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THE ULUGURU SLOPES PLANNING PROJECT: PROMOTING COMMUNITY INVOLVEMENT IN BIODIVERSITY CONSERVATION

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ABSTRACT

The Uluguru Mountain forests of Eastern Tanzania are of high importance both for the conservation of biodiversity, and as a water catchment area for major urban centres. Only about 270 km^2 of forest is thought to remain, mostly inside forest reserves. The most biologically valuable sub-montane forest has been badly affected by habitat destruction and only a small area in the north-east Ulugurus remains.

The main objective of the Uluguru Slopes Planning Project was to research the resource utilisation practices of villagers and their attitudes to forest conservation in the Ulugurus, through a socio-economic survey using participatory techniques. The findings demonstrated both that local communities are aware of the importance of forest conservation and that excellent examples of sustainable land management do exist. The results of the survey fed in to the planning of a follow-up project (funded by DANIDA), a key element of which will be the dissemination of this best practice more widely around the mountains.

INTRODUCTION

The Uluguru Mountain forests (figure 1) of eastern Tanzania are of global importance for biodiversity conservation. For example, these forests have been ranked 15th highest in mainland Africa for their bird fauna (Collar & Stuart, 1988) and sixth for all vertebrates (Burgess & Fjeldså, 1997). They are also among the top sites to be identified as Important Bird Areas in the Tanzania IBA directory (Baker & Baker, in prep), part of a global initiative undertaken by BirdLife International. Key bird species are shown in table 1.

Other elements of the fauna that are important include three species of mammals on the IUCN Red List—black-and-rufous elephant shrew *Rhynchocyon petersi*, Abbott's duiker *Cephalophus spadix* and one galago species (either *Galago zanzibaricus* or *G. orinus*). Three species of reptile are Uluguru endemics, with a further 10 of the 22 forest species being Eastern Arc endemics. Six amphibians are also endemic to the Ulugurus with a further 11 of the 26 forest species being Eastern Arc endemics (Scharff *et al.*, 1981; Burgess *et al.*, this volume).

Amongst the invertebrates, 23 of 28 millipede taxa are endemic (Sørensen, 1995), 14 of 17 species of linyphiid dwarf spiders (Scharff, 1993), ten out of 37 species of butterflies (de Jong & Congdon, 1993), and 41 of 43 montane ground-beetles are endemic (Basilewsky, 1976).

Table 1. Endemic and rare birds in the Uluguru Mountains

Uluguru endemics	Eastern Arc endemics	Restricted range
Uluguru Bush-shrike *Malaconotus alius*	Usambara Eagle Owl *Bubo vosseleri*	Kenrick's Starling *Poeoptera kenricki*
Loveridge's Sunbird *Nectarinia loveridgei*	Tanzanian Mountain Weaver *Ploceus nicolli*	Uluguru Violet Backed Sunbird *Anthreptes neglectus*
	Banded Sunbird *Anthreptes rubritorques*	Southern Banded Snake-eagle *Circaetus fasciolatus*
	Sharpe's Akalat *Sheppardia sharpei*	Spotthroat *Modulatrix stictigula*
	Mrs Moreau's Warbler *Bathmocercus winifredae*	Red Capped Forest Warbler *Orthotomus metopias*
		White Chested Alethe *Alethe fuelleborni*
		Chapin's Apalis *Apalis chapini*
		White-winged Apalis *Apalis chariessa*

The Ulugurus are also rich in endemic plants, especially herbs (examples being three to four *Linnaeopsis* species, and 19 *Impatiens* species). There are also many endemic epiphytic Orchidaceae due to the high rainfall and frequent mist cover. Three species of ferns and ten species of mosses and liverworts are also endemic (Høst *et al.*, 1995).

Apart from the exceptional levels of endemism, the Uluguru forests are also very important as a major catchment area for rivers supplying water to larger towns (*e.g.* Morogoro and Dar es Salaam) and to agricultural areas in the adjacent lowlands, and for preventing soil erosion on the steep slopes. Other actual or potential benefits of the forests are for providing sustainable forest products (including timber, medicinal plants, honey, etc.), and from eco-tourism, which could generate tangible benefits for some people living close to the forests.

Only about 270 km^2 of forest are thought to remain, mostly inside forest reserves (*e.g.* Fjeldså *et al.*, 1995). Increasing human population and thus resource-use pressure is the main threat to the forests, manifesting itself in fragmentation, felling of trees for timber, firewood and building pole collection, uncontrolled fires, and clearance for subsistence and cash-crop cultivation. Poverty and resource scarcity has forced Uluguru people to practice some unsustainable land management systems (Lyamuya *et al.*, 1994). There are also problems of deforestation caused by limited commercial timber extraction and by the 'urbanisation' of the surroundings of Morogoro town.

