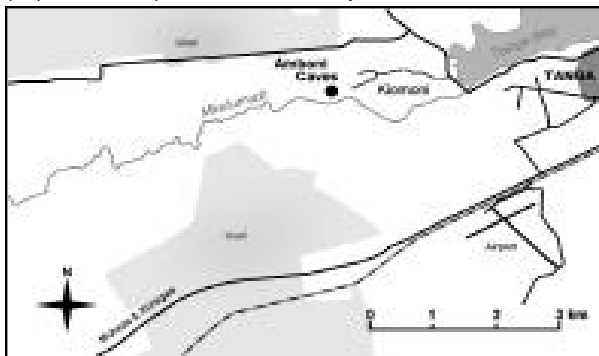


Urgent Need for Restoration of the African Violet habitat in the Amboni Caves, Tanga, Tanzania

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African Violets (*Saintpaulia*) are one of the best selling ornamental plants in the world. The Amboni Caves near Tanga town are perhaps the best known and most interesting of the few lowland African Violet localities still existing in Tanzania. The Amboni Caves are one of the main visitor attractions in Tanga but African violets have been neglected as a tourist attraction as most visitors to the caves are not aware that there are African violets growing there. Due to forest clearance around the caves the habitat has been severely degraded and the population of African violets is now in a miserable state. Contrary to some recent speculation on the extinction of *Saintpaulia* at Amboni Caves, we report that a small population still grows in the immediate vicinity of the caves and that restoration of the population is possible and well justified.



A Map showing the location of Amboni Caves and Mkulumuzi River

The population of African violet (*Saintpaulia ionantha*) grows on limestone rock faces in the immediate vicinity of the Amboni Caves along the Mkulumuzi River ca. 5 km to the west of Tanga. Plant collectors, professional botanists and other nature explorers have visited the site since the late 1880's when African violets were first found in the coastal forests near Tanga. In addition to their biological value, the Amboni Caves have important cultural functions. The caves have religious significance for local people.

The African violet population of the Amboni Caves was surveyed in late September 2003 as part of the activities of the pilot *Saintpaulia* Conservation Project which is a joint initiative of the University of

Helsinki Botanical Garden, the Finnish *Saintpaulia* Society, the Tanga Regional Catchment Forest Office and Amani Nature Reserve. African violet individuals were found to occur along a 300 metre stretch along the limestone rock face of the Caves Conservation Area. Altogether 402 adult plants were recorded in the vicinity of the caves, of which 115 were bearing flowers or fruits. Moreover, 170 seedlings were found near fertile adult plants. Small patches and scattered individuals were also found along the Mkulumuzi River about 2,5 km to the west of the Amboni Caves. The plants further up the river were found to have characteristics of *S. diplotricha*.

The Amboni Caves and the Mkulumuzi River habitat is badly altered as forest is almost totally cleared except for a few trees growing on the base of the limestone outcrops. In the absence of sufficient shade, scattered African violet individuals are persisting under the shade of small shrubs, climbers and large herbs hanging from the upper part of the rock. Because of lack of tree canopy, the habitat is very dry, thus many of the African violets were stressed due to water shortage and excess light. There are very few suitable sites for the regeneration of the African violet so the few seedlings were confined to small terraces of the rock face where, due to accumulation of humus, conditions are more stable for seedling establishment. Rooting of leaf propagules, a common means of vegetative regeneration in the humid mountain forests, was not observed at the Amboni Caves.

Most of the lowland forests, including forest around the Amboni Caves, has been cleared during the last 100



A view of the Mkulumuzi river valley. Photo by Johanna Kolehmainen

years and unsustainable use of the forest continues as most of the remaining forest has no protected status. Collection of firewood, tree felling for charcoal production and forest clearance for agriculture are the main threats, along with pole cutting and occasional pitsawing. Limestone quarrying which takes place to the north and east of the Amboni Caves Conservation Area is also a threat to the African violet populations, which are dependent on the limestone outcrops for substrate. The Amboni caves are protected under the Antiquities Department of the Ministry of Education and Culture, but the vegetation around the caves is not included within the protected area. In fact, the Antiquities Department has recently cleared more trees from the immediate vicinity of the caves entrance to make the caves more enticing for tourists.

Unless a habitat restoration programme is started it is possible that African violets will go extinct in the Amboni Caves and the whole Mkulumuzi River gorge within a few years. Systematic monitoring of plant numbers has not been conducted but the number of African violet individuals at the Amboni Caves is known to have declined dramatically in the past five years. A habitat restoration programme would ideally involve the following activities:

- Planting of indigenous trees to restore forest around the Amboni caves and in the whole Mkulumuzi River valley
- Artificial creation of favorable micro habitats for African violet seedling establishment
- Survey and demarcation of new conservation area boundary
- Increasing awareness of the importance of the conservation of the Mkulumuzi riverine forests

The conservation effort will not be sustainable without incorporation of the local communities, thus we recommend the following community activities:

- Reducing pressure on the remaining riverine forest patches by establishing tree nurseries and woodlots
- Facilitating alternative income generating strategies such as sustainable agriculture, beekeeping and tourism

The Amboni Caves and the Mkulumuzi River valley have all possibilities to become a commercially important tourist

attraction with educational, recreational and scientific function as it harbors beautiful riverine landscape with many poorly studied rare species of plants, birds, mammals and reptiles. A tourism development project should include:

- Improvement of visitor services and marketing, and linking with tour operators
- Establishment of nature trails with camping and picnic sites in the river valley
- Visitor guiding and selling of crafts by local communities
- Information displays about the geology and the spiritual uses of the caves and the surrounding nature
- An in situ management project to restore the African violet population could be a special attraction to educate visitors about African violet and plant conservation in general

Such conservation and community development project would ideally be conducted in close collaboration with the Antiquities Department and with Tanzania Forest Conservation Group. Other relevant stakeholders are the Tanga Catchment Forest Office, and Tanga and Muheza District Councils and the Amboni Ltd. which is a major land owner in the area.

The few existing African violet localities in the coastal forests of Tanzania should be surveyed and the habitats conserved in the immediate future as they are highly threatened because of the unsustainable exploitation of the remaining forest patches. The coastal African violet species are indispensable components of the genus since they are genetically distinct from the African violets of the Eastern Arc mountains.



Saintpaulia ionantha at Amboni Caves. Photo by Johanna Kolehmäinen