

Patricia Wright



Patricia Wright, a well-known American primatologist, has been working on lemurs in Madagascar for over 25 years. During her expeditions in Madagascar, she discovered a new species of lemur, the Golden Bamboo Lemur (*Haplemur aureus*) and has helped set up the Ranofama National Park in 1991. Among the many awards she has received for her work is the prestigious Chevalier d'Ordre National (National Medal of Honor of Madagascar), from the President of Madagascar in 1995. In May 2014 she was also awarded the prestigious Indianapolis Prize for her efforts in conserving wildlife. She is currently a Professor at the Stony Brook University, New York, USA. She visited Bangalore to attend the Student Conference in Conservation Science 2013 held at the Indian Institute of Science. *Current Science* interviewed her soon after her talk. Wright spoke about her experiences working in Madagascar and how she feels conservation measures will be successful only if good science shakes hands with good management practices.

Please give us a brief insight on Madagascar's unique biodiversity?

Madagascar is truly a biologist's paradise (Figure 1). It boasts of ~4500 tree species, ~12,000 species of flowering plants and ~400 species of frogs. It has a variety of different habitats too. The northwestern side of the island has dry deciduous forests, where one can find baobabs (Box 1). It also has dry desert habitat with spiny vegetation, dry most of the time, but sprouts a green flush

after the rains. Madagascar also has large areas of mangroves and beautiful coral reefs. I work in the rainforests found on the eastern part of the island. The rainforests of Madagascar are home to 105 species of lemurs (Box 2). They play varied roles and are the main drivers of the ecosystem. However, 91% of the lemur species are on the IUCN red list. Madagascar has no ungulates or large carnivores, but only meso-carnivores like the fossa (Box 3) which prey on lemurs.

What are the factors that threaten Madagascar's biodiversity?

I have travelled to many places and the one thing I have realized is that they all face similar challenges when it comes to conservation. Madagascar faces very severe threats with 90% of its pristine forests destroyed. Illegal logging is a major threat (Figure 2). In addition, logged areas are burnt which destroys the seed bank and thus nothing grows back.

Logging is a billion dollar industry dominated by privately owned firms and companies based overseas. The loggers come armed and forcibly employ the Malagasy. Precious hardwood trees like rosewood are also logged, which is forbidden by law. They get away with it because of the high levels of corruption in the system. Today, the centre of the island has been completely logged and the forests now are restricted to a narrow belt along the perimeter of the island. The forests might have the potential to re-grow if the area is not burnt after being logged. But it is a long process and will take many years to recover.

Bushmeat hunting is a problem that has cropped up recently. Hunting has increased with the tremendous influx of loggers into the country. Traditionally the Malagasy do not hunt lemurs as it is considered a taboo. The main consumers of bushmeat are the loggers and timber exporters in the northwestern part of the island. They pay the locals large sums of money to hunt lemurs for them.

