgiveness and it was applied when one trespassed into another lineage's *Konoito* and engaged in hunting without the consent of the bonafide and concerned members of that other ridge or territorial unit.

Hunting was also predominantly a men's activity and therefore all its super structural activities were administered and governed by them. As they engaged in hunting, the hunters were to observe the changing weather patterns as they largely determined whether hunting was to take place or not. This was not conducted during the rainy seasons and especially during misty weather in the higher altitude. Similarly, hunting was not carried out, when there was an occurrence of natural calamities such as prolong drought, outbreak of diseases as it signified bad omens to the community.

Similarly, hunting was suspended to pave way for performance of annual rituals and festivals e.g. initiation (within that specified territorial ('*Konoito*') unit). During, these celebrations, hunting was predominantly done by the initiates while in their secluded bushy environment and so there was no need to interfere with their practical education through apprenticeship. As revealed by many informants, this period of suspended hunting acted as a regulatory mechanism for wildlife conservation, so that the demand could not outstripped the supply (Tuei, 2006; Chelule, 2006; Sangwea, 2006). Subsequently, adhering to the maintenance of an equilibrium as far as wildlife conservation and management strategies were concerned among the Ogiek society as clearly articulated with the general systems theory.

In order to be able to adequately address the principle of demand and supply more equitably while maintaining the equilibrium, the Ogiek used the metaphors, *kiame Ko O Kiame ko mingin*, (Sang, 2006) meaning you should eat as you are provided. The metaphor could also be understood to mean that an individual should be gratified when either given small quantity of rationed food or when available in large quantity to be eaten. It was such an analogy that regulated the demand and supply policy among the Ogiek. In preparation of any eventuality, hunters were given on essential lessons on food preservation strategies.

The hunters employed indigenous technologies of food preservation like salting and drying meat *Sigirenik* and then mixing it with honey, making it last even for a year. It was expected that within this time young animals would have matured and would be ripe for another round of hunting. This practice guaranteed the Ogiek a steady supply of game meat throughout the year. Youths were therefore urged by the elderly who closely monitored their activities to ensure that only mature animals were hunted. Males were recommended for hunting as opposed to females which would be reserved for procreation. This preservation ensured perpetuation of wild animal species in order to meet the demand for meat since the traditional Ogiek were essentially a hunting community whose staple food was meat.

For this regulation to be effective, the Ogiek kept on making reference to their popular proverb, *Mokibore aran ne mache korus* (Chepkwony, 2006) implying that lactating animals were not supposed to be killed (for whatever reasons) as it was a taboo and signifying bad omens may befall those individuals who broke the taboos. To make matters worse, a broken taboo could affect the offender's family for generations. Fear of such an eventuality made the society careful to remind its members of the dangers of violating the norms thus reinforcing environmental sustainability. Fundamentally, it was the strong bond among members of the society that caused individuals to be aggressive in warning and reporting those members who broke hunting norms to the council of elders' tribunal. Upon receiving such reports, the council normally, administered instant punishment on the offenders either as an individual or individuals. Punishment ranged from stoning the victim in the context of Hamurabi's Golden rules of revenge to a more mild form of punishment, where an individual was given a strong warning as a first time offender.

The Ogiek being skillful forest hunters and nomads built temporary huts in the forest-depths and kept to their lineage and clan groupings (Blackburn, 1982:31). In fact, their sense of sight, smell and sound became highly developed through centuries of living in the forest (Sang, 2002; Nomi, 2004:2; Tonui, 2006). That adaptation made them proficient at tracking, mapping and identifying a variety of flora and fauna. Such skills

made them efficient in the hunting of small animals and the gathering of nuts, fruits, and wild plants for food. Sang (2005), the Co-ordinator of Ogiek Welfare Council (OWC), attested to this by asserting that the Ogiek lived with God in the forest along time ago. He claimed that when an Ogiek killed an elephant, God abandoned the community and went to live in heaven. For this reason, individuals were prohibited from hunting big animals (Oduor, 2004).

