

Forests of Hope

Avoiding deforestation and combating climate change

Site profile

Tsitongambarika Forest, Madagascar

There is nowhere else on earth like Madagascar: in areas without great modification by people, almost every plant or animal is found nowhere else. Each individual forest has its own species, and one of the most special of these forests is Tsitongambarika, in the far south-east. Like many tropical forests, Tsitongambarika is threatened with deforestation by the desperately poor people who live around it, many of whom see little or no alternative to shifting cultivation to make a living. Asity Madagascar (BirdLife in Madagascar) is implementing an innovative conservation programme at Tsitongambarika, establishing a new Protected Area managed in collaboration with local people, the Malagasy government and private sector. Local community groups monitor the success of the programme; subject to periodic, independent surveys by Asity Madagascar, they gain livelihoods support linked to the conservation achievements in the forest that they manage and monitor. This ‘participatory monitoring’ programme — a form of Payment of Ecosystem Services — forms part of the management system for the Protected Area. The high importance of the forest for carbon storage and water catchment protection also gives great potential for sustainable financing.



■ Basic information

Country: Madagascar

Site name: Tsitongambarika Forest

Location: In Fort Dauphin District, Anosy region, Tsitongambarika Forests rises out of the lowlands of south-east Madagascar, extending north from Fort Dauphin town for about 100 km.

Forest area: 60,509 ha, much of which is lowland rainforest, the rest montane rainforest.

■ Biodiversity and current status

The biodiversity of Madagascar is legendary, in terms of both richness and uniqueness. Sadly, it is also well known to be very seriously threatened, with a small and declining forest area remaining. Lowland forest is among the most threatened vegetation types in Madagascar, as it has been cleared for shifting cultivation throughout most areas where it once occurred; it is greatly under-represented within Madagascar's Protected Area system. Tsitongambarika is the only area in the south-east that supports significant areas of lowland forest.

These forests are unique even within Madagascar, with flora and fauna quite distinct from lowland forests elsewhere: many species of plant and animal at Tsitongambarika are endemic not just to Madagascar, but to south-east Madagascar, and some are known only from this site. Recent discoveries have included more than a dozen plant and animal species new to science, including frogs, lizards and snakes, and numerous other threatened species. Among bird species, Tsitongambarika holds most of the bird species of the rainforests of Madagascar, including threatened species such as the Madagascar Red Owl *Tyto soumagnei*, Brown Mesite *Mesitornis unicolor*, Short-legged Ground-roller *Brachypteracias leptosomus*, Scaly Ground-roller *Geobiastes squamiger* and Red-tailed Newtonia *Newtonia fanovanae*.

■ Current conservation approach

Until recently, Tsitongambarika was unprotected. Two-thirds was designated as Classified Forest, while the remaining third in the north was designated as Public Domain Forest. This is in contrast to the nearby Andohahela massif, which was designated first as a Strict Nature Reserve, and then as a National Park; local communities needed access to forest resources to survive and such strict protection of Tsitongambarika was not feasible, nor, from a socio-economic perspective, desirable.

In recognition of the ongoing deforestation, efforts to conserve Tsitongambarika, working with local communities, began in the 1990s. Since 1999, management responsibility for parts of the forest have been transferred from poorly resourced Government staff to village associations, known as “CoBas”, with the intention of improving local livelihoods and conserving the forest. There are nearly 60 CoBas in total, covering the Classified Forests only; the Public Domain Forests were not included



Four species of large lemur have been recorded at Tsitongambarika, including these Southern Woolly Lemurs *Avahi meridionalis*. Photo: Andry Ravoahangy, Asity Madagascar.

in this programme. However, this approach, a form of community-based management, did not prove sufficient to halt deforestation: the CoBas needed more support, alternative livelihoods options and monitoring to ensure success, and in the absence of this they became inactive. A sustainable way needs to be found to support them and conserve the forest.

■ Threats

The forests and their biodiversity, and the local economy, are all highly threatened. In a largely subsistence economy with severe poverty, local communities depend on forest products to meet their daily needs. The forests are an important source of products such as firewood, charcoal, construction materials and lianas. Loss and degradation of forests therefore has major implications for livelihoods, and at the same time, sustainable forest use is at present integral to livelihoods.

The main threat to biodiversity is deforestation, caused by expansion of shifting cultivation and, to a lesser degree, unsustainable exploitation of fuel wood. Forest loss has been concentrated in the lowlands, as they are the most suitable areas for cultivation; however, these are also the richest areas for biodiversity. Expansion of shifting

cultivation is driven by shortage of irrigated rice land, declining agricultural productivity (due to a lack of fertilizers and drying up of water sources) and rapid population growth. Pressures on the Tsitongambarika forests are increasing, dry season stream flows decline more than they used to, rice fields are silting up, and water quality at the pumping station that is the main water source for Fort Dauphin has declined.

■ Conservation approach proposed

Conservation of Tsitongambarika will be ensured by a combination of protected area establishment with strong community involvement in management, with Asity Madagascar (BirdLife in Madagascar) supporting together with Government and other interested parties.

