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Saving the Lower Tana River Forest Complex: Can P-GIS help?

Why worry about Lower Tana River Forests?

Kenya has been struggling with maintaining the remaining 2.3% of the national forest cover. Forest conservation has been a major issue in Kenya, with the government and environmentalists joining hands to stem forest destruction. A case in point is the recent forceful eviction of communities that settled in the Mau forest in the Rift Valley. The eviction from the Mau forest was necessitated by the drying up of the rivers that it serves as a water tower.

Like the Mau forest, the Lower Tana River Forest (LTRF) Complex faces a major threat from human encroachment. The forest, which was once a continuous strip along the lower Tana River, has been reduced to patches by the competing land uses. Yet, the LTRF represents lowland evergreen riverine tropical forest types which makes it a unique type of forest in Kenya and probably in Africa. In addition, the biodiversity of the riverine forest such as LTRF is widely recognized. Indeed, the flora in the LTR forest complex is quite

The programme

The overall objective of this pan-african programme of research is to contribute to making available good quality, reliable and accessible information systems through the application of the P-GIS approach to improve natural resource management (water, land and forest in particular) and promote food security. The programme will also support social change in study countries (Benin, Kenya, Malawi, Rwanda, Senegal, Tunisia) by developing P-GIS as methodological tools for participation and to inform decision-making.



Tana River Mangabey: Seriously endangered due to destruction of the Tana River Forest complex. © Julie Wieczkowski / www.arkive.org



Tana River Red Colobus: listed in the top 25 most endangered species

diverse and comprises a mix of pan-African species of western and central African rainforest species and eastern and coastal forest endemic species, with at least 10 rare woody plant species. The LTRF is also home to two highly endangered primates namely, the Tana River red colobus *Colobus badius rufomitratus* and Tana River mangabey *Cercocebus galeries galeries*. Thus conserving the LTR forests has both ecological and economic benefits. In fact, part of this forest was gazetted by the Kenya government in 1976 as a National Reserve. Since then there have been efforts to involve the private sector, the Kenya Wildlife Service and community in the management of the forests. This has given rise to a four forest management regimes with all the regimes fighting to save the Tana River Forest Complex from complete destruction.

So what really is behind the destruction of Lower Tana River forests?

Discussions with stakeholders including communities within and around the forests, local administrators as well public and private conservation agencies indicate that a number of factors are responsible for the current destruction of the forests and hence the threat to biodiversity and other economic and ecological benefits. These are:

1. The search for food security

The forest has over the years been invaded by communities around it to create land for farming. Large areas of the forest were, in the 1970s, used to settle landless communities who converted the forests into farmland. More recently, the forest has been invaded by individuals who migrate from Malindi district, Kilifi district, and even upcountry in search of farm land. Invariably, these new forest settlers indicate that they faced difficulty feeding their families where they migrated from due to lack of land or because the soils had become too poor hence could not produce enough. The new settlers engage in different types of farming activities. These include food crop farming, cash crop farming, and cattle farming, with maize (the food staple in Kenya) being the dominant crop grown.

2. Improved security in the area

The LTR forests were for a long time used as a hideout by armed Somali bandits (also known as “shiftas”) who would attack and rob communities around the forests of their cattle and household items. The bandits also robbed vehicles that plied the Lamu – Malindi road from their hideouts in the forests and also attacked locals who ventured into the forests to settle and farm. In the last 10 years, however, the government has succeeded in routing the bandits out of the forests. This has made it safe to settle and farm in the forests. Consequently, there has been an increase in the number of individuals moving into and settling in the forests to farm.

3. Migrants from upcountry

The forest conservation agents observed that there has been an increase in the number of individuals coming from upcountry to settle in Lower Tana River forests in the last 2 years. These individuals are mostly from the communities that were evicted from Mau forests. Discussions with local community members and administrators also suggested that some of the immigrants to the forests were families who were displaced from the Rift Valley by the 2007-2008 post-election violence. The defining characteristic of these new immigrants are new homes, fresh-cut forests and new farms. One key informant said, “These people come from Nairobi in a full bus headed for Lamu. However, by the time the bus arrives in Lamu, it will be empty. They drop off the bus along the way, clear the forest, build a house and start farming all in one day!”



Part of Tana River forest land converted into maize fields



Mixed farming involving grazing and growing of cashew – a cash crop

4. Lifestyle change

Another driver of LTRF destruction is the change in lifestyle. In the past, a large number of the communities around the forests lived as pastoralists. The recurrent droughts in Kenya has however encouraged most these livestock farmers to transition into mixed farming characterized by crop farming and livestock rearing.

Can P-GIS help stem the threat to LTRF complex?

Focus group discussions and resource mapping sessions with communities living in the forests revealed that forums that discuss the impact of forest destruction can influence people's actions. During the trial resource mapping sessions, the community participants listed

some of the challenges they are encountering as a result of declining forest cover in the area. These included the frequency of extreme weather such as droughts (some very severe leading to livestock deaths) and floods, difficulty in getting medicinal herbs, and rivers drying too early. Other benefits the community is missing due to forest destruction are tree materials for making mats (by women), timber for building and tree materials for making beds.

P-GIS has the advantage that the decline in forest cover over the years traced through resource mapping can be combined with GIS images and presented to the communities in the context of the challenges they encounter. This can reinforce the training on the benefits of conserving forests and hence biodiversity.



Resource mapping session with LTR community members: such sessions can be combined with P-GIS in sensitizing communities to conserve LTR forests