The Ogiek familiarity and awareness of the sensitive balance between themselves and nature made them to maintain the equilibrium with the wildlife in the forest. They hunted and gathered for food as long as it was obtained in bountiful amounts. Therefore, their dedication to maintaining the harmony and balance of their ancestral forested homeland yielded unconditional sacrifices within the community for the protection of their environment (Nomi, 2004). Based on the foregoing discussion, it was established that the Ogiek had a clearly defined philosophy that if the scale of supply and demand was topped, then adjustments were to be made within the community until the balance was ultimately restored. To effect this indigenous knowledge of hunting and wildlife conservation, the Ogiek allocated each clan a strip of forest land covering about 80 hectares and bounded by streams and ridge tops. Richer clans, however had two such hunting grounds under their jurisdiction (Smith, 1961), where they were instructed to conserve for their continued existence of the community.

From the foregoing analysis, it should be stressed that the Ogiek had great affinity to the forests. This made them successful custodians of the forest environment. Trees, birds and wild animals provided the Ogiek with the psychological comfort (Sang, 2001) and for that reason, the Ogiek have been comfortably residing in forested lands of Mau highlands. Each lineage had their own demarcated sections of the forest where they hunted and set traps. Indeed, they had selective and regulated hunting whereby they were recommended to hunt specified smaller animals such as, antelopes and wild pigs while the larger animals were not allowed to be hunted (Kamau, 2003).

It should be noted that trespassers were punished by the members of the other territory for engaging in indiscriminate hunting within their ridge (Chelule, 2006; Tuei, 2006). Even more interesting was the fact that there were clear principles and practices governing hunting. For instance, when an individual was chasing an animal and it fled into another ridge, then the hunter had to abandon the activity (Rogony, 2006; Kirui, 2006). However, when the animals had crossed into the other side, people from that ridge were informed so that they would continue chasing the said animal. Those involved from both sides would ultimately share the meat in the event that they had successful hunting (Rop, 2006). It was imperative to note that it was forbidden for the hunters to shift from their usual place of hunting to another place mainly to hunt

elsewhere hence that aided the conservation of natural resources in one's territorial base (Tonui, 2006). Such teachings were integrated in the broader educational curriculum during their training as hunters particularly in their homesteads and also during the period of seclusion of the hunters after being circumcised. Therefore, the Ogiek have subsisted peacefully for centuries in Mau Forest, hunting only selectively smaller animals like tree hyrax (Mongabay, 2002), antelope, monkey, gazelle, honey badger, bushbuck, giant forest hog (Kratz, 1999; Sang, 2001).

While 'endangered' mammals such as the yellow-backed duiker (*Cephalophus sylviculator*) and the African golden cat (*Felis aurata*) were not hunted and instead, they were earmarked for conservation (Sang, 2002). Likewise, it was deemed necessary to ensure that all the animals on their gestation period and lactating mothers were not killed or hunted. Similarly, the importance of also regulating the keeping of bulls (male) animals in order to enhance procreation was emphasized. By and large, the hyenas were not hunted as the community regarded them with low esteem and moreover they were associated with the totemic ontological principle, where by some clans (especially '*motoborink*') regarded them as sacred. Through such variety of techniques, the Ogiek maintained an equilibrium in terms of supply and demand philosophy that adhered to the preservation of the male animals (Chelule, 2006) for the purpose of procreation for continued existence of the species and the society.

Forest life became increasingly less central to the practice of contemporary life (Kratz, 1990:453), but it remained an essential feature in helping the Ogiek to constitute a cultural identity distinct from that of their neighbors. At the same time, it created a continuity of Ogiek identity through history. Based on this discussion, it would be recognized that there was a close link between the Ogiek mode of subsistence, culture and the environment. This integration between those three realms has been the central concern of the cultural ecology theorists whose contributions formed an organizing framework for this study. Therefore, forest life and ceremonies were both distinguished by and credited with a blend of uniqueness, historical and educational continuity (Chelule, 2006; Tonui, 2006).