A new protected area

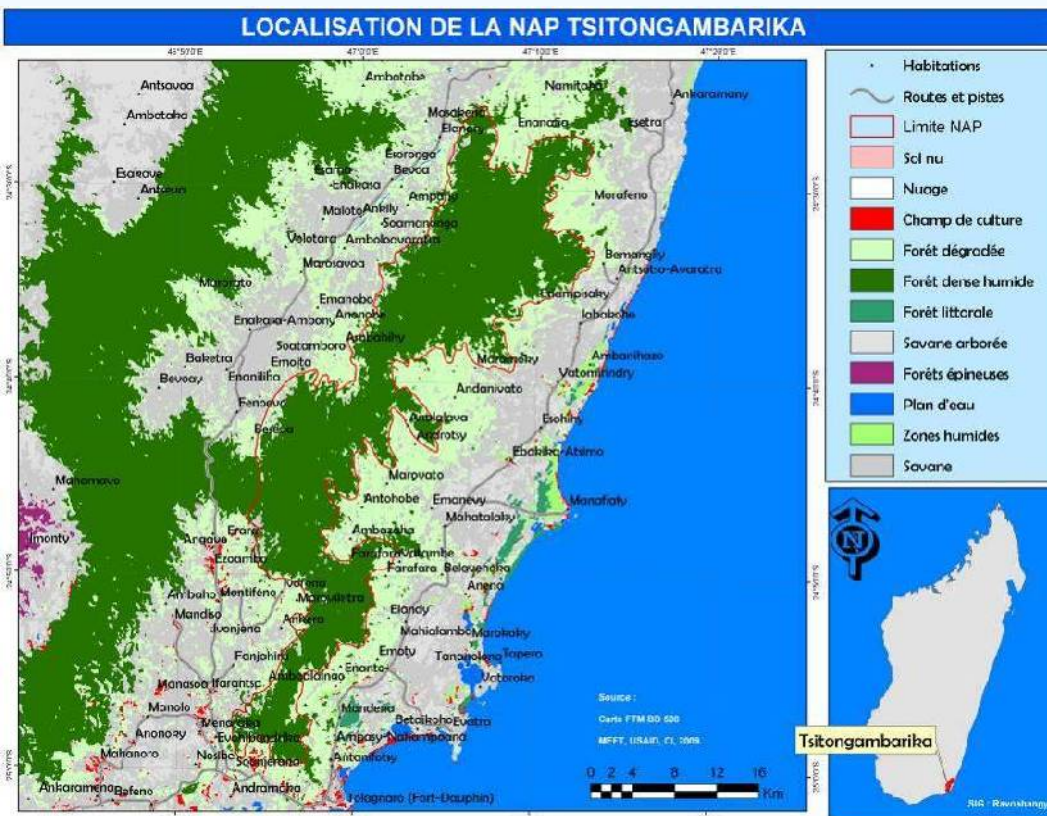
A new initiative is underway to bring deforestation under control and support local communities. Since 2003, Madagascar has adopted a new course in natural resource management: an initiative began to overhaul the protected area system, creating new categories and governance systems in order to make the benefits of conservation more sustainable and compatible with sustainable development. Strong emphasis was placed on management by and with local communities, who would thus benefit from conservation measures. These innovative systems were applied to the creation of a new generation of protected areas, aiming to triple the size of the national network.

Tsitongambarika was quickly identified as a priority for



Tsitongambarika is rich in endemic plants, some recorded in this forest and no other. Shown here is the bizarre flower of *Tambourissa religiosa*. Photo: Andry Ravoahangy, Asity Madagascar.

protection under this new initiative, and Asity Madagascar (BirdLife in Madagascar) became involved in 2005. In 2008 much of Tsitongambarika forest was given “temporary protection” by Decree from the Government of Madagascar. This followed detailed surveys and consultations with all local communities and other stakeholders, and the development of an interim management plan and governance arrangements. The next stage is to undertake detailed impact analysis, management



Map: Tsitongambarika and its location in south-eastern Madagascar. The proposed new protected area is outlined in red. To the west lies Andohahela National Park, which is mostly at considerably higher altitude than Tsitongambarika.

planning, development of zones, boundary delimitation on the ground (with local people) and further consultations with communities and other stakeholders, in order to secure permanent Protected Area status through a further decree.

Participatory monitoring programme

One of the innovative methods Asity Madagascar is using to link conservation with community benefits is a programme of participatory monitoring with prizes awarded for success. In each community where the project works, an awareness-raising programme is followed by mapping with local communities, to zone the forest areas for different management objectives, such as conservation, rehabilitation and sustainable use. This zoning is based upon existing community co-management agreements, negotiated between local communities and the government forestry service. The next stage is to assist the communities to select and monitor key indicators of biodiversity and ecosystem health (such as abundance of key species, number of cut stumps per hectare, area burnt per annum). The results of the monitoring are then presented at community festivals and validated by expert teams from Asity Madagascar; prizes are awarded in the form of funding for development projects chosen by the

community. Larger prizes are awarded if the state of the forest and its wildlife populations are shown to increase or if pressures are shown to decrease.

