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Source: *Lessons in Conservation*, Vol. 6, pp. 6-8

Published by: Network of Conservation Educators and Practitioners, Center for Biodiversity and Conservation, American Museum of Natural History

Stable URL: ncep.amnh.org/linc/

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An Introduction to the Ecological and Political Context of Biodiversity Conservation in Madagascar

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Madagascar is iconic in international conservation circles because of its unique and threatened wildlife. Madagascar is larger than France and is sometimes referred to as the eighth continent because of its size and the thirteen diverse ecosystems it supports (de Wit 2003; CEPF 2014). Running like a spine down the island's eastern side are Madagascar's rainforests, which cover about 18.41% of the land area (CEPF 2014); a mosaic of grasslands and woodlands covers the central 41% of the island (CEPF 2014); the Southern tip is arid (300–600 mm of precipitation per year) and is home to the unique spiny forest (Grubb 2003). Other important ecosystems include the dry forests of the west of the country. Because of its geological history (it has been isolated from other land forms for at least 80 million years), a large proportion of Madagascar's biodiversity is endemic, found nowhere else on earth. Most of Madagascar's endemic taxa are also phylogenetically distinct, meaning they have no living close relatives elsewhere on the planet (Ganzhorn et al. 2013). The island harbors over 11,200 indigenous plants (90% endemic), 406 species of reptiles (96% endemic) and 295 amphibians (nearly 100% endemic) (CEPF 2014). Of course the most well-known of Madagascar's endemic species are the lemurs—a morphologically and ecologically diverse primate group composed of 5 families, 15 genera and 101 species at last count (IUCN/SSC Primate Specialist Group 2014; Mittermeier et al. 2013).

The people and cultures of Madagascar are also unique. Contemporary Malagasy have genetic heritage from both Asia and Africa. While there is evidence of human activity on the island from as early as 2288–2035 BCE (Dewar et al. 2013), the first evidence of occupation is from 300–500 CE. Today the Malagasy language, with its approximately 18 dialects, is largely Austronesian, with East African, French, English, and Arabic influences, among others (Dewar and Richard 2012). Since 1960, when Madagascar achieved independence from French Colonial rule, politics in the country have gone

through dramatic shifts, from maintenance of colonial administrative institutions (1960–1972) to Soviet-style socialism (1973–1993) to liberalization (1993–present). For decades, environmental conservation has been a major priority of the country's politicians and of international donors operating in Madagascar (Randrianja and Ellis 2009). For example, at the 2003 World Parks Congress in Durban, South Africa, the government made a commitment to tripling the area of land under protection (Corson 2011). Just recently, in November 2014, the government pledged to triple the marine protected area network—largely through community-based initiatives (Blue Ventures 2014). Civil society organizations have largely taken the lead in conservation efforts in Madagascar over the last three decades.

Despite all this effort towards conservation, threats to biodiversity remain very strong, and Madagascar continues to lose its biodiversity (Ferguson and Gardner 2010). Human activities—including clearing for agriculture, fuelwood, and grazing, as well as larger-scale exploitation such as mining—pose the greatest threats to terrestrial biodiversity and ecosystems (CEPF 2014). Marine and coastal biodiversity are most seriously threatened by overexploitation and unsustainable coastal development (CEPF 2014). Furthermore, the state's ability to address these threats is undermined by political turmoil (for example the political crisis from 2009–2013). Madagascar is also a very impoverished country: 75% of the population lives under the poverty line (World Food Programme 2012); Madagascar is ranked 155 out of 187 countries by the UNDP 2013 Human Development Index (UNDP 2013); and almost half (49.2%) of all children under five in Madagascar are considered chronically malnourished (WHO Global Database on Child Growth and Malnutrition 2012). Reconciling the development needs of the country's citizens and the conservation of its unique biodiversity has been an ongoing challenge. Public



discourse about environmental conservation often highlights the contrast between the country's rich and valued biodiversity and its citizens' poverty; the public perceives that a large amount of money is invested in the environment – with mixed results and few benefits for the average Malagasy citizen. Given the dependence of most Malagasy people on natural resources for their livelihoods, conservation measures that restrict access to resources can have negative consequences for locals (Rasolofoson et al. 2015). In this context, it is important to improve the efficacy of core conservation strategies such as protected areas, for example through partnerships with local leaders (Rakotomanana et al. 2013). In addition, innovative strategies for mitigating biodiversity loss must be identified in order to address ongoing conservation, such as inequitable distribution of costs and benefits from conservation efforts (Scales 2014).

The resources in this issue of *Lessons in Conservation* reflect the complexity of the situation in Madagascar. While “Bats of Madagascar” presents conservation challenges within one taxonomic group, the module “Management of Threatened Species” (« La gestion des espèces menacées ») demonstrates the importance of harnessing conservation techniques for mitigating species loss. Currently 1,251 species from Madagascar and other Indian Ocean islands can be found on the Red List of Threatened Species, of which 296 are in critical danger of extinction (CEPF 2014). “Poverty reduction and biodiversity conservation” (« Réduction de la pauvreté et conservation de la biodiversité ») illustrates the difficulties of aligning conservation and development objectives in a country where the rural population is especially impoverished. “Community Based Natural Resource Management” (« Gestion communautaire des ressources naturelles ») presents efforts to integrate grassroots initiatives and practices inspired from local uses and customs into conservation measures.