In a nutshell, the Ogiek heritage could be thought of as being built on a bond with the soil of their homeland, instilling a belief that where they existed was where they belong. As such, according to Nomi (2004), the Mau Forest was seen as the foundation of the community's tradition and culture affecting the everyday life of the people. According to the Ogiek, therefore was no clear separation of them from nature. Nature and the people were one and the same (Lelo, 2005). For this reason, the Ogiek had developed complex systems and strategies for protecting their natural resources, against illegal indiscriminate hunting. The council of elders enjoyed executive powers

over control of natural resources and hunting rights within their jurisdiction. In this way, the council of elders enforced rules and regulations (previously discussed) that governed hunting, exploitation of resources and helping to conserve the environment.

Hunting was partly the product of necessity, but also a preference involving excitement, romance, recreation, transition and training. The importance of hunting to the Ogiek pre-colonial economy may lie precisely in its range from its humble beginning as a survival mechanism for individuals and various lineages to a communal pursuit laden with ritual and politics as well as ecological and socio-economic significance (Blackburn, 1976). In fact, it has been contended that game hunting among the Ogiek has been friendly to their environment on which they depend for subsistence and that explained the notion behind the term Ogiek, as literally meaning; the caretaker of all plants and wild animals (Sang, 2001; Towett, 2004). Essentially, they were uniquely specialized people who were intimately related to a particular ecosystem and were incapable of retaining their essential characteristics, if that ecosystem was destroyed (Yeoman, 1979:23). Therefore, the survival of the indigenous Mau Forest ecosystem was inextricably linked with the survival of the Ogiek as a community.

3.4 Educative Songs, Proverbs, Stories and Dance as Ecological Learning Strategies

Hunting ('*Loket*') had a high prestige among the Ogiek especially when it was done communally. On the other hand, it was simply seen as a method of survival pursued by individuals at the family level. As already established in the earlier discussion, learning process of inculcation of the skills and techniques of hunting happened by doing, living and experiencing the subject matter. Thus, it was more natural, pragmatic and gratifying. Indeed, both the learner and the instructor had a direct interest in the success of the hunting process. This was a reflection of the general norm, where the educationists charged with curriculum development and implementation have attested to the fact that, the learner tends to be more keen especially in the case of socialization process when teaching and learning are less rigid and formalized (Diallo, 2003).

Basically, hunting became closely bound up with the Ogiek ceremonial activities and its intricate rites of passage. For instance, every hunter erected an 'altar' that was dedicated to the success of his hunting expeditions and some of the vertebrate or horns of the different kinds of animals could be seen when one entered their homesteads. It was the responsibility of the family and the entire clan to cherish collective spirit with regards to conservation and protection of selective hunting rights. For instance, when men went one for hunting, it was the duty of women and wives to receive them back home with a happy memorable song at their various stations.

More often than not, the songs were sung by the hunters were recitals spiced with humour and vitality. Most of the songs were dedicated to the bravery and the adventures of hunting. In most cases, the songs formed spontaneous part of everyday living and an intense emphasis was placed on poetry, where children and youth were trained on recitation and appreciation of the verbal and practical art of hunting. Indeed, the celebratory mood was evidenced and universal within Mau Forest because the meat would be shared equally among members of the same clan or lineage. When men were out hunting, women were in charge of the household work and general home management and that explains why they even built houses when men were away (Sangwea, 2006; Lesan, 2006).

To the Ogiek, hunting had a much wider significance than simply the supply of food. It played a critical and greater role in traditional socio-cultural and ecological as reflected in their oral literature issues such as performance of certain rituals and as a means of traditional commercial exchange (FAO, 2001). It stimulated crafts and local trade in the manufacture of weapons, nets, snares and poisons. The Ogiek manufactured poison arrows particularly prized for its efficacy and often selling at great profit (Blackburn, 1982:16). For instance, the Siria, who were classified as Dorobo in class B, became very wealthy from the sale of Buffalo hides to the Kavirondo people in the 1920s (KNA, DC/KAJ/1/2/2, 1900-1920:17).