The history of natural resource conservation in the Uluguru Mountains dates back to 1909 with the gazettement of about 277 km^2 as forest reserves (Temple & Rapp, 1972). A major conservation effort aimed at addressing the problems of degradation of the catchment value in the Ulugurus was initiated in the mid-1940s—the Uluguru Land Usage Scheme (ULUS). Although the project had some successes, most of the measures undertaken failed. The main factors leading to its downfall included poor research prior to implementation, the multiplicity of orders and rules, widespread corruption/indifference among the headmen and the instructors, heavy labour demands, technical deficiencies, and socio-economic and cultural difficulties over land ownership and control.

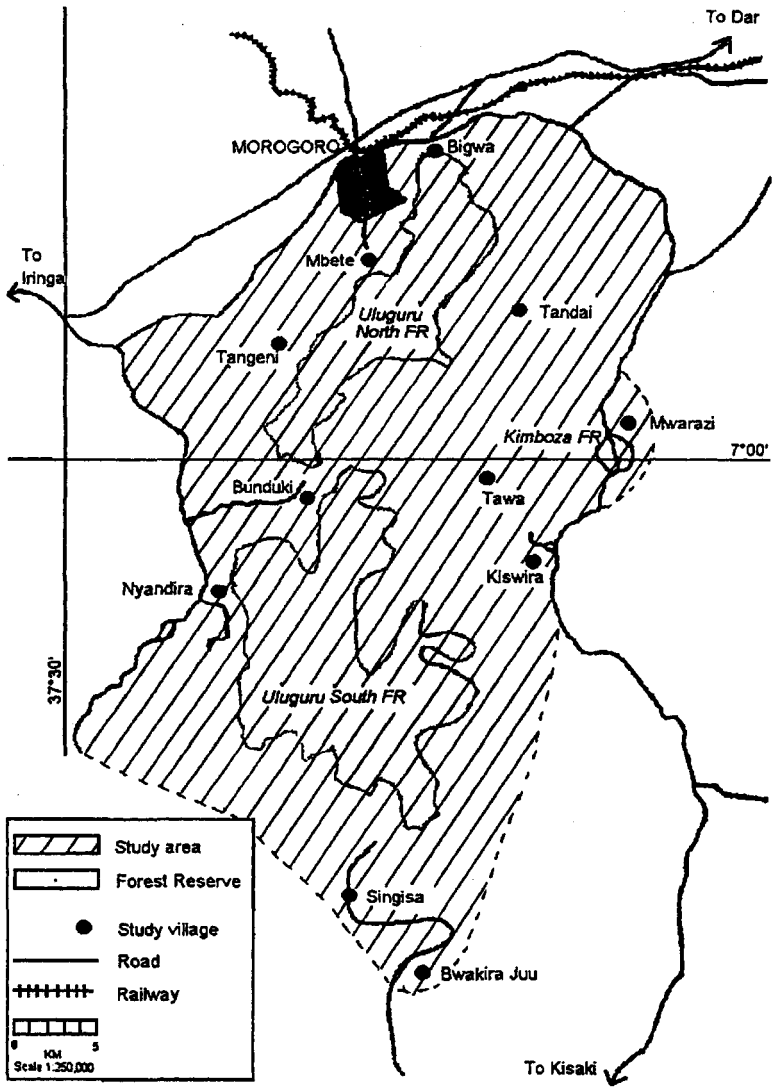

Figure 1. Map of Ulugurus showing study area, main roads main biodiverse forest reserves, study villages.

After ULUS, there was little attempt at any further conservation work in the Ulugurus until recently. The Uluguru Slopes Planning Project, a joint project of the Government of Tanzania, the European Union and BirdLife International, was set up with the aim of renewing co-ordinated efforts for natural resource management.

METHODS

The project undertook a wide range of activities. This included facilitating further ornithological and wider biodiversity research (USPP Report No. 1—Svendsen & Hansen, 1995), assistance with the management of local tree nurseries, especially the main regional

nursery in Morogoro (Noah, 1996), and the development of a local environmental network (Bhatia & Forester, 1996). However, the focus of the programme, and of this paper, was research into environmental problems and potential solutions as perceived by the Uluguru communities themselves.

The main technique used in this research was Participatory Rural Appraisal (PRA). PRA is a consultative approach to understanding general or specific local issues and problems (Pretty *et al.* 1995). The outsiders (researchers and extensionists) play a facultative role while the insiders (usually local communities) participate in all stages to diagnose and analyse the constraints, opportunities and locally acceptable solutions.

