

To: Rufford Small Grants Foundation

From: Naftali Mungai

Subject: Final Report of RSG 35.06.08: Building a local community conservation group and establishing ecotourism activities around the Ondiri Swamp, Kenya's only quaking bog

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Introduction:

Wetlands are recognised as important for a wide variety of flora and fauna and various functions and services. They play an important role in regulating water flow, ground water recharge, water storage, filtering of nutrients and pollutants, shoreline and microclimate stabilization and are of exceptional importance as habitats for a large number of species, especially birds. Wetland habitats are also of high economic importance for provision of water and fisheries. Wetlands in arid and semi-arid lands are an important refuge for grazing.

However, wetlands are being drained for agricultural use at an alarming rate resulting in degradation of catchment areas, pollution and unsustainable harvesting practices. Given the fragility of wetlands, there is an urgent need to strike a balance between the environmental functioning of wetland and their use for livelihood. This requires management regimes which help maintain some of their natural characteristics while also allowing for their wise use. This is the principle upon which this project is based.

The Ondiri Swamp situated about 25 kilometres N. West of Kenya's capital city of Nairobi is a fresh water wetland of economic importance that is largely threatened by anthropogenic activities. Local legend has it that it used to be an open lake in the early part of the last century and indeed the name itself is a Gikuyu language corruption of old lake (Ondiri). However, goes the legend, as deforestation and subsequent erosion accelerated, the lake came to be covered with floating reeds on peat such that now it has an extensive reed mat that covers more than 95 percent of the wetland to form a quaking bog, the biggest one in the country. A quaking bog is made up of a layer of vegetation floating over water. You can walk on the vegetation, but if you jump up and down the whole bog quakes.

The wetland covers an area of approximately 30 hectares with a perimeter of slightly over 3km. Hydrologists say the water sits on a valley of about 10kms. The Ondiri wetland lies at 2000m above sea level. The area gently slopes eastwards to around 1600m above sea level with the wetland sitting approximately 10m below the general topography of the area. To the north of the wetland, a large area on which sits Kikuyu town, slopes southwards towards the wetland.

The wetland's vegetation comprises of reeds and water grasses. This vegetation grows continuously and when it wilts, it does not decompose completely. Instead, it accumulates to form a thick layer of peat (up to 50cm thick) that floats on Ondiri's water,

The wetland provides crucial breeding sites for insects, crustaceans and amphibians. These provide adequate food for birds during breeding and migration. An earlier study also noted the huge presence of storks, egrets, ibises, hamerkops, kingfishers, cranes, plovers and painted snipes feeding on frogs, tadpoles and other aquatic fauna during the dry seasons. The Marabou Stork is also a rare visitor to the wetland. Jackson's Widows have been spotted breeding in the tall grass in the wetland (Ng'weno 1992). Ng'weno 1992 also noted that the tall grass provided security for small carnivores such as mongooses and wildcats. However, that was before the harvesting of the grass became intensive and frequent.

Rationale for community conservation and activities undertaken.

The current land use around the wetland is a mix between residential plots, small gardens, some large farms and exotic vegetation. The area has a high population density with current figures putting it at about 500 persons per km². As such, land is very important. The land is divided into small portions on which permanent or semi permanent residential structures are erected. This is attributed to the fact that residential houses have a higher return compared to small-scale agriculture.

Ondiri is a unique and an important wetland. As noted earlier, Ondiri is Kenya's only major quaking bog. It is reputed to be the second deepest wetland in Africa after Doula in Cameroon. But despite the size and benefits of Ondiri wetland to this country it has received only scant attention from researchers, writers, natural resource environmental management and the large conservation driven organisations. Equally the government, both central and local, have done little to conserve the wetland for posterity. Media mention of this wetland is also scattered and limited in scope. The swamp has for long been a classical case of 'The tragedy of the commons.' It is against this background that the author wrote a proposal to the RSG for the conservation of the swamp as a community ecotourism facility. This was done in taking due cognisance of the fact that unless the community could derive some benefit from the resource, they would not see the need for its conservation and the destruction would continue unabated.

The proposal was submitted in June 2008 and the grant was made available to the author at the end of September of the same year. The grant was for £ 6000, translating into KShs 750, 000 at the then prevailing exchange rates.

The main method of developing the swamp into an ecotourism facility was by planting indigenous trees and bamboo along the swamp edges in order to encourage more birds to come to the swamp both as a nesting and breeding site. The trees and bamboo would also anchor the soil from the steep slopes and prevent it from entering the swamp, a major cause of siltation.