Materially the focus was expressed in a number of artifacts that the Ogiek had made and used them for their own utility. Many of these artifacts and songs were related to their life in the forest, for example, special spears often used for hunting elephant ('*Kirokto*'), hide forest capes for men ('*arguriok*') and a type of adze that was used in making hives ('*kisinjot*'). A number of the Ogiek songs were mainly concerned with preservation of natural resources. For instance, one song emphasized the need to only hunt some selected big animals when it was extremely necessary (Blackburn, 1973; Kratz, 1981). Hunting exploits, skills and the lore of forest animals were common conversational topics (Kratz, 1995), that entailed a clear focus of conserving such a wonderful biodiversity.

It was established that most of songs, folktales and proverbs stressed on the protection and conservation of the forest because of their many attributes and benefits the Ogiek would gain from these natural products. For instance, tunes played on the ('*Tureret*'), a flutelike instrument of the Ogiek expressed themes such as, 'the drones are flying and the grey pigs are going'. In fact, the Ogiek acknowledged that "*Tureret*" made from the forest sapling *Sapoitit*, evoked the feeling of the forest (Kratz, 1981). Above all, the most cherished and widely revered and regarded Ogiek song was the

elephant song, "*I we Kel Belion*" was a metaphor and song emphasizing that in every endeavor, wishing you to do well like elephants do (Ngetich, 2006; Kirui, 2006). The song in essence, acknowledged the teaching of socio-cultural norms in relation to animal behavior. Similarly, the song emphasized elephant (sometimes buffalo) hunting. The song appreciated and glorified the bravery of the hunters to confront such fierce animals like elephants and encouraged the hunters of the abundance it bring to the Ogiek when they were hunted (Kratz, 1999).

Ideally, the elephant song was about brave Ogiek hunters in the forest, yet it was sung in a language that acknowledged the Ogiek as a minority group and their ability to move between cultures without compromising or losing sight of their identity. From the foregoing analysis, it is clear that the Ogiek were able to maintain their demand and supply with regard to conservation of wild life through proverbs that had dual meaning. For instance, *Iyambolo! Ngwan kobo tony, anyinyi kobo chi* (Langat, 2006; Mosonik, 2006). This proverb partly illustrated that there should be uniformity in the application of the law with regard to preservation of weaker animals instead of inflicting pain indiscriminately on them. This normative principle was articulated in terms of the needs not to hunt animals indiscriminately including lactating mothers and those with deformities such as the lame, handicapped and paralysed ones. The second understanding of this metaphor implied that we should treat our enemies as we would have them treat us under similar circumstances.

Through such an understanding, animals were accorded fair treatment. They needed even decency before being slaughtered while the meat of the dead was shared as required by the precedent law. This was in cognizance of the view that the living-dead (ancestors) do play a role in the lives of the living, thereby needing to be accorded decent burial. From this analysis and what had already been established, the study was informed by the conceptual understanding that ultimately influenced most of the interactive processes between the Ogiek mode of subsistence, socio-cultural values and environmental imperatives. Taking the cultural ecologist perspective, it was really unheard of to see such a precedent law being violated as the consequences between (the material and the spiritual realm) of the society was closely connected and thus reinforcing each other in every respect. This promoted a clear equilibrium regime through self-regulation and pattern-maintenance within the context of pre-colonial Ogiek educational curriculum as meticulously discussed within the general system theory.

The stories, proverbs and songs already highlighted in the foregoing analysis do acknowledge the relationship between man and his environment. It tends to question social issues of society that often lead to an open- ended tale. This justified Beinhart's

(2000) views that ancient Africans had greater attachment to their natural environment and the resources thereof were used in shaping their societies.

Environmental conservation lessons were taught by parents and elders to the rest of the community through proverbs, legends and folktales. Ogiek elders used proverbs widely in normal conversation as a way of enhancing informal instructions. One commonly used proverb that has clear emphasis on environmental conservation was, “Onion ak kwoni, ko chepiswet”, (Sangwea, 2006) literally meaning, ‘Chepiswet’ the bird associated with rain, is “here and there”. This called for the need to preserve it. Closely related to this proverb is another one, emphasizing that birds and wild animals are not supposed to be killed once they have eaten your cereals or nuts (“Makolei tinyo nebo baral”). Fundamentally, the youth were reminded that such birds and wild animals do not plant their own food but rely on humans. Therefore, this strategy assisted in preservation of wild animals. These wise sayings were used by adults to convey lessons, warnings and advice to the children on the need to conserve the environment by using the resources in it wisely.

