



ADDRESSING CLIMATE CHANGE IN AFRICA: CHALLENGES AND THE WAY FORWARD FOCUS ON BIODIVERSITY AND ECOSYSTEM FUNCTIONING



FOCUS AREA

- (1) Understanding the effect of climate change on biodiversity and ecosystem functioning ('BEF');
- (2) Catalyzing biodiversity knowledge production that can guide policy makers and civil society to effectively participate in sustainable management;
- (3) Engaging and supporting early career scientists and students to study climate change and its effect on biodiversity and ecosystems, as the number of specialists and resources is currently limited.

CHALLENGES

Africa's terrestrial, freshwater and marine ecosystems and their biodiversity are especially threatened. Ongoing loss of biodiversity in Africa is driven by a combination of human-induced factors (including poverty). The continent continues to experience deforestation and forest degradation at alarming rates. The negative impacts of climate change on species and ecosystems are exacerbating the effects of all these pressures.

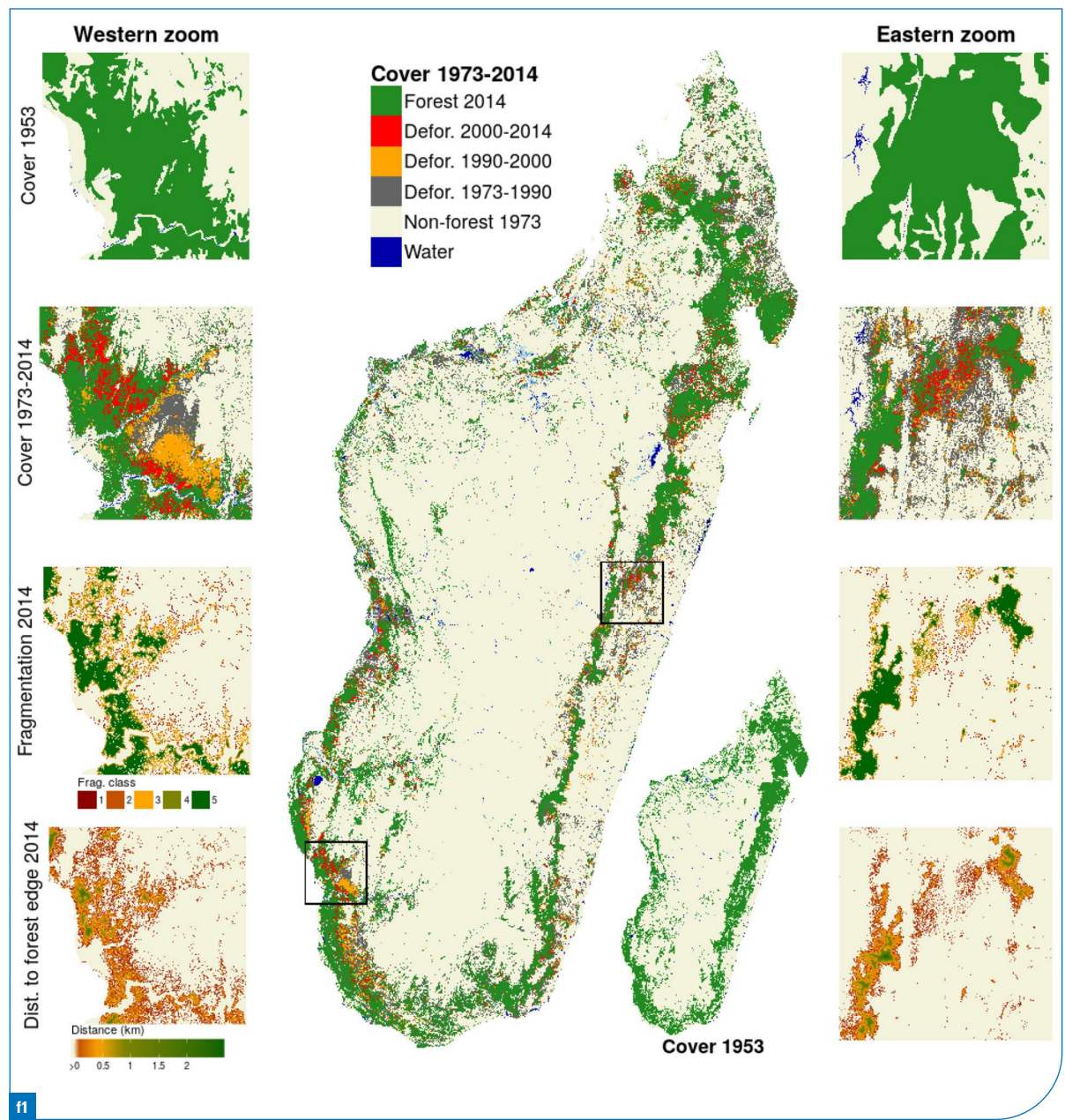
To reduce or decelerate these adverse effects and ensure a functioning ecosystem, understanding biota (plants, animals, macro-/micro-organisms, humans), it is vital to be able to understand the responses to climate stressors and predicting future effects of the stressors on ecosystem management and restoration.





