Forest On the Clouds:
An Overview of Ecuadorian Cloud Forests and Conservation Insights

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Introduction

- Ecuador is the 8th most biodiverse country in the world due to its varied Andean topography and stable equatorial climatic conditions
- Covering less than 1% of Earth's land surface area, cloud forests harbor more unique biodiversity than the Amazon rainforest
- Cloud forests make up 10% of Ecuador's territory, are critical water sources, and contain half of the country's biodiversity
- Cloud forest destruction and functioning are intertwined with human history

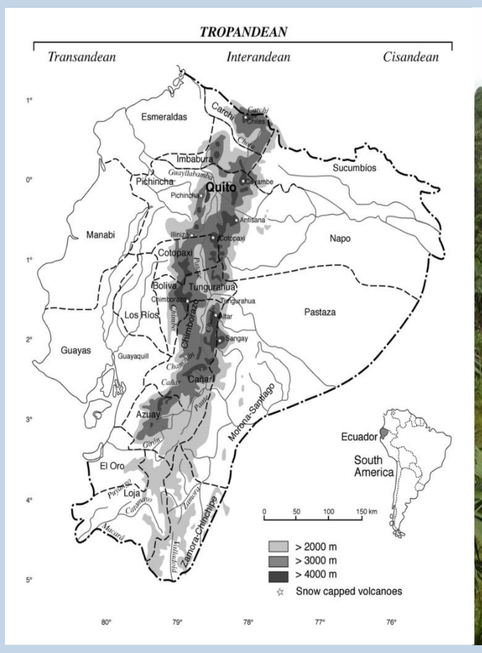


Figure 1: Tropical Andean region of Ecuador[1]



Figure 2: Cloud Forest in Mindo, Ecuador[2]

Theoretical Background

Cloud Forest Ecology

- Cloud forests have stable states (Type III & IV) and negative feedback from vertebrate organisms reseeding disturbed areas[2]
- Disruption of mechanisms leads to a temporary dysequilibrium (Type II), which can recover if mechanisms are restored or degrade into a new equilibrium (Type I)[2]
- Millenia-old civilizations contribute to modern forests by influencing regeneration patterns through agroecological systems and engineering[3]
- Colonization disrupted cloud forest ecology through genocide of Indigenous societies and deforestation for cattle and timber
- Further deforestation is continued by global corporations and economic pressure from the IMF to develop the mining and petroleum industries

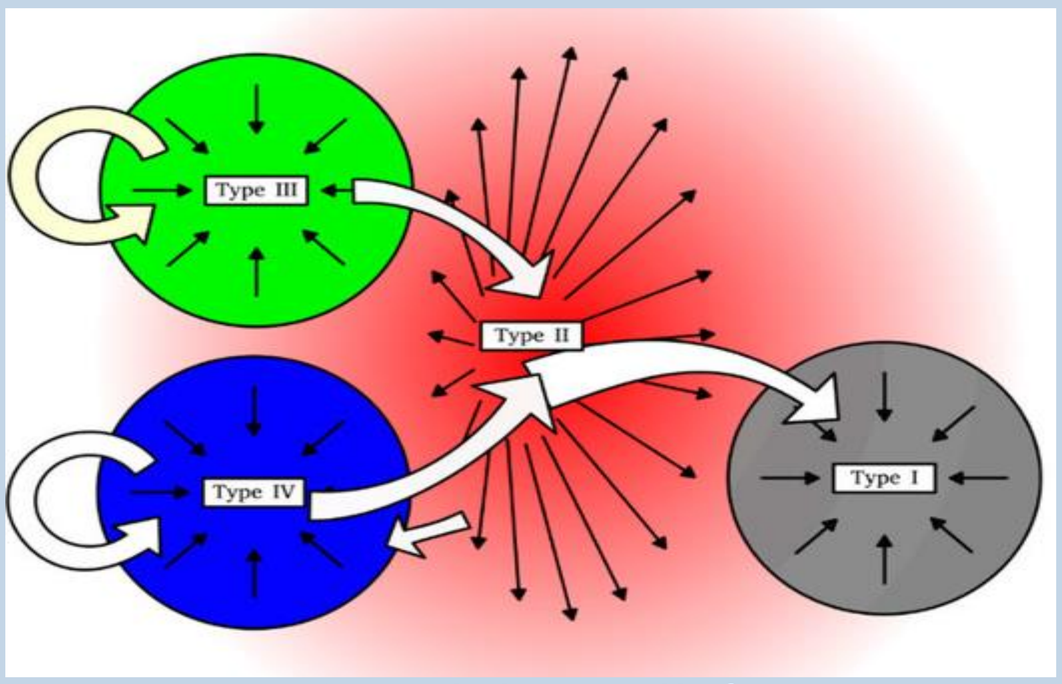


Figure 2: Cloud Forest Equilibria[2]