The Ogiek attached great importance to proverbs, legends and folktales as the refined wisdom of their ancestors that had greater impact on the mind of individuals than the ordinary words. Children were therefore instructed to conform to the mores, customs and standards of behaviour inherent in these teachings by learning every detail.

Legends understood as tales that were fabricated to account for real events, are vividly illustrated in Ogiek sayings like, “ngwan muma sirgiriet” (Sangwea, 2006) meaning, “you should not kill donkeys as grave consequences like bad omens would befall you. This legend became a good reinforcing strategy to preservation of animals generally. Closely related to this legend is the song, “*Kiplu'guny en tugat kot kuot sigiriet en Likia koboru ngorset nebu mengotek*”. This vividly explained that the Ogiek settlement would be complete with the occupation of the Likia indigenous forest in Eastern Mau as it was regarded as their cradle land. They attached great significance to it because it was considered to be sacred and it is where various rituals were performed hence the need to have it preserved as part of their cultural heritage. Other issues concerning conservation of wild life were captured in the following songs, proverbs and riddles that the community cherished within their broader educational curriculum:

- (i) “*Arap Chemogoch Konech robta*” (Rop, 2006). This was an archaic song with a hidden meaning. It named an unknown ancestor by the name arap ‘Chemogoch’ who lived in ancient times and was personified in form of a supernatural being through re-enactment. It was in that context that appeasing the ancestors (had divine power and associated with provision of rain during the times of

happiness) was imperative because he was capable of sending severe droughts to the land of Ogiek whenever the activities of the community annoyed him. The teaching thereof emphasized moral and normative lessons to the youth to obey and respect the ontological forces of the physical and spiritual environment. More precisely, the youth were taught to respect the diviners, ancestors, elders, parents, living and non-living things as they exist for the benefit of man and the society. Learning about these vital forces and the hierarchy of beings as they existed in the ordered universe formed the social, political, economic and cultural development embodied in Ogiek indigenous education.

- (ii) Another proverb used by the Ogiek was, "*Mengosusin Chemosi en Osinet/foroste*", (Tonui, 2006; Tuei, 2006). This proverb was used to instill fear in children so as to stop them from venturing into the bushy environment like forests or river banks unaccompanied by the elderly members of the society. The meaning of the sayings emphasized or gave warnings to the children not to move to such odd places because they would be eaten or consumed by wild animals like the extinct giant-animal called Chemosi. The lesson was imparted on the children indirectly in the sense that children were supposed to be accompanied by adults as they engaged in various activities. This vividly emphasized the supervision of children as they went about their activities. More importantly, inculcation of knowledge through fear helped to preserve water catchment and riparian areas (Chemosit River in Kericho, one of the tributary of River Sondu, named after the giant, is still a no-go-zone for children to date) and so is the Mau Forest ecosystem in general. Through this learning principle, children strongly believed that such bushy ecosystems were home to dangerous animals. This helped in preservation of wild animals.
- (iii) "*Men Kwamin Chemololut*" was another proverb used in reference to wild life conservation strategies. This proverb literally means, one needs to be careful not to be eaten or consumed by a giant-like animal as one performs various tasks. Just like the preceding proverb, children were encouraged to work in groups (Tuei, 2006), thus promoting social cohesion and building consensus as well as unity within the community. Furthermore, it was imperative that learning centered on encouraging communal participation among the children and adults (as the children were not allowed to engage in various apprenticeship schemes without the supervision of the elders who were bestowed with the responsibility of safeguarding and preserving the natural environment for the common goal of all the members of society).

