Menabe

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The Central Menabe region, between the Tsiribihina river to the north and the Morondava river to the south, is an area of exceptional biodiversity importance. At least four species are endemic to the zone (a frog *Aglyptodactylus laticeps*, flat tailed *tortoise Pyxis planicauda*, giant jumping rat *Hypogeomys antimena* and Berthe's mouse lemur *Microcebus berthae*). Their entire global distribution is limited to a small area of dry deciduous forest. This forest also constitutes a major part of the distribution of at least 14 other species, including narrow striped mongoose *Mungotictis decemlineata decemlineata*, white breasted mesite *Mesitornis variegata*, Coquerel's dwarf lemur *Mirza coquereli*, 3 frogs, 2 chameleons, 3 lizards, 2 snakes and an insectivore. The biodiversity interest of the region is enhanced by the associated wetlands, such as the Mandroatra river flowing through the forest in which the side necked turtle (or rere) *Erymnochelys madagascariensis* is found and Bedo coastal lake and marshes which provides a refuge for endemic waterbirds such as Madagascar teal *Anas bernieri*, Humblodt's herons *Ardea humblodti* and many other species such as flamingos, pelicans and ducks.

Plate 21. Deforested field in Menabe. (© Joanna Durbin)

Plate 22. Removing pirogue. (© Joanna Durbin)

The main forest block covers about 100,000 ha and is one of the few remaining western Malagasy dry deciduous forests of this size. This forest type is the most threatened and fragmented in Madagascar with an estimated 3% remaining. Menabe forests are no exception and deforestion, mostly for slash and burn cultivation of maize was 32% per year from 1963-1993 and rates have subsequently increased. Other pressures include unsustainable levels of commercial logging and subsistence hunting.

The Menabe forests and fauna have been the subject of numerous studies by biologists and foresters for decades. Kirindy concession in the southern part of the main forest block was created in 1978 with support from Intercooperation Suisse to the Centre de Formation Professionelle Forestière for research and training on sustainable logging. Intensive studies were made on growth rates, regeneration, reforestation techniques, > etc. Over 13 years research led to a conclusion that logging in this particularly slow growing forest could not be both sustainable and commercially viable. The biologists demonstrated the impact of even the relatively low levels of logging in Kirindy on the more sensitive animal species, such as the giant jumping rat. Durrell Wildlife Conservation Trust has conducted studies on distribution, population, threats and conservation status of endangered species in Menabe including the rat,

the tortoise and the mongoose since the late 1980s. From 2003, Durrell teamed with Deutsches Primatenzentrum, which had conducted research primarily on the lemurs at Kirindy since the late 1980s, to undertake a more comprehensive biodiversity assessment of the Menabe forests. Results showed that the full complement of Menabe species are only found in the two least-disturbed areas within the main forest block (Kirindy and Ambadira) which also tend to represent the areas of highest abundance for the species studied. The populations of many species are already fragmented (for example the giant jumping rat only occurs in 33,000 ha in two distinct populations) making it a major priority to protect these remaining populations from disturbance and to protect and eventually restore the corridor between the two areas.

Box 10. Participatory ecological monitoring linked to incentives
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In order for community-based conservation to be effective and for resource use to be kept within sustainable limits, it is clearly important not only for the users to agree on rules but also to ensure that they will be respected. Some level of monitoring and enforcement is necessary. The Durrell Wildlife Conservation Trust Madagascar programme has developed participatory ecological monitoring with village groups to assist them and us with verifying whether management activities are effectively maintaining resources and biodiversity. The results of the monitoring have also been linked to incentives aimed at encouraging and rewarding biodiversity conservation. The Menabe participatory ecological monitoring competition is similar to sponsoring a community to create a reserve to conserve endangered species and biodiversity.

The ultimate aim is to contribute to a more equitable distribution of costs and benefits of biodiversity conservation by channelling some of the 'willingness to pay for the existence value of biodiversity' of the more developed world back to those in biodiversity-rich but less developed countries. Benefits from conserving biodiversity are often perceived at the international or national level, but it is the local people, often the rural poor struggling to assure their livelihoods, that sustain the highest opportunity costs. There may be some existing local benefits from conservation, such as ecological services like watershed protection, or employment or revenue sharing from eco-tourism. However, not all sites and not all members of society can benefit from these, and sites with exceptional levels of local endemism like Menabe may succumb to logging and deforestation pressures because of insufficient local incentives for conservation. It is perfectly understandable that a villager sees a lemur as just another kind of protein to supplement their diet unless we can reinforce the perception that having lemurs near your village provides a competitive advantage, bringing in tourists, or conservation NGOs with development friends, or a direct benefit.

A Population Habitat Viability Analysis for the Giant Jumping Rat in 2001 with the support of the Conservation Breeding Specialist group led to creation of a regional platform for conservation of the biodiversity of Menabe. This provided a forum for exchange between all regional stakeholders and led to agreement to create a new protected area and to ban logging from the Central Menabe forests. In 2003, this platform became the Environment, Forest and Biodiversity Commission of the Regional Development Committee which ensures integration of conservation into the rural development agenda. New partners joined the conservation efforts, such as Fanamby, a Malagasy NGO, and Conservation International, particularly with a goal of creating a new protected area as part of President Ravalomanana's commitment made at the World Parks Congress in 2003 to triple protected areas to cover 10% of the country or 6 million ha. The new protected area will cover 125,000 ha including the main dry forest block,

mangroves and wetlands. A strict conservation area will cover 30,000 ha including the forest areas of Ambadira, Kirindy and the corridor between them which have been shown to be of greatest importance for biodiversity conservation. The protection order was signed in early 2006.

The main forest block includes areas used traditionally by local communities, some of which have been or will be legally transferred to community management through contracts with the State. Durrell has been working with these communities to encourage them to contribute to conservation by allocating areas next to the Priority Conservation Zone for strict protection. In 2004, an ecological monitoring competition was launched in three of the villages. Their conservation areas, which effectively extend the Priority Conservation Zone by 4,893 ha, were surveyed at the end of 2004 to check whether the locally endemic or often hunted species were present and to evaluate any forest disturbance in the areas they had agreed to conserve. Prizes for the competition depended on the results of the monitoring and were used on projects of their choice such as bicycles to improve surveillance, corrugated iron for a community building and a generator for the winning village. This scheme provides positive incentives for biodiversity conservation based on results. The participatory monitoring competition was extended to five villages in 2005, and will be extended to all ten key villages surrounding the central Menabe forest in 2006

Aerial photos and observations made on an overflight in 2005 confirmed that there has been no new deforestation since 2003, which is a remarkable achievement given that several hundred hectares of primary forest were lost annually in preceding years. The villagers that were involved in slash-and-burn cultivation of maize are turning to more sustainable alternatives since there has been greater communication about the creation of the protected area and the start of the monitoring programme.