

BUILDING RESILIENCE INTO CONSERVATION PROGRAMMING: LESSONS FROM AWF'S CLIMATE CHANGE ADAPTATION ACTIVITIES

SUMMARY

Introduction

Climate change is predicted to become the biggest single driver of biodiversity loss over the next 50-100 years, greater than land use change, land degradation and the invasion of alien species. With its vast expanses of dry land, highly variable climate and emphasis on natural resource-based development, Africa's natural ecosystems and the human populations who depend on them are particularly vulnerable to future climate change. Averting the future loss of biodiversity and vital ecosystem services under current climate change scenarios in Africa is an enormous challenge. It will require strategic and collaborative conservation planning at national and sub-national levels based on sound scientific knowledge of the linkages between climatic change impacts and clear prioritization, based on the assessed vulnerability of ecosystems and their dependent societies. Adaptation planning in conservation will require integrating knowledge of how species, ecosystems and their services to society will be impacted by climate change with knowledge of how people will be affected by, and respond to, climate change.

The African Wildlife Foundation (AWF) is an international conservation organization headquartered in Kenya, working on landscape-scale conservation issues across Africa. AWF has a three part climate change programme – monitoring, mitigation and adaptation, and is working closely with partners on a series of pilot response projects. AWF relies on secondary climate change modeling data for its

vulnerability assessments and keeps a practical focus on identification, prioritization and field testing of adaptation responses. Conservation planners face numerous challenges in their efforts to use projections to prioritize adaptation responses, however. To date assessments of climate-change impacts on biodiversity have largely been based on down scaled global climate models, yet such models may give a false impression of precision and mask the generally widely variant range of potential future scenarios under climate change. Mainstreaming adaptation into conservation planning is further complicated by inevitable uncertainties over the linkages between societal and ecosystem adaptation.

AWF's Adaptation Programme

For the past decade, AWF has taken a landscape scale approach to conservation, defining priority ecosystems in which to work. Much of AWF's work involves working with partner organizations to strengthen local approaches to sustainable natural resource management. We recognise that while much of this work will make a valuable contribution to adaptation (notably that of improving drought resistance of livestock and crop production systems, strengthening water harvesting and storage systems, improving rural sustainable energy provision, flood prevention and working on connectivity through corridor conservation), these efforts must be better prioritized and monitored through assessments of ecosystem and societal vulnerability.

AWF is exploring practical ecosystem-based adaptation (EbA) approaches – defined by the Convention on Biological Diversity (CBD) 2nd Ad Hoc Technical Expert Group on Biodiversity and Climate Change as 'the use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change'. This definition was elaborated by the CBD CoP 10 decision on Climate Change and Biodiversity as including "sustainable management, conservation and restoration of ecosystems, as part of an overall adaptation strategy that takes into account the multiple social, economic and cultural co-benefits for local communities', and this is the definition that AWF uses. AWF is keen to share ideas and experiences with other groups working on EbA. AWF was part of the African Biodiversity Conservation Group's recent assessment of adaptation and anticipates the Cambridge Conservation Initiative's forthcoming assessment of lessons learned to date from EbA.



Climate change impacts on ecosystems and biodiversity

AWF is refining its vulnerability assessment methodology to develop a tool that can be applied flexibly and cost-effectively across African landscapes. Under our EbA methodology we conduct vulnerability assessments, particularly with regard to developing resilience building conservation actions to safeguard ecosystem services for local communities (especially water) and species/habitat adaptation (e.g. corridors), while