PRA was used extensively by the Uluguru Slopes Planning Project. The principal aim was to understand how the villagers lived and what sorts of demands they were making, both spatially and temporally, on the various natural resources within the area.

Both verbal and visual techniques are used which include diagramming, semi-structured interviews, transect walks etc. Not all information directly relates to natural resources but we built up a picture of the problems and constraints facing Ulugurus communities.

The facilitators were a multi-disciplinary team who underwent training in PRA methods before carrying out field work in 11 villages between November 1995 and March 1996. A Tanzanian socio-economist was employed for seven months and the project also employed a consultant socio-economist to help design the socio-economic survey, train the PRA team and also to have a major input in to the design of the project proposal to follow the planning phase.

A very successful training course using trainers/facilitators of international standing was organised by the project in late 1995. A comprehensive report on the training has been produced (Forrester *et al.*, 1996).

The villages were chosen by the whole PRA team with a view to visiting a series of communities with diverse physical and social character. The survey technique first involved general PRAs to look at key issues for the local people and then focused in on the forest and those issues that related to natural resource use. Apart from the field data collected by the project, use was also made of data available via different individuals/organisations working in the Ulugurus.

RESULTS

The full findings of the survey and the main identified constraints and opportunities are presented in USPP Report No. 3 (Bhatia & Ringia, 1996). PRA diagrams from the USPP fieldwork are published as USPP report No. 4 (Nyingi & Bhatia, 1996).

The main issues relating to environmental degradation and deforestation were found to be agricultural expansion, poorly developed agricultural systems, direct forest use and incidental forest damage. The actual reasons for these were invariably found to be quite complex. The following gives a summary of our main findings.

General aspects

The population of the area is increasing (at 2.8 % a year on average with higher rates in some areas) with consequent land pressure.

A major limiting factor on marketing the produce is the state of the roads, though it is likely that this is also preventing even higher forest exploitation.

There are some fairly distinct zones in the Ulugurus in relation to agricultural techniques, forest use, market access, forest damage, interest/organisation of possible community forest trials and soil conservation activities.

Traditional systems still have an important part to play in village life though the higher the commercialisation the more these are being eroded.

General facilities are limited as is typical of most rural areas in Tanzania.

Main causes of deforestation

- scarcity of arable land.
- under-planting of natural forest.
- poor agricultural systems/technologies, especially in the south-east Ulugurus.
- decline of soil fertility and hence crop yield.
- bush fires especially in forest edge close to Morogoro and in the south.
- continued commercial forest use.

Agriculture

Bench terracing was introduced in the 1950s as part of the Uluguru Land Usage Scheme (ULUS) and was/is unpopular, but the local ridging method (*Matuta*) practised before bench terraces were introduced is still used in some areas.

A wide variety of inter-cropping, mixed cropping and alley cropping methods are used, although not in all areas. The main reasons for inter-cropping were stated as being to optimise labour/land, reduce risk and provide a diversity of food and cash. Home gardens are common around dwellings. There are some good examples of some modern techniques such as fish ponds, zero grazing, composting, etc. Despite this there are seasonal food shortages, particularly in cereals, due primarily to low production (yield/unit area) and pests and diseases.

Cash crop production is not diversified enough (dominated by bananas at present). Poor roads (and hence market accessibility) and inefficiency of co-operatives (which led to the abandoning of coffee, cocoa, spices, etc.) were reasons given for the low diversity of crops. Livestock are limited primarily due to: the scarcity of grazing land, Newcastle disease (of poultry), the absence of livestock-keeping culture, lack of zero grazing technology and other intensive agricultural extension knowledge.

Gender and household issues

In the northern Ulugurus, women tend to be more restricted to farming and household activities (food security) while men do more off-farm activities. In the south, however, women have a greater role in income generation (*e.g.* banana carrying at Nyandira). Local systems of land ownership dictate the decision making relating to natural resources *e.g.* tree planting.

Tree cutting/felling is generally viewed as a man's activity. Local brewing is an important income generating activity for women but puts extra pressure on firewood resources (brick making may also contribute heavily to this and is likely to increase in the future). Many of the production resources and benefits from agriculture are controlled by men.

Forestry

There are a number of issues and problems relating to the relationship between the villagers and the Uluguru Forests, and the local Forestry Department authorities. These can be summarised as follows:

- Villagers do not feel a sense of ownership of the forest.
- Village governments are felt to be weak and often corrupt in relation to forest usage. Most people say that only a few are reaping the benefits.
- Most large-scale timber production is done by the Hehe tribe from Iringa Region.
- Pit sawing is still occurring, even in the Forest Reserve and is intensive in the remaining Public Forest. Legislation is not working and there appears to be a number of loopholes.
- The natural forest is still used for local purposes and in some areas the disturbance can be quite high.

