

## Searching for the Elusive Keys to Co-existence on Madagascar

Tovonanahary and his family of seven are almost starving. Their rice field in southern Madagascar has been producing less rice every year for the past few years – and the only thing that saved them from starvation this year was the money his wife earned by making charcoal from hardwoods, and the money their son made by illegally harvesting ebony and rosewood for sale to foreigners. Tovonanahary will therefore do what just about all Malagasy farmers do when their rice field's soil nutrients run out – engage in the cultural practice of “Tavy” (also known as slash-and-burn). Tovonanahary cut down two acres of forest and burned it to clear a new rice field to feed his family – at least until that new field's nutrients run out as well.

The survival of Tovonanahary's family, however, is driving hundreds of his island's native plant and animal species to extinction – a significant global problem since 75% of the species on Madagascar live *only* on Madagascar. [*Madagascar: Environmental*] I propose an expedition to explore with the subsistence farmers of Madagascar how the people, plants, and animals on our planet's fourth largest island can co-exist ... before it's too late.

Madagascar is an island the size of Texas. It is in the Indian Ocean about 240 miles off the African mainland. It has warm, humid coasts, lush mountains in the interior, and a large desert on its southern side. Its forests contain over 100 different species of orchids, several different species of baobab trees, and 33 different species of lemurs. In total, Madagascar is home to approximately 200,000 different species of plants and animals. [*Madagascar: Environmental*]

Those plants and animals existed with no humans until the 1<sup>st</sup> century A.D., when seafarers from Malaysia and Indonesia first arrived. Later seafarers from Southern India and

East Africa arrived, eventually resulting in 18 different tribal groups being formed on the island. Madagascar's written history began in the 700's when Arabs set up trading posts on the island's coast. Europeans then "discovered" the island in the 1500's – first the Portuguese, then the French, and then the British. In 1885 the French took control of the island from the British in a trade for Tanzania. Then in 1960 the French granted Madagascar its independence. (*U.S. Department*)

Today, Madagascar's President serves a 5-year term. He also appoints the Prime Minister. The voting age is 18. The island's human population is about 20,042,552. (*U.S. Department*)

Madagascar is one of the world's poorest countries, with most of its people living off the land and having to use natural resources to survive day to day. Although most children attend grade school, only about 20% of those children go on to high school. Most Malagasy practice local African religions. (*U.S. Department*)

The poverty that traps most Malagasy people, and traditional cultural practices like Tavy, continue to destroy the natural habitat for the island's plants and animals. That poverty also makes it very hard for hungry people to resist illegally harvesting valuable (but rare) rosewood and ebony for sale to foreign markets. Poverty also leads many Malagasy to cut down forests to make charcoal for sale. It also leads farmers to use the cheapest method of clearing land for their farms – which is fire. Those fires, however, often get out of control. As much as 1/3 of Madagascar burns each year. Since the 1950's the forests of Madagascar have been disappearing at an ever-increasing rate. Currently, 1.5% of its rain forest is destroyed every year. The burned landscape and abandoned fields easily erode away, clogging streams and rivers with silt. [*Madagascar: Environmental*]

This widespread habitat destruction is pushing to extinction many native plants and animals which rely on that habitat.

That's a serious problem – not just for Madagascar, but for the world. Of the island's 200,000 species, 150,000 exist only on Madagascar. For example, 223 of its 226 frog species exist nowhere else on our planet. Once any one of these species becomes extinct on Madagascar, it becomes extinct on the entire globe. [*Madagascar: Environmental*]

Given the poverty on Madagascar, the habitat destruction that is threatening to cause such extinctions cannot be solved by simply telling the Malagasy people to stop cutting down or burning their forests.

One possibility could be to eliminate the need for “Tavy” by providing farmers fertilizer to replenish depleted soil nutrients. A complementing approach could be to plant “savoka” gardens in the abandoned fields, which have plants such as wild ginger or legumes that can replace lost nutrients in the soil. Another approach could be to encourage perennial crops such as citrus, vanilla, or mango which continue to produce year after year without causing as much damage to the soil.

Another approach is to lessen the temptation (or need) to cut down trees for charcoal, ebony, or rosewood by providing other ways for Malagasy people to make money. One way is to promote eco-tourism, which employs local people, does not damage the environment, and encourages local people to preserve and protect their natural environment and wildlife. This appears to be succeeding on some parts of the island, for today 50% of island visitors tour wildlife as compared to only 20% in 1995. [*Madagascar: Environmental*]

But such proposals are worthless if the local Malagasy people will not accept and adopt those proposals. For example, Tavy and rice farming are so engrained in the island's culture that

it has so far been hard to get farmers interested in anything else. The purpose of my expedition will therefore be to explore with the subsistence farmers of Madagascar whether proposals such as the above would be accepted, or can be modified, so we can discover a way for the people, plants, and animals on Madagascar to co-exist – before it's too late for any more of the island's native species.

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