Age-set system as a social institution among the Ogiek also played a critical and significant role in environmental conservation as captured in the following selected “*Chepketilet*” songs. These songs were sang by old men and newly initiated men in a group forming a cycle and singing in turns while dancing in a rotational movement, beating a small and hard piece of leather. Most of these ‘*Chepketilet*’ songs and dances were performed at night and newly graduated men were taught how to play musical instruments such as ‘*Kikondit*’. One of the commonly sang ‘*Chepketitet*’ song was:

“*Ochomane Werichu bo Kapitelach*” (*Maina, Chumo, Korongoro*) *che Koribuech emenyon* literary meaning we are proud and love the newly initiated men for protecting and taking care of their land, trees, animals and all other creatures at their disposal (Marindany, 2006; Chelule, 2006),

The song was sung and these initiates were encouraged to soldier on to defend their land and creatures thereof as these were their resources that determined their destiny as an ethnic group. Further, these initiates were inculcated with virtues on the need to preserve their cultural heritage and respect for elderly persons in society as they were the sources of blessings for the community’s existence. This moral education was considered essential because many of the new initiates would eventually rise to high positions of authority within the community.

Moreover, as implied in the song, it was the moral and ethical education that resonated and enhanced the nature study lessons, with a view of bringing up individuals who were conscientious, friendly and taking care of the environment.

Mbiti’s (1990: 93) argument on the relationship between initiation ceremonies and nature was clearly reflected and vividly captured in this song. According to him, the blood which was shed during the physical operation bond the person to the land and consequently to the departed members of his society. Therefore, individual initiates were taught that their existence was subordinated to the natural environment and hence the need to preserve the material and the spiritual universe. However, those who went against the grain were ultimately punished in the same vein. In a nutshell, learning through oral literature (proverbs, legends, folktales etc.) among the Ogiek entailed constant correcting and warnings to the children, and youth in their broad based curriculum on the physical environment. Learners were constantly reminded to uphold proper management of the natural resources within their territory.

4. Conclusion

As already discussed in the foregoing analysis, the Ogiek people had developed a more complex wildlife conservation strategies that helped them to regulate exploitation of wildlife products and ensured that they had adequate natural resources at their

disposal. Rules and regulations governing hunting and subsequent exploitation of resources facilitated in the conservation of the environment. For instance, each *Koinoto* ('Koinotuek') or territorial units consisted of formidable hunting grounds whereby the clans were guided and controlled by rigid rules and regulations in the day to day running of the hunting activities. Observably, anybody violating the same was brought before the Council of elder's Tribunal. They did meticulously adjudicate cases of that nature with a lot of seriousness and severe punishment was administered therefore to any offender following the law of precedent without any mercy. In tandem with the Ogiek's enforcement of wildlife conservation strategies, seasonal hunting and basic trapping of small animals as well as birds were selectively done mainly for home consumption.

Totemic inclination also became another strategic mode where animals associated with certain clans were not killed or eaten by members of that same clan thus regulating indiscriminate hunting expeditions of wildlife in Mau Forest. In this way, the Ogiek generally advocated for the protection of the ancestral land right and for the conservation, management and sustainable use of their great ecosystems of Mau Forest. As already attested in this paper, Ogiek vividly acknowledge trees as part of their larger society while animals and plants, are regarded as part of their larger environment as reflected in their oral literature. As a matter of fact, due to their long cherished historical roots and protracted processes of conservation, Mau Forest until recent past has been the home to important and unique plants and animal species as already highlighted in this paper.

Hunting as practiced by the Ogiek society provided them with a clearly defined and rational utilization of available animal and plant resources. They also took into cognizance the concept of tomorrow and as such, the Ogiek had developed a complex educational philosophy based on social organization structure (demarcation of territorial hunting units) and ultimately that acted as a regulating strategy for effective and selective hunting of wildlife species. In a nutshell, it assisted them in regulating exploitation of wildlife as well as ensuring that there was constant supply of food for their present and future generations.

The management of wildlife and other resources were collectively owned by the Ogiek as a community, thus reinforcing a system in itself that provided checks and balances for effectively sound and broad based ecological management of Mau Forest ecosystem. In this discussion, it would be imperative to note that Pre-colonial Ogiek society's approach to wildlife conservation as exemplified in their indigenous education curriculum was greatly determined by their economic and social rationale.

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