But apart from being a biodiversity hotspot, Ondiri is a major source of Nairobi River and a catchment area for the Athi Water Services Board. It is a major habitat and breeding ground for both local and migratory birds. It was envisaged by the author that by conserving this swamp, the community would make a contribution by reclaiming the swamp as an important birding area and conserving its other flora and fauna. The conservation would also ensure that the Nairobi River, which the Nairobi Metropolitan Authority is planning to clean of pollutants, would be a clean river free of pollutants that would enhance the tourism potential of Kenya's capital city, like the Thames does to London City. The conservation and rehabilitation of the swamp would therefore go a long way towards conserving and enhancing the ornithological biodiversity by increasing the nesting sites and habitat for various bird

species. The swamp would be able to serve better as a breeding and resting ground for migratory birds as well as local species. In order to make the effort self-sustaining, the swamp would be developed into an important birding area where local and international tourists could go for bird walks for a modest fee.

Reforestation of the swamp and community participation would also help in absorbing carbon dioxide, thus contributing to reducing global warming. I plan to establish a bamboo and indigenous forest around the swamp. The bamboo will be sourced from the World Agroforestry Centre located in Nairobi. Bamboo is excellent because apart from providing nesting sites and habitats for birds and other fauna, the bamboo rhizomes will anchor top soils along the steep slopes and the bank along the swamp and will be very effective in controlling soil erosion. It will also be very effective in promoting soil health since it has excellent hydrological functions. It has the capacity to absorb as much as 12 tonnes of atmospheric carbon dioxide per hectare, a very valuable aspect to deploy against global warming. Indigenous trees were sourced from tree nurseries run by women's groups living around the swamp.

The first part of the project was to conduct a baseline survey of the flora and fauna of Ondiri Swamp with a view to establishing the biodiversity of the bog. So far, this has been completed and a comprehensive inventory recorded. For the purposes of this project, only bird species and vegetation were recorded. Bird species were recorded by the simple method of observing with binoculars and scoring any species observed. In total, 41 species of birds were recorded. This was a clear indication that the swamp has a very high potential of becoming an important Birding Area (IBA) The birds recorded were both local and migratory species.

I was also supposed to establish the threats facing the swamp and this has also been done although it is an ongoing exercise. New threats that had not been foreseen have been established. Among these is the construction of a road bypass, known as the southern bypass that will run over the swamp at the point where it breaks to form a source of the Nairobi River. This was shown in one of the photographs. It is too early to say what the implications of this road are but it may be significant in the development of the bog as an ecotourism facility. This is because there will be a lot of vehicular traffic along the road and this will expose the swamp to many people who did not know about it before. There was a big shock when I walked along the edges of the swamp and discovered a plantation of *Cannabis sativa*, popularly known as marijuana.

This is a clear indication that some criminals are already using the swamp to grow this narcotic which is widely used in Kenya. It was not clear who was growing the Cannabis and I reported this finding to the local police who got it uprooted.

Among the other threats facing the swamp is the growing of Eucalyptus trees along the edges of the swamp. Eucalyptus growing is big business in Kenya but this tree species is not suitable for this area. It consumes a lot of water and is normally used for draining swamps. It is recommended that it should be planted at least 30 metres from water sources but in this case, it is being grown right next to the swamp edge which is illegal. The Minister for Environment and Mineral Resources has since ordered that any such trees planted within 30 metres from wetlands should be uprooted and it is expected that this will be done soon. Tree and bamboo planting have been carried out several times and now there are more than 5,000 indigenous trees and more than 1500 bamboo plants in the swamp.

The main constraint to tree and bamboo planting was the protracted drought that prevailed throughout the better part of 2009. This meant that some of the trees and bamboo had to be watered. The project engaged two casual labourers to keep watering them until the onset of the short rains which were expected in September/October 2009. However, the trees are doing well and so is the bamboo. From the way they are growing, it is expected that the swamp will look quite different in the next year or so. The Kenya Meteorological Department, had predicted El Nino rains but these were late and only fell in January 2010. This has been a boon for the project as more trees and bamboo can be planted with a guarantee that they will receive adequate water for sustained growth. This is expected to be done in late January 2010. Efforts to elicit support from other organisations have not been very successful although some have pledged to help in buying some tree and bamboo seedlings during this season. The lukewarm support can be largely attributed to the economic downturn facing the country.

The education and communication campaign has been very successful and public awareness about the swamp has risen considerably. More than 500 posters have been printed and these have been displayed in both public and private places e.g. schools and shopping centres (see pictures).