DISCUSSION

The work offered many insights into the key issues in the villages, particularly as these related to forest conservation.

One of the most important findings is that there is a very broad range of local knowledge of improved agricultural technologies and resource conservation methods, with many local innovators and experts. However, the spread of this knowledge is often limited. Despite the fact that there are people in a village who fully understand the practice of agroforestry or terracing for example, others in the same village do not. The use of the more innovative people in extension approaches seems a very positive route for the future—*i.e.* 'training from within'. We were shown some examples where the Uluguru Mountains Agricultural Development Project (UMADEP) have used this approach.

The main cause of deforestation stems from the scarcity of, and poor management of, surrounding agricultural land. We conclude that nature conservation agencies, who may traditionally have perceived that their work should focus inside the forest, should focus primarily on the working landscape outside of the forest. However the traditional activities of forest patrol and enforcement should not be neglected entirely—more that forest officers should involve the community in their work rather than viewing them as opponents.

At the same time, research is needed into ways in which the forest could be used by local people to provide economic benefits without incurring unacceptable levels of environmental damage. Examples could include the development of ecotourism facilities, the sustainable harvesting of forest products such as poles, mushrooms, and plants for medicinal and agricultural use, and the more controlled use of timber products from remaining public forests.

Villagers feel that village governments are ineffective in managing forest resources. However, the official structures will inevitably continue to have an important role in regulating activities. Rather they must be encouraged to become more accountable and effective in their operation. At the same time, support can be given to other community-based organisations emerging in the area, such as environmental networks based around community tree nurseries or schools.

There is an interest in agro-forestry and the attitude to tree planting is generally positive. However local systems of land ownership often constrain planting initiatives and in most of the Ulugurus there is both an absolute lack of land for extensive replanting and a lack of seed at affordable prices for the preferred species (Mhagama & Nyingi, 1997).

Future work in the Ulugurus will draw heavily on the perceptions and needs expressed by communities during the PRA work. Further conservation work has been continued by UMADEP and the local Catchment Forestry and Regional and District Forestry authorities. In 1999 this work will be augmented through support from BirdLife International (Danish Ornithological Society and Wildlife Conservation Society of Tanzania—BirdLife Denmark

and BirdLife Tanzania respectively) using funds made available by DANIDA—the Danish Government Aid Agency. Further support to conservation work is being provided by NORAD—to Catchment Forestry, and is expected from the Global Environmental Facility (GEF) in the coming years. A wide sector of the local population will be involved in implementing these projects. Their representatives have already been involved in the Uluguru Slopes Planning Project. It is hoped that the benefits will be widely felt, but most directly among those, such as farmers, small producers and others who show innovation in sustainable resource use and management.

Specifically we recommend that the main outputs of future work in the Uluguru Mountains should be to ensure that:

- Members of rural communities and Government officials are working more effectively and closely together so as to ensure the management and sustainable utilisation of the forest and farm resources of the Ulugurus.
- Improved management of forest resources is in place, through appropriate research on sustainable utilisation and assistance to small community-owned nurseries growing indigenous trees for local sale.
- Households in the project area experience a significant increase in income through a range of interventions that are compatible with, and support, the maintenance of the area's ecological integrity. These will include both on-farm activities and off-farm activities such as food processing and ecotourism.
- Information exchange is facilitated through the establishment of a network to facilitate collective decision making on farm and forestry land management, and ward-level extension teams to interact between the project staff and village communities.
- There is an increased awareness of the importance of the Uluguru Mountains locally, nationally and globally. This requires both awareness-raising work and educational support amongst the Uluguru communities but also the raising of the profile of the Ulugurus both internationally, in Dar es Salaam and in other urban populations within Tanzania.

It is hoped that after an initial project phase, the Uluguru Slopes communities have much greater participation in, commitment to and benefit from the maintenance of an ecologically diverse, healthy and productive natural resource base in the Uluguru Mountains. While the emphasis of many projects will be on capacity building and self help, it is recognised that an overall integrated conservation and development project for the area will require a minimum 10 to 15 year period of work in a region in order to achieve its goals. All of the partners in such a project must have a long-term commitment to the area so as to ensure that this happens.

Each of the Eastern Arc forests has different environmental, social and economic characteristics, and the solutions to their conservation will be unique. Nonetheless we believe that both the approach and findings arising from the Uluguru Slopes Planning Project offer valuable lessons for those attempting conservation programmes elsewhere in the Eastern Arc Forests, and indeed beyond.