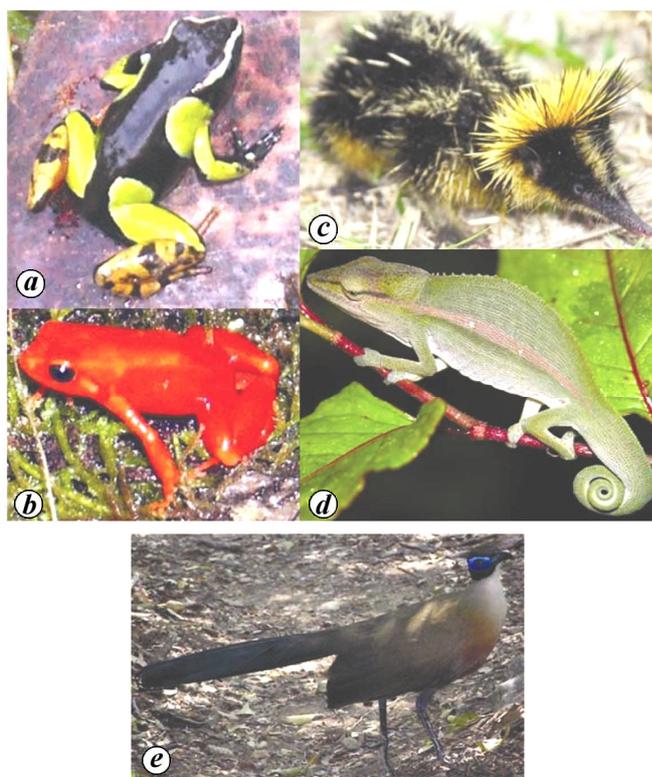


Figure 1. Madagascar's unique biodiversity. **a**, *Mantella madagascariensis*; **b**, *Mantella aurantiaca*; **c**, *Hemicentetes semispinosus*; **d**, *Furcifer gastrotaenia*; **e**, Giant coua (*Cuculus gigas*) (photo: www.mongabay.com).

Box 1. Baobabs



Baobabs (*Adansonia grandidieri*) amidst Madagascar's expanding agricultural landscape (photo: www.mongabay.com)

Baobabs are trees belonging to the genus *Adansonia*. *Adansonia grandidieri* is the largest and most well known among Madagascar's six baobab species. It is an endemic species and is threatened by agricultural expansion.

Box 2. Lemurs



Ring tailed lemurs (*Lemur catta*) (photo: www.mongabay.com)



The Golden Bamboo (*Hapalemur aureus*) lemur was discovered by Wright during her surveys in 1986 (photo: www.mongabay.com)

Lemurs are a group of primates endemic to the island of Madagascar. There are more than 100 species of lemurs and they weigh between 30 g and 9 kg.

Box 3. Fossa



Fossa: the main predator of lemurs (photo: www.wikipedia.org)

Fossa (*Cryptoprocta ferox*) is a small-sized carnivore, endemic to Madagascar. It is active both during day and night with its activity peaking at dawn and dusk. It is the largest terrestrial mammal found in the forests of Madagascar and predominantly feeds on lemurs.



Figure 2. Aerial view of Madagascar's logged and deforested area (photo: www.mongabay.com).

However, the newest threat to Madagascar's biodiversity is from the mining projects. Recently, mining for titanium, cobalt, sapphire and gold has started. Gold reserves have been discovered within the boundary of the Ranofama National Park and we are now doing our best to stop mining projects.

But thinking optimistically, Madagascar is lucky in many ways to be a little behind the rest of the world. Lessons learnt in conservation elsewhere can be modified and applied locally. For example, when the titanium mining companies came to Madagascar, it was ensured that a conservationist be present on the committee to help bargain for restoration of the area once the mining was over. The

mining company now has a contract for 25 years and it has already started to restore the area after being mined. They also have hired biologists to conduct biodiversity surveys and have protected forest patches where the presence of lemurs was found. The cobalt and nickel mining companies also have a similar habitat restoration policy in their contract. In addition to this, the environmental activists groups in Madagascar play the role of watchdogs and help in keeping track of the activities of the mining companies.

How different is Madagascar today compared to the one you came to 25 years ago?

Madagascar today is a lot different from the one I saw 25 years ago. When I arrived in Madagascar in 1986, it was a poor country with no roads or any infrastructure. It used to take me two days to reach my camp site, a distance which can now be covered within eight hours. In 2002, under the leadership of the then President, Madagascar saw phenomenal growth. The economy grew with aids from Norway, Sweden, France, Italy, Germany, the European Union and USA. Around the same time, the island was opened to tourism and today it's a tourist hotspot. Initially, the local people were not used to having tourists and were wary of them, but today they are very welcoming and hospitable.

There has also been an increase in the population from 9 million to 23 million between 1986 and 2013. This puts a lot of pressure on the resources available. Malagasy have been practising agriculture, but the trend is now changing with the economy opening up. Healthcare has improved considerably. But amidst all the growth and development, a large part of the forest cover has been lost.

Are there any plans to start restoring Madagascar's logged forests?

During 2000–2008, there was a major push for restoration of the logged forests by the Forestry Department. However, they planted large areas with exotic tree species like pine and eucalyptus. Though pine and eucalyptus are fast-growing species, they serve no purpose to the endemic fauna of Madagascar. They neither provide food nor shelter and use up the island's groundwater resources. Though

the Forestry Department did this with the best of intentions, it was not a well thoughtout idea.

