

# Biodiversity at Stake: The End of the Ring-tailed Lemur?

Alejandra Arias, Sebastián Castro, Daniel Martínez, Juan Diego Mayorga, Ana María Rengifo, Lorena Yáñez



## Context

The island of Madagascar is home to the lemurs. Out of the 14 existing species of these animals, 13 live only on the island. Despite the fact that they have great abilities to adapt to a wide variety of environments that range from rainforests to deserts, a report given by the IUCN Red List of Threatened Species shows that 94% of the species of lemurs are in danger of extinction. This is due to the increasing deforestation of the island, which is an issue that has grown to such an extent over time, that not only the biodiversity of the island but the unique primates are in jeopardy too. The menace towards the Catta (ring-tailed) lemur is therefore imminent. However, which is the relationship between deforestation and the lemur's extinction?

## Evidence

Deforestation in Madagascar is the principal human activity to guarantee livestock, agriculture and the extraction of coal and firewood. Nonetheless, this action derives in an environmental problem that causes loss of habitat and soil conditions, desertification, reduction of water resources, and finally an impact on biodiversity. The island has lost about 90% of its original forest cover, according to a report published by WWF in 2011. [4].

As it can be seen in picture 1, the red spots showcase the deforestation in the territory. Albeit the tracts of land that are compromised may look like small terrestrial extensions, deforestation has become one of the principal threats to the island as it is on an unprecedented sharp rise. This factor is directly related to the decline of the population of the Catta Lemur.



## Relationship between Deforestation and Ring-tailed Lemurs

Table 1 shows a direct relationship between the variables of: area, in square kilometres, and the approximate number of lemurs in Madagascar between the years 1985 and 2000. It is evident that if the area (Km2) is reduced, the number of lemurs decreases in the same way.

	Area (km2)		Predicted # of Lemurs		Habitat Loss(%)	Population Reduction(%)
FCD RANGE	1985	2000	1985	2000	1985 - 2000	1985 - 2000
35 ≤ FCD ≤ 50	11.933	11.472	36.266	34.898	3,86	3,77
50 ≤ FCD ≤ 65	10.653	9.682	301.202	265.593	9,11	11,82
65 ≤ FCD ≤ 70	2.548	1.850	238.003	171.606	27,39	27,9
70 ≤ FCD ≤ 75	1.540	1.189	233.939	181.975	22,79	22,21
FCD RANGE > 75	574	452	123.752	97.179	21,25	21,47
<b>TOTAL</b>	<b>27.248</b>	<b>24.645</b>	<b>933.162</b>	<b>751.251</b>		

Table 1: FCD Range is a model that refers to Forest Canopy Density.

## Impact on Biodiversity

Deforestation is a clear proof of the environmental impact on the island and therefore its consequences on the ring-tailed primates. However, does this phenomena pose an additional risk to biodiversity of flora and fauna of Madagascar? The answer to this question would be affirmative, given that Madagascar is the world's most important biodiversity hotspot; with a 70% of unique species[4.] The decrease of lemurs imply a deleterious effect on the flora and fauna.

## Effects on Flora

The effect would be noticed in the flora with a reduction in the density of the forest. This is because the faeces of the Lemur Catta contain seeds that spread along the ground, planting a species of trees called *Cryptocarya crassifolia* baker. Due to the fact that lemurs are considered natural pollinators, they are responsible to fulfil an essential role for the propagation and livelihoods of these and many other trees. However, if there is a minimum population of Lemurs, as is currently the case, a decrease in the density of the forests and the ecosystem in general would be the next logical event to take place. In addition, another specie that would be affected by the disappearance of the lemurs are the Madagascaiensis Ravenala trees, whose seeds have a higher percentage of growth when they are deposited by defecation of the ring-tailed lemurs [5].

## Vulneration of Fauna

Regarding Fauna, animals such as the Chameleon and Spider Turtle also display a hazardous impact on its specie derived from the same matters. Additionally, due to the process of Lemur extinction, their predators Fossa and Civeta, are seriously harmed. This is demonstrated in the following satellite images taken at southern Madagascar Forests; where lemurs share their ecosystem with the species of flora and fauna previously mentioned [6]. The figures show a green spot (lemur habitat) which is reduced throughout the years since 1991 until 2010. Due to this, the importance of the survival of the lemur can be ratified, since they create a balance in their ecosystem and, if this is affected in the way the images show, it will be a warning for biodiversity.



## Conclusions

It is possible to state that the Catta lemurs are key for the biodiversity in Madagascar; since they are not only the food of some species but also provide a habitat to many others. Deforestation, however, their reproduction and it can result in the vulnerability of their ecosystem as a whole. Consequently, after joining all the variables studied during the investigation, it can be stated that: if the area of forest is decreased, the number of lemurs will reduce as well; also, other species that form part of the lemur's food chain or that share habitat with it will also perish; and finally, as all of these systems are in danger, the reforestation using the seeds of the lemur is impossible. Evidently, the variables create a domino effect, which does not only put this primate at risk, but also the entire biodiversity of its habitat.

Thereby, the following questions arise to promote further investigation: Is it possible to stop the attacks on the lemur? Are the necessary efforts to avoid the extinction of the species and the ecosystem itself, being made?

## References

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