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REFERENCES

Baker, E. & N. Baker (in prep). *A Directory of Important Bird Areas of Tanzania*. Wildlife Conservation Society of Tanzania, Dar es Salaam.

Basilewsky, P. (1976). Mission entomologique du Musée Royal de l'Afrique Central aux Monts Uluguru, Tanzania. 19. Coleoptera, Carabidae. *Revue de Zoologie Africaine* **90**: 671–722.

Bhatia, Z. & K. Forrester (1996). *Proceedings of the Morogoro/Uluguru networking meetings held in March and April 1996*. USPP Report No. 5, Morogoro.

Bhatia, Z. & O. Ringia (1996). *Socio-economic survey of selected villages in the Uluguru Mountains, Tanzania*. Uluguru Slopes Planning Project Report No. 3. Royal Society for the Protection of Birds, Sandy.

Burgess, N.D. & J. Fjeldså (1997). The biological importance of the Eastern Arc in an African context. *The Arc Journal* **6**: 10–11.

Burgess, N.D., J. Fjeldså & R. Botterweg (this volume). The faunal importance of the Eastern Arc Mountains in Kenya and Tanzania. *Journal of the East African Natural History Society*.

Collar, N. & S. Stuart (1988). *Key Forests for Threatened Birds in Africa*. International Council for Bird Preservation (Monograph 3), Cambridge.

Fjeldså, J., J.O. Svendsen & L.A. Hansen (1995). Section 1. Executive Summary. In J.O. Svendsen & L. Hansen (eds), *Report on the Uluguru Biodiversity Survey 1993*. USPP Report No. 1, Sandy. Pp 5–16.

Forrester, K., S. Evison & Z. Bhatia (1996). *Participatory Rural Appraisal training in the Uluguru Mountains, Tanzania*. USPP Report No. 2, Morogoro.

Høst, P., J.C. Lovett, C. Mabula, S. Mhagama & B. Shirima (1995). Section 8. Botany. In J.O. Svendsen & L.A. Hansen (eds), *Report on the Uluguru Biodiversity Survey 1993*. USPP Report No. 1, RSPB, Sandy. Pp 64–68.

Jong, R. de & T. Congdon (1993). The montane butterflies of the Eastern Afrotropics. In J.C Lovett & S.K. Wasser (eds), *Biogeography and Ecology of the Rain Forests of Eastern Africa*. Cambridge University Press, Cambridge. Pp 133–172.

Lyamuya, V., L. Noah, M. Kilasara, E. Kirenga & N.D. Burgess (1994). *Socio-economic and land use factors affecting the degradation of the Uluguru Mountains catchment in Morogoro Region, Tanzania*. RNRO/RSPB, Morogoro and Sandy.

Mhagama, S. & J. Nyingi (1997). *Sustainable nurseries areas and tree planting in the Uluguru Mountains, Morogoro, Tanzania*. RNRO/USPP, Morogoro.

Noah, L.G. (1996). *The Regional Natural Resources Office tree nurseries, Morogoro, Tanzania*. USPP Report No. 7, Morogoro.

Nyingi, J. & Z. Bhatia (1996). *PRA diagrams from a socio-economic survey in the Uluguru Mountains, Tanzania*. USPP Report No. 4, Morogoro.

Pretty, J., I. Guijt, J. Thompson & I. Scoones (1995). *Participatory Learning in Action: A Trainers Guide*. IIED Participatory Methodology Series, London.

Scharff, N. (1993). The linyphiid spider fauna of mountain forests in the Eastern Arc Mountains. In J.C. Lovett & S.K. Wasser (eds), *Biogeography and Ecology of the Rain Forests of Eastern Africa*. Cambridge University Press, Cambridge. Pp 115–132.

Scharff, N., M. Stoltze & F.P. Jensen (1981). *The Uluguru Mts., Tanzania. Report of a study tour 1981*. Zoological Museum of Copenhagen University, Copenhagen.

Sørensen, L. (1995). Section 7. Invertebrates, with the main emphasis placed on millipedes. In J.O. Svendsen & L.A. Hansen (eds), *Report on the Uluguru Biodiversity Survey 1993*. USPP Report No. 1, RSPB, Sandy. Pp 60–63.

Svendsen, J.O. & L.A. Hansen (eds) (1995). *Report on the Uluguru Biodiversity Survey 1993*. USPP Report No. 1, RSPB, Sandy.

Temple, P. & A. Rapp (1972). Landslides in the Mgeta area, Western Uluguru Mountain, Tanzania. *International Geography* 1972, 2. University of Toronto Press, Toronto.