In the nineties, our research team started experimenting by planting seeds found in lemur dung in a small plot of land and today lemurs have grown over 20 m high. This gives us the hope that all is not lost and restoration is still possible. We however have very limited funding to carry out such activities at a larger scale, but researchers from Cornell University are setting up nurseries and planting native tree saplings in logged and degraded forest patches in northern Madagascar. Logging is still a big threat and restoration projects need to be taken up on a large scale.

Tell us about your experience in setting up the Ranofama National Park

Madagascar opened itself to the West only during the 1980s and the scientists were among the first to be given permission to enter the country. Scientists had started to discover many new species long before embassies were allowed to come in. I first went to Madagascar in 1986 on an expedition to search for the greater bamboo lemur. Being a foreigner helped me gain access to funding sources abroad and I received funding from the US Government to put in infrastructure and begin research. The challenge of setting up a national park was new both to me and the Forestry Department at Madagascar. Even though the staff was well trained, they still followed the old-fashioned ways which the Western countries had long before discarded. We set up Ranofama National Park (Figure 4) in 1991 and the National Park Service in



Figure 4. Moss covered tree on the Ranofama River in Ranofama National Park (photo: www.mongabay.com).

1993. In 1997, we handed over the management of Ranofama to the National Park Service. Though today, we do the research and they handle the management of the Park, we work closely together and collaborate on many issues. The National Park Service today manages 18 national parks and has successfully set up a few community reserves. In addition, World Bank has provided aid to set up a nation-wide Environmental Conservation Program in Madagascar.

In what ways is your research team involved with the local community?

Malagasy have never had much money before and the money they earned for their services as tour guides and research assistants brought about social changes. In addition to setting up savings accounts for our employees in local post offices, we, as a part of our village welfare programmes, have organized training camps for women and youth in vocational skills and on managing and saving money. Every village has its own cultural norms and they are strictly followed. We have enforced a strict rule of firing anybody found drunk on the job. This has helped us gain trust of the village elders. We have also set up schools in villages around Ranofama and working closely with the school children and the teachers. We have collaborated with UNICEF on a project to bring together children from different villages and conduct nature appreciation camps during weekends and other holidays. We are now hoping to collaborate with the Ministry of Education to include environmental and nature education as a part of the school curriculum itself.

Will bringing about socio-economic changes in the region help conservation efforts?

One cannot expect to conserve wildlife by improving the socio-economic conditions of the locals. Socio-economic solutions will help conservation only if discussions on conservation issues are held at each and every step. The natural beauty and wealth of Ranofama has been responsible for bringing in economic improvements and hence its importance has always been stressed and highlighted to the locals.

What is unique about the tourism model followed in Ranofama National Park?

The tourism model in Ranofama National Park is based on community participation, where the local people are trained and employed as tourist guides and research assistants. It also allows the locals to share 50% of the revenue generated from entry-fee collection. In addition, a portion of the National Park's fund is made available for developmental and welfare activities like primary healthcare and education. Following the success in Ranofama National Park, this model is currently being expanded to benefit remote settlements and has also been replicated in all the other National Parks of Madagascar.

In Ranofama National Park, the number of visitors has increased over the years. Local tourists are very few in number. Most tourists are from Europe and USA. The revenue generated by Ranofama National Park is among the highest when compared with other National Parks in Madagascar. We have opened new trails to help ease out the pressure of tourism on a single part of the Park. Anticipating such a situation we have plans to prevent hotels and lodges from mushrooming around the Park. We have introduced a policy which permits setting up of hotels and lodges only if a minimum of 50% of it is owned by the locals. Therefore, most of the accommodations available around Ranofama are homestays and bungalows.

What should conservationists working in Madagascar now focus on?

Not very long ago, oil reserves were discovered not far away from Madagascar's coasts. Hopefully, lessons learnt from other parts of the globe will help both the conservationists and the people involved in oil exploration projects handle the situation in the best way possible. Focus also needs to be on setting up many more conservation and research stations as I personally believe that good science is the foundation for good management. Conservation will be successful only if one works hand in hand with the park managers.

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