However, in most African regions, there is a disproportionately large lack of specialists and little effort has been made to promote research to tackle climate change and its effect on BEF, this is mainly due to lack of resources and funding.

Furthermore, in many African countries, data mobilization and dissemination to catalyse knowledge production remains insufficient. Such an effort can guide policy makers and civil societies to effectively participate in sustainable management.





FACTS AND FIGURES

Biodiversity loss, case of Madagascar

Madagascar's land cover has undergone big changes over the past decades. Madagascar has lost 44% of its natural forest between 1953 and 2014 (Figure 1). Many of the main drivers of change affecting forests, biodiversity and environmental problems are man-made. Madagascar is a global biodiversity hotspot, with some of the highest levels of diversity and endemism on the planet. Its forests are among the most biologically rich, unique and highest conservation priorities in the world (Figure 2, 3).

The main key reasons for biodiversity loss in Madagascar are:

(1) Deforestation and habitat destruction:

- slash-and-burn agriculture for the cultivation of cash crops;
- logging for timber, this is especially a problem in the eastern rainforests of Madagascar;
- fuelwood and charcoal production.

(2) Overexploitation of living resources:

- hunting and collection of endemic species including lemurs and reptiles;
- fishing Is poorly regulated, harvesting of many endemic marine fauna is increasing at a very unstable rate (<https://www.wildmadagascar.org/conservation/threats.html>)

(3) Introduction of alien species has doomed many of Madagascar's endemic species.

SOLUTION

We at the WG Climap Africa BEF is working toward: Promoting research related to climate change and its effect on biodiversity and ecosystems on the region (terrestrial and aquatic):

- Understand the primary climatic drivers in ecosystem type(s) and how they affect biotas.

- Understand and predict ecosystem services, species diversity and distribution pattern under climate change scenarios.
- Elucidate the direct and indirect climatic drivers and their impact on ecosystems and sociocultural behaviour and health of people.
- Promoting knowledge on biodiversity for policy development via a stakeholder dialogue workshop, providing managers and policy makers with useful tools for the management of African ecosystems.
- Promoting and/or improving synergy among researchers by facilitating information sharing on research, recent findings and advancement.

WG Clim Africa BEF must be the voice of the youth in Africa

Work and facilitate the contributions of African early career scholars in a hot and sensitive research topic linking biodiversity and climate change, thereby giving postdocs and alumni scientists a voice in global assessments of biodiversity and ecosystems in the Africa region on renowned platforms like the Intergovernmental Science Policy platform on Biodiversity and Ecosystem Assessment (IPBES), the Intergovernmental Panel on Climate Change (IPCC), the Centre for International Forestry Research (CIFOR), and the United Nations Program on Reducing Emissions from Deforestation and Forest Degradation (UN-REDD).

HOW CAN THE CLIMAPAFRICA PROGRAM CONTRIBUTE TO ADDRESS THE CHALLENGE?

Facilitate the creation of a network of specialists, early career scholars and students based in Africa; and promote collaborative work amongst researchers in the region and specialists from around the globe.

Facilitate the promotion and advertisement of each WG group members and their projects using ClimapAfrica program's platform. It is important to showcase to the international community ongoing projects led by each member.

In terms of capacity building, facilitate the mentoring of young scientists with special interest in climate science and biodiversity conservation in the region.

Facilitate the contribution of this WG to ongoing efforts and collaborative work tackling biodiversity loss in Africa, for instance “The Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets”

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The thematic working groups are composed of postdoctoral fellows and African alumni of German funding initiatives with expertise in the field of climate research. [LINK to climapAfrica working group: Climate change Biodiversity, Ecosystems and Forests](#)

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[LINK to profiles of all climapAfrica postdocs fellows of this working group](#)

[LINK to profiles of all climapAfrica alumni experts of this working group:](#)

The alumni of this working group are currently being determined.

PHOTOS AND GRAPHICS

p1: Village at the edge of Marojejy National Park, North-eastern Madagascar ©Jurgen Kluge | p2: Tsingy formation in Ankarana National Park, Northern Madagascar ©Lova Marline | p3: Population of Baobab (*Adansonia grandidieri*) near Morondava, western Madagascar ©Lova Marline | p4: Volta Lake, Akosomo Gorge Area, southeastern Ghana ©Lailah Gifty Akita | p5: Woodlands in Bicuar National Park, Huíla province SW Angola ©Francisco Gonçalves | f1: Forest cover change from 1953 to 2014 in Madagascar. Main figure: Forest cover changes from 1973 to 2014; bottom-right inset: forest cover in 1953; left part: zoom in the western dry and right part: zoom in eastern moist (Source: Vieilledent et al. 2018) | p6: Aerial view of woodlands in Bicuar Nacional Park, SW Angola ©Francisco Gonçalves