Conservation

- Most conservation is done through private NGOs that manage projects separate from communities
- Community-led projects use Indigenous practices and knowledge for conservation to protect water sources, incorporating woman and Indigenous rights
- In 2008 Ecuador became the first country in the world to recognize Nature as an entity with legal rights and representation[4]
- Landmark supreme court ruling in 2021 reiterated that the health of all ecosystems in Ecuador supersedes state interests in resource exploitation

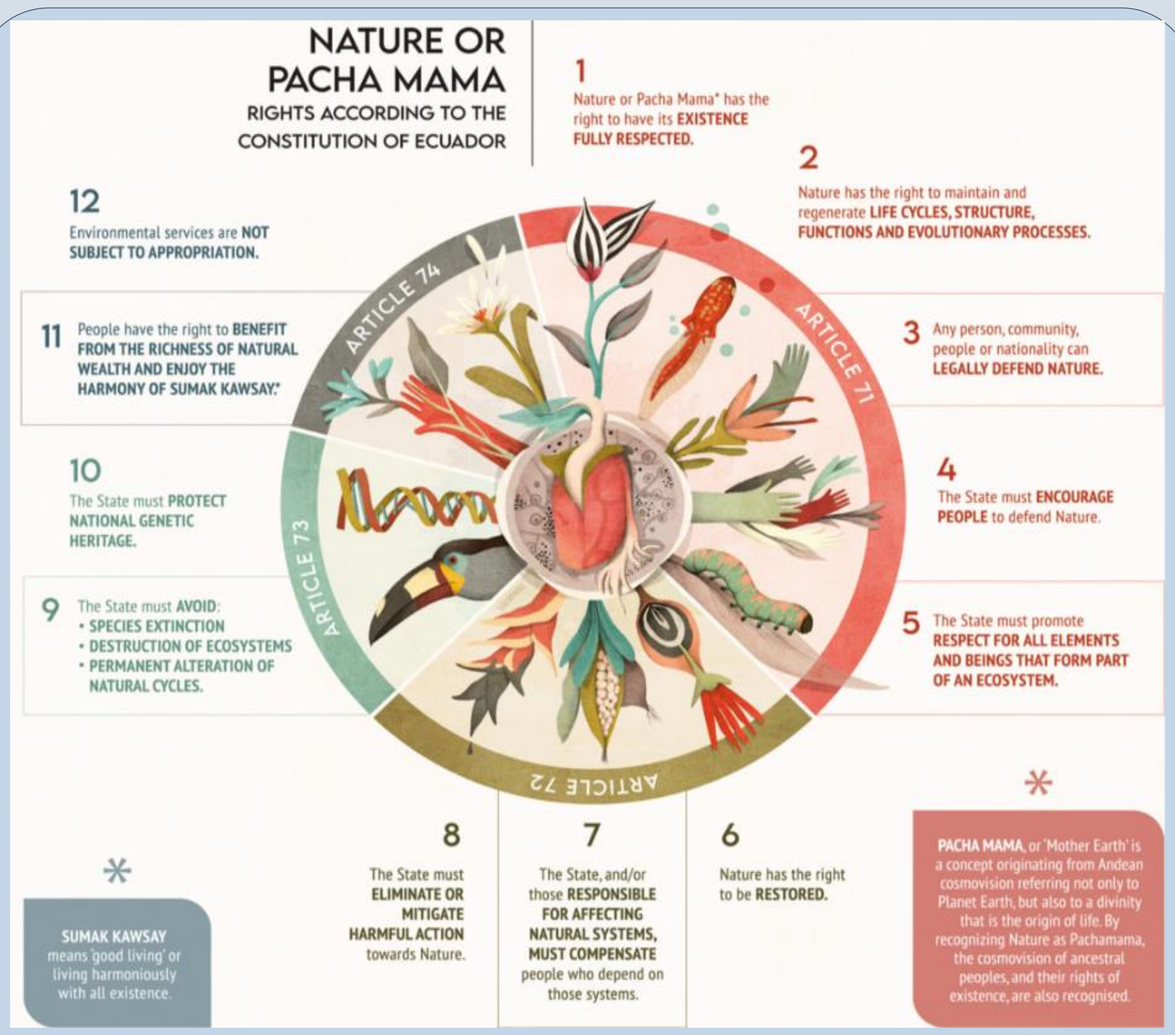


Figure 3: Outline of Rights of Nature in 2008 Ecuadorian Constitution[3]

Threats

- Over 55% of cloud forests are completely cleared, with most remaining forests being fragmented or degraded
- Climate change and land use changes inhibiting recovery and precipitation patterns
- Widespread corruption and lax enforcement of environmental laws due to corporate and state pressures
- Lack of documentation of biodiversity, ecology, and traditional knowledge data
- Rolling back environmental and Indigenous rights protections



Figures 5 & 6 : Deforestation and landslides from mining exploration in Intag Valley, Ecuador[6]

Conclusion

- Conservation efforts need to focus on preserving even small remnants of cloud forests to preserve species
- Need to incoporate Indigenous peoples and knowledge to expand understanding of cloud forest ecology and biodiversity documentation
- The plight and regeneration of cloud forests is inherently tied with historical, political, economic, and social influences that drive human interactions and cloud forest succession

References

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