Trials at six villages showed great success, and also attracted the attention of non-participating villages. This needs to be rolled out to more villages, capacity built for it to become self-sustaining with villagers managing it themselves and only minimal input and verification from Asity Madagascar. It then needs to be internalized in plans for the permanent Protected Area.

The development projects chosen as prizes are selected by the community as a whole. For example, in 2008 all CoBas requested support for village schools as their prize. The communities explained their choice as an investment in the education of young people, in order to enable them to take advantage of the new economic opportunities as the region develops. They added that, by increasing on-farm employment, they hoped to reduce pressure to clear forest for shifting cultivation; another has used its prize to repair a bridge, giving easier access to markets and neighbouring communities. In effect, monitoring becomes not just a way of evaluating the effectiveness of the protected area; it also becomes part of the conservation approach itself. The cost of the prizes is not a major obstacle to achieving



Among the most extraordinary birds of Madagascar are the ground-rollers, of which three species are found at Tsitongambarika; shown here is the Scaly Ground-roller *Geobiastes squamiger*. Photo: Pete Morris, BirdQuest.



The Madagascar Red Owl *Tyto soumagnei* is one of the most elusive of Madagascar's birds; this one was discovered through the participatory monitoring programme, extending the species's known range by hundreds of kilometres. Photo: Bruno Raveloson, Asity Madagascar.

sustainability; all conservation approaches have ongoing costs and the prizes are so far proving highly cost-effective compared to more traditional protection strategies, for example those relying entirely on paid employees and equipment.

Sustainable financing

The large area of forest results in a significant mass of carbon stored, and the (still, despite conservation efforts) highly threatened nature of the forest, mean that the site has considerable carbon offset potential. In addition, the importance of the area as water catchment for the town of Fort Dauphin and for a large ilmenite mining development nearby give rise to a further possible source of sustainable funding through payments for ecosystem services. Other sources of funding being investigated, besides 'traditional' conservation project funding from donors, are a trust fund and biodiversity offsets.

■ BirdLife history and capacity

Asity Madagascar has been at the forefront of the recent phase of conservation efforts at Tsitongambarika; it is the designated "promoter" of the new Protected Area, responsible for coordinating the process leading to its

designation. It also enjoys excellent relations with the complex range of stakeholders (Government, Civil Society and Private Sector) in this part of Madagascar. Thanks to support from QIT Madagascar Minerals (QMM), Rio Tinto, Conservation International and The Wetland Trust, Asity Madagascar's achievements include:

- Leading first detailed surveys of the biodiversity of Tsitongambarika forests in 2005-6, carried out with partners specializing in all fauna and flora groups, resulting in new species and many new distributional records
- Regular monitoring since then, adding more exceptional records including the very rare Madagascar Red Owl
- Successful trials of a participatory monitoring project, in which villagers monitor the biodiversity of the forests for which they are responsible, and are rewarded when (externally validated) conservation gains are made
- Series of birdwatching events held with communities from around SE Madagascar, achieving excellent participation and awareness of the richness of this region's wildlife
- Asity Madagascar is the designated "promoter" of the Protected Area program for Tsitongambarika, successfully negotiating all the (many and complex) steps needed to achieve temporary protection in 2008
- Validation of the Social and Environmental Impact Assessment for Tsitongambarika by the technical evaluation committee, directed by the National Environment Office (first major step from temporary to permanent protection)
- Approval of the Management and Zonation Plan by local communities in October 2009, with a proposed local management structure
- Physical delimitation of the Protected Area carried out in collaboration with the topographic service of Fort Dauphin.



Map of water catchments for Fort Dauphin town and the Rio Tinto ilmenite mine area, in relation to the forested mountains of Tsitongambarika.



Asity Madagascar has organised participatory monitoring and also public birdwatching events in the region of Fort Dauphin, which have been very successful in raising awareness about the importance of the forests, and capturing people's enthusiasm for conserving them. Photo: Andry Ravoahangy, Asity Madagascar.

■ Detailed knowledge of the forest

The initial surveys and participatory monitoring programme, coordinated by Asity Madagascar with the participation of specialist groups such as Missouri Botanical Garden and Madagasikara Voakajy, have generated an impressive level of knowledge of the forest, yet this continues to increase as more areas are surveyed and the participatory monitoring programme expands to new CoBas. A monograph is in preparation, compiled by BirdLife and Asity Madagascar, to document the results fully. The Tsitongambarika forests are the main home to fruit bats and fruit-eating birds responsible for most of the pollination of important plants outside the forest, and of small patches of forest nearer the coast.

Of the various ecosystem products and services provided by the Tsitongambarika forests, the most economically important is catchment protection. The forests protect the catchments of two of the Anosy region's major rivers: the Manampanihy (which drains north-east and enters the sea at Manantenina) and Efaho (which drains south and meets the sea west of Fort Dauphin). These rivers and their tributaries are the main source of water for irrigation (essential for paddy rice cultivation) and domestic use for rural communities in the east of the region. In addition, the forests of Tsitongambarika protect the water sources of Lakandava pumping station and Lanirano Lake, which provide, respectively, 75% and 25% of the water for Fort Dauphin.

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