

Research, ecosystem conservation and economic development: An integrated approach

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Madagascar, "La Grande Ile" off the coast of southeast Africa, is the fourth largest island on earth. Its 587 000 km² are only surpassed by the islands of Greenland, New Guinea and Borneo. Madagascar broke off from Africa some 150 - 160 million and from India some 88 - 95 million years ago. Plants and animals of different origins colonized the island and produced one of the most impressive biotic radiations with most plant and animal species found nowhere else on earth but in Madagascar. Since the arrival of Man some 2400 years ago more than 80% of the island's natural forests have disappeared. The high degree of endemism and the pending threat of extinction due to ongoing habitat destruction make Madagascar one of the most prominent biodiversity hotspots of the world, ranging on top of the list of international conservation priorities (Myers *et al.*, 2000; Goodman & Benstead, 2003; Burney *et al.*, 2004). Protection of the unique plant and animal species has to go hand in hand with the conservation of ecosystem functions and ecosystem services. This can only be achieved by integrating the needs of the local human population that relies on the utilization of natural resources.

In order to be able to formulate possible solutions for the various environmental problems that Madagascar is facing we need to learn more about

- the abiotic environment and its role in the evolutionary history of Madagascar,
- floral and faunal components,
- the structure, functions and services of ecosystems, and
- the socio-economic situation and needs of the people living in, around and from these ecosystems.

Over the last few years Malagasy and German institutions have developed and maintained very fruitful collaborations that are well integrated into the international research community. In October 2004, a German-Malagasy research symposium in life and earth sciences titled "Madagascar: Un jardin d'évolution en danger" was held at the University of Antananarivo. More than 60 contributions within the fields of geology, biology and agroforestry were presented there.

The present volume comprises the proceedings of this symposium, altogether including 19 chapters presented by scientists from five Malagasy and ten German institutions. The spectrum of topics ranges from fundamental research (e.g., Emmel *et al.*, Jöns *et al.*, Razakamanana *et al.*) to conceptual approaches (Sorg) and applied conservation biology (e.g., Andrianasolo *et al.*, Olivieri *et al.*, Schwitzer *et al.*), to the training of young Malagasy scientists (Goodman *et al.*) and to the description of joint Malagasy-German conservation programmes (Fichtel & Kappeler, Zimmermann *et al.*). The majority of articles in this volume emphasises the faunal biodiversity of Madagascar and provides different

approaches as to its conservation (e.g., Ralison & Razanahoera, Day & Randria, Rabesandratana, Marquart & Harisoa, Woog *et al.*, Schütte *et al.*). Some contributions also target the strong relations between economics and conservation as well as the need for further research into possible ways of linking these two reputedly contrasting fields, probably one of the most important challenges for the future of Madagascar (e.g., Ackermund *et al.*, Nambena, Vincelette *et al.*).

In his speech at the 2003 World Parks Congress in Durban, South Africa, termed “the Durban vision”, the President of Madagascar, Marc Ravalomanana, announced his commitment to biodiversity conservation and his willingness to triple the size of Madagascar's protected area network within five years. In his preface to Rübél *et al.*'s book “Masoala - The eye of the forest”, the president also points to the strong link between a harmonic economic development of Madagascar and the conservation of the country's biodiversity.

Today, many of Madagascar's environmental problems are known, and in many cases researchers and conservationists alike have suggested possible solutions. Without any doubt a considerable amount of research is still necessary in all fields referred to in this volume, and both Malagasy and German researchers will jointly continue to carry out respective studies. One further goal, which the German-Malagasy partnership should continue to strive for in the years to come, is to build up alliances of investors, researchers and conservationists in order to be able to implement sustainable conservation of Madagascar's ecosystems with direct links to the economic development of the country. We hope that this volume with its broad array of approaches and examples will make a contribution to further strengthen the successful cooperation between Malagasy and German research and conservation institutions.

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