For the first time, the logo of the Rufford Small Grants Foundation was used in the posters. The posters also include the friends of Ondiri Wetland Conservation (FOWCON) information although a logo for the organisation is yet to be designed. This is underway.

Efforts are also underway to start tree nursery work so that more seedlings can be available in the future. Women of the Maai Moru Women's group are already preparing the nurseries and seeds have already been purchased from the Kenya Forestry research Institute (KEFRI). I am also intending to attach a young person to KEFRI so that they can be trained on propagation of bamboo from cuttings. This will help in getting bamboo at a cheaper price instead of buying seedlings which are quite expensive and sometimes not readily available.

Despite government warnings against encroaching on wetlands, a number of grass harvesters are still invading the swamp to harvest fodder for their livestock. This is having a negative impact on the ecosystem as it exposes the cleared areas of the swamp to increased solar radiation and thus increased evaporation. The encroachment of the Eucalyptus is expected to be halted soon when the government is expected to issue orders banning the planting of these trees less than 30 m from the water's edge. The directive has already been put into force along rivers but not in wetlands yet.

It is expected that the next phase of the project will be an intensification of the community education initiative. It is also expected that the Community Education and Resource Centre will be started then. I am hoping that a well-wisher will donate some office space within Kikuyu town for this purpose since the project resources are not enough to rent a building at this stage.

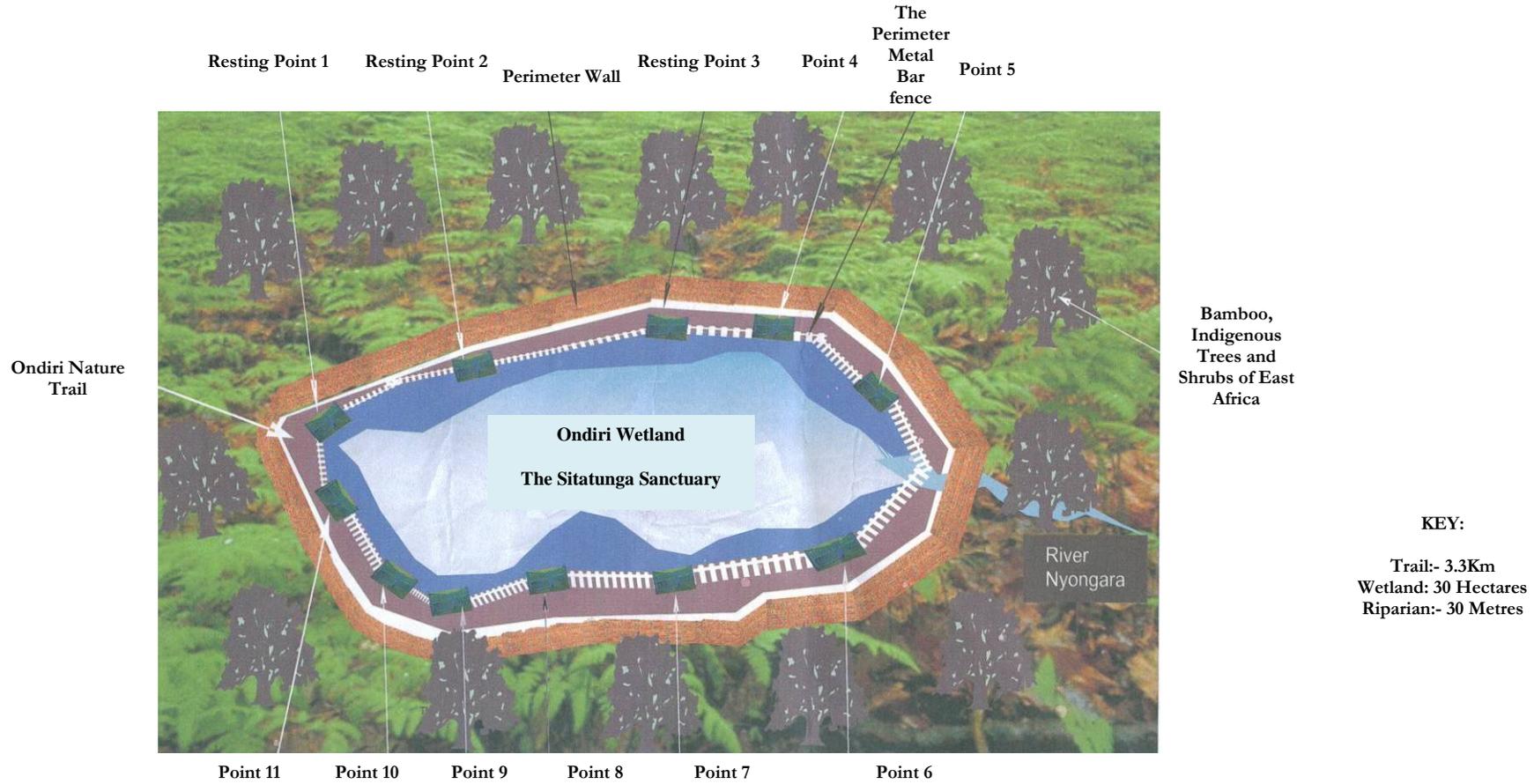
In June 2009, I and other like-minded individuals and groups in the Kikuyu District, home to the Ondiri Swamp, registered a Community-Based Organisation, the Friends of Ondiri Swamp (FOWCON). FOWCON was registered under the Ministry of Gender, Children and Social Development. Its membership stands at more than 400 people and among the members are several women's groups. Its mission is the conservation of Ondiri Swamp and equitable sharing of benefits accruing from it. I am the organizing Secretary of the Organisation.

