

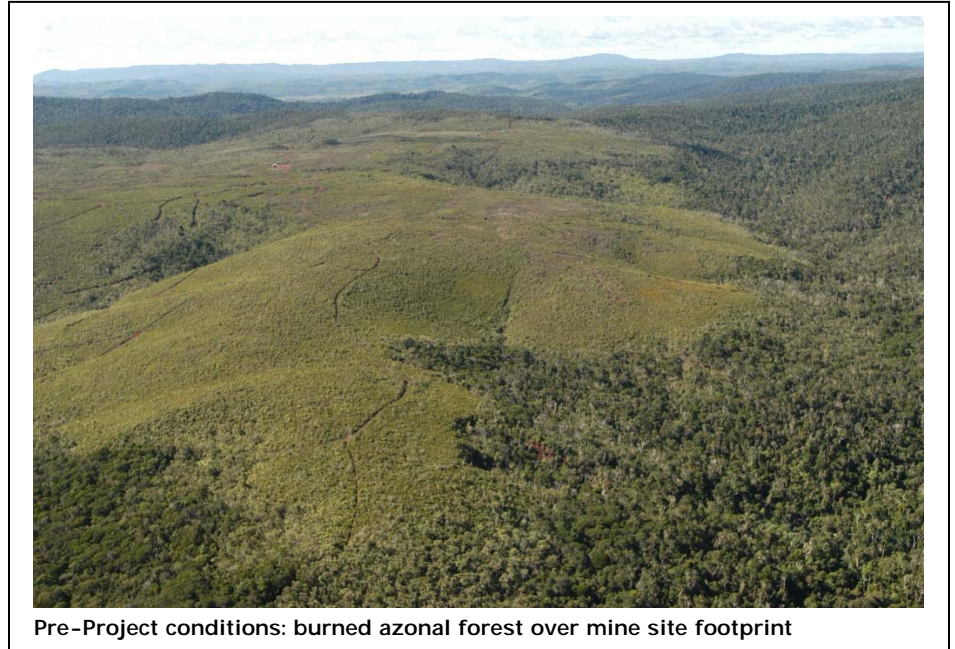
# Working towards good practice for mining and biodiversity

*By Pierre O. Berner, PhD  
Director, Environment  
Ambatovy Project*

**January 2009 –** Since its inception in 1995, the Ambatovy Project has taken significant measures to understand and appreciate the short- and long-term effects it will have on Madagascar's biodiversity and environment. This ongoing effort has facilitated the implementation of world-class programs to minimize the Project's impact on the environment. These programs have made important progress that will be built upon throughout Ambatovy's lifecycle and beyond. Read more...

## **Appreciating biodiversity**

The Ambatovy Project has always recognized that it is operating in a highly sensitive biodiversity setting,



especially in the region surrounding the mine: a large and complex forest and agricultural mosaic, which includes the Torotorofotsy Ramsar Wetland, Analamazoatra Special Reserve and the Mantadia National Park. The 1,336-hectare mine footprint sits within a near-primary forest track (18,444 hectares) with diverse fauna and flora.

The Project has been conducting extremely thorough biological inventories in the forests of and around the mine footprint for over a decade; in other words, the mine area is one of the best studied in Madagascar. These studies have found 1,324 vascular plant species,

16 species of lemurs, 130 species of amphibians and reptiles, 62 species of birds and 6 non-exotic fish species, amongst others.

Additionally, an array of environmental and social experts has studied the region, including Analamazoatra, Mantadia and Torotorofotsy. Lessons learned from these studies indicate that poverty, current land-use practices by local communities and population growth constitute severe threats to regional biodiversity.

Natural habitats are being fragmented and encroached by slash-and-burn agriculture and uncontrolled human-induced fires, while illegal logging, collection of rare

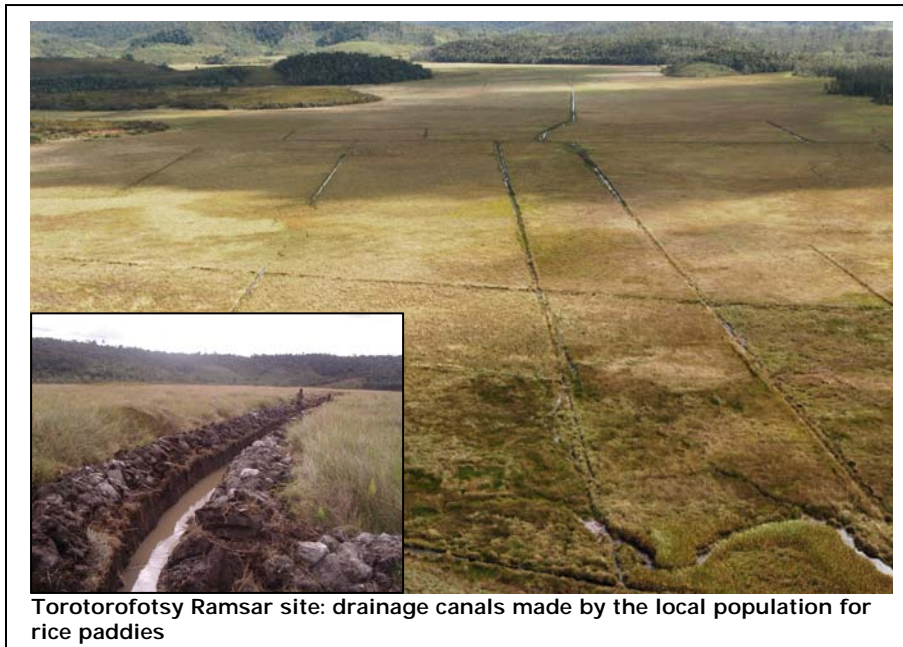
species and bush-meat hunting deplete flora and fauna populations. Key habitats, like wetlands of the Torotorofotsy Ramsar site, are equally affected by human-induced pressure that is not properly mitigated under the current Ramsar site management system.