By developing capacity in biodiversity conservation through these modules, Réseau des Educateurs et Professionnels de la Conservation–Madagascar (REPC–MD) the Malagasy affiliate of the Network of Conservation Educators and Practitioners (NCEP) is making an important contribution to addressing

biodiversity conservation challenges in Madagascar. The members of REPC–MD have identified the subject of these modules as priorities and they were written and developed by members of the Malagasy academic and professional worlds. After 10 years as a project (2004–2013), REPC–MD has transformed itself into a Malagasy association that will continue to improve access to opportunities for capacity development for Malagasy conservation professionals and educators (<http://repc-md.weebly.com/>).

We hope that this issue of *Lessons in Conservation* will inspire readers to further their appreciation and knowledge of Madagascar and, in particular, that these French–language modules will support capacity development in biodiversity conservation in Madagascar and in other francophone countries.

BIBLIOGRAPHY

- Blue Ventures. 2014. Madagascar's bold blue vision puts communities at centre of marine protection. Available at <http://blueventures.org/bold-vision-puts-communities-centremarine-protection/> (Accessed 13 July 2015).
- [CEPF] Critical Ecosystem Partnership Fund. 2014. Profil d'écosystème hotspot de Madagascar et des îles de l'Océan Indien, Conservation International, Antananarivo, Madagascar.
- Corson, C. 2011. Territorialization, enclosure and neoliberalism: non–state influence in struggles over Madagascar's forests. *Journal of Peasant Studies* 38(4):703–726.
- Dewar, R.E., and A.F. Richard. 2012. Madagascar: a history of arrivals, what happened, and will happen next. *Annual Review of Anthropology* 41:495–517.
- Dewar, R.E., C. Radimilahy, H.T. Wright, Z. Jacobs, G.O. Kelly, and F. Berna. 2013. Stone tools and foraging in northern Madagascar challenge Holocene extinction models. *Proceedings of the National Academy of Sciences* 110(31):12583–12588.
- de Wit, M.J. 2003. Madagascar: heads it's a continent, tails it's an island. *Annual Review of Earth and Planetary Sciences* 31(1):213–48.
- Ferguson, B., and C.J. Gardner. 2010. Editorial: looking back and thinking ahead – where next for conservation in Madagascar?. *Madagascar Conservation and Development* 5(2):75–76.
- Ganzhorn, J.U., L. Wilmé, and J.L. Mercier. 2013. Explaining Madagascar's biodiversity. Pages 17–43 in I.R. Scales, editor. *Conservation and environmental management in Madagascar*. Earthscan, Abingdon, UK.
- Grubb, P.J. 2003. Interpreting some outstanding features of the flora and vegetation of Madagascar. *Perspectives in Plant Ecology, Evolution and Systematics* 6(1):125–146.
- [IUCN/SSC] International Union for Conservation of Nature's Species Survival Commission, Primate Specialist Group. 2014. *Global Primate Diversity*. Bristol Conservation and Science



- Foundation and Conservation International. Available at http://www.primate-sg.org/primate_diversity_by_region/ (Accessed 13 July, 2015).
- Mittermeier, R.A., C. Schwitzer, S. Johnson, and J. Ratsimbazafy. 2013. Introduction. Pages 5–11 in C. Schwitzer, R.A. Mittermeier, N. Davies, S. Johnson, J. Ratsimbazafy, J. Razafindramanana, E.E. Louis Jr., and S. Rajaobelina, editors. *Lemurs of Madagascar: a strategy for their conservation 2013–2016*. IUCN, Bristol, UK.
- Rakotomanana, H., R.K.B. Jenkins, and J. Ratsimbazafy. 2013. Conservation challenges for Madagascar in the next decade. Pages 34–39 in P.H. Raven, N.S. Sodhi, and L. Gibson, editors. *Conservation biology: voices from the tropics*. John Wiley and Sons, Oxford, UK.
- Randrianja, S., and S. Ellis. 2009. *Madagascar: a short history*. University Of Chicago Press, Chicago, Illinois, USA.
- Rasolofoson, R.A, P.J Ferraro, C.N Jenkins, and J.P.G. Jones. 2015. Effectiveness of community forest management at reducing deforestation in Madagascar. *Biological Conservation* 184(2015):271–277.
- Scales, I.R. 2014. The future of conservation and development in Madagascar: time for a new paradigm?. *Madagascar Conservation and Development* 9(1):5–12.
- [UNDP] United Nations Development Programme in Belize. 2013. *Sustaining Human Progress: reducing vulnerabilities and building resilience*. Human Development Report. UNDP, U Cayo District, Belize.
- World Food Programme. 2012. Madagascar: overview. Accessible at <http://m.wfp.org/countries/Madagascar/Overview> (Accessed 13 July 2015).
- [WHO] World Health Organization. Global Database on Child Growth and Malnutrition. 2012. Madagascar: child malnutrition estimates by WHO Child Growth Standards. World Health Organization. Available at <http://www.who.int/nutgrowthdb/database/countries/mdg/en/> (Accessed 13 July 2015).