On a more positive note, the project has attracted the interest of Ecotourism Kenya. Ecotourism Kenya is a civil society organisation that was founded in 1996 to promote

ecotourism and sustainable tourism practices in Kenya. Founded with enormous industry support, the society was charged with the responsibility of providing the required support for the development of ecotourism and sustainable tourism in the country. Today, the society continues to pursue the vision of making Kenya's tourism sustainable, in terms of concern for the environment and the welfare of local populations. As a membership organisation, Ecotourism Kenya brings together individuals, community-based organisations (CBOs) and corporate organisations in a forum where they can discuss the concept of ecotourism and use this knowledge to improve practices in their respective fields. FOWCON joined Ecotourism Kenya in December last year.

In the advocacy arena, FOWCON, the Public Complaints Committee (PCC) and the Millennium Community Development Initiative (MCDI) co-hosted a three-day stakeholders' forum on environmental management. The PCC is established under the Environmental Management and Coordination Act (EMCA) as an independent and impartial entity charged with the mandate of conducting in-depth investigations of complaints against any person in Kenya on issues of environmental degradation, pollution and destruction. The MCDI is a local organisation that promotes environmental conservation and sustainable activities through research, awareness creation, lobbying and advocacy. The workshop attracted a large number of participants from diverse organisations. I presented a paper on the community conservation options for the swamp and the chairman of FOWCON, Dr Kang'ethe Gitu, presented a paper on sustainable development and environmental conservation.

Figure 1: Artist's impression Ondiri Wetland after conservation measures



Appendix 1: Common names of birds sighted at Ondiri Wetland

Abyssinian White Eye
African Bush Warbler
African Citril
Angur Buzzard
Black Kite
Blacked Hacked Weaver
Brenzemannikin
Bronze Sunbird
Cinnamon Chested Bee-eater
Common Bulbul
Common Fiscal
Common Stonechat
Common Waxbill
Crested Crike
Emerald Spotted Wood Dove
Grey Crowned Crane
Harmakop
Hunters Cisticola
Lawny-Flanked Primia
Little Rush Warbler
Marabou Stork
Olive Thrush
Park Capped Yellow Warbler
Pied Crow
Red Billed Firefinch
Red Collared Widowbird
Red Eyed Dove
Red Rumped Swallow
Red Throated Wryneck
Rock Martin
Sacred Ibis
Singing Cisticola
Speckled Mouse Bird
Streaky Seedeater
White Eyed Slaty Flycatcher
White Rumped Swift
Yellow Bishop
Yellow Crowned Canary

Appendix 2: The vegetation of Ondiri Swamp.

Grasses

Typha dimingensis
Phragmites spp.
Vossia cuspidate
Cyperus brevifolius
C. kyllunga
C. brevifolia
Leersia hexandra

Eragrostis exasperate
Erichloa Meyerana
Polygonum pulchrum
Biden pilosa
Oxygonium simatum
Sphaeranthus gomphrenoides

Trees

Melanthera scandens
Grevillea robusta
Lantana camara
Eucalyptus spp
Jacaranda mimosifolia
Croton megalocarpus
Croton megastachyus
Ficus spp.
Acacia melanoxylon
Podocarpus spp.

NB-This tree biodiversity has increased tremendously since more than 30 other tree species have been added by the project as well as bamboo.