term survival of the footprint area that is to be rehabilitated, is only possible if accomplished in a regional context with landscape-level planning. Mine-area forests must remain connected with the broader forest corridor and their survival must be guaranteed through

synergies, it must operate under the guidance of and in conjunction with many regional actors, including NGOs, to enable improved natural-resource utilization by local communities and to promote sustainable development in the region affected by the Project. As part of its efforts to work collaboratively, the Project actively engages and updates communities, NGOs and other stakeholders on its construction progress.

The major focus of the Project at this time is the management of environmental impacts during the construction phase. The main impact of construction on biodiversity results from the progressive clearing of forests on the mine footprint, which includes the first two kilometres of the pipeline, and temporary disturbances over the pipeline right-of-way, which has been designed to affect only 16 hectares of degraded primary forest, while avoiding present and future protected areas as well as most residual forest patches along the way.

These impacts are indeed affecting flora and fauna; however, stringent biodiversity management plans have been designed and are being implemented by the Project in consultation with recognized local and international partners.



It is widely documented that the deforestation rate from 2000 to 2005 equalled 0.35 % and that the current annual loss of the residual eastern rain forest is equivalent to 14,000 hectares per year. The total mine footprint to be cleared represents only 0.03 % of the residual eastern rain forest as estimated in 2008 at 4,012,100 hectares (Wilmé 2008).

The Ambatovy Project recognizes that maintenance of the forest surrounding the mine, as well as the long-

improved management activities conducted by and for the communities. An integrated approach to landscape-level planning is well captured in the regional Madagascar Action Plan – the government’s long-term developmental plan for the country – as well as in regional and communal management plans, but implementation is complex and requires working with all regional stakeholders, including mine operators.

The Project understands that in order to achieve the necessary

## Biodiversity Management Program (BMP)

The Project has developed an overall BMP in line with international guidelines to mitigate impacts on habitats, fauna and flora. To address conservation issues for key taxa groups and species, specific action plans for flora, lemurs, Mantella (frogs) and fish have been designed and implemented in partnership with expert groups:

- **The flora management plan** is currently focussing on forest habitat management and securing viable populations of species of concern in safe habitats outside of the footprint.
- **The lemur action plan** aims at sustaining lemur species and their populations in the mine area. Activities include spatial monitoring, (using telemetry), salvaging and health assessments with modern biomedical equipment conducted by some of the few highly specialised lemur experts in the world. In 2007 and 2008, 125 individual lemurs from a pool of 10 species were equipped with radio collars and are being monitored. Early studies indicate that the hypothesis of poor ecological plasticity by the lemurs has not been corroborated.

- **The Mantella action plan**, as a first step, aims to enhance the limited knowledge of regional population distributions and habitat use with the objective of improving the effectiveness of mitigation activities.



Aye-aye, *Daubentonia madagascariensis* (IUCN red list endangered species); fitted with Ambatovy radio collar

- **The fish action plan** consists of conducting a mine area-level endemism assessment based on genetics to provide the necessary insights for proper fish population management. The program led to the identification of two new species to science.

Successful species management in the mine area is linked to habitat conservation. While

implementing community-level forest management is a long-term challenge, the project has put in place an environmental task force of 14 agents that ensure forest and biodiversity integrity based on community awareness and involvement (hunting and trading included). Beside the commitment to manage the 4,900-hectare forests around the mine footprint, the Project has set aside two tracks of original prime azonal forest habitat located on top of the ore body to preserve viable samples of this atypical habitat. It is the Project's intention, together with other stakeholders, to maintain the forest connectivity between the mine area and the Mantadia National Park.

## Business and Biodiversity Offset Program (BBOP)

To ensure that the Project's biodiversity impacts remain at an acceptable level, Ambatovy has conducted its environmental impact assessment in compliance with national and international legislation. But going a step further, the Project also committed to develop a biodiversity offset program following the internationally respected BBOP guidelines ([www.forest-trends.org/biodiversityoffsetprogram/](http://www.forest-trends.org/biodiversityoffsetprogram/)).

The Ambatovy offset program aims to produce measurable conservation



outcomes that deliver no net loss of biodiversity or preferably a net gain. The program includes a mix of complementary offset activities, including the design and implementation of a biodiversity offset site, forest corridor restoration initiatives and deforestation avoidance through community forest

management. Recent progress includes the preliminary functional forest zoning around the offset site, Ankerana.

#### **Concluding remark**

The Ambatovy Project presents novel challenges in terms of impact mitigation and biodiversity

conservation. This Project will continue to test and generate, in conjunction with its national and international partners, best practices in mining and biodiversity.

Learn more at [www.ambatovy.com](http://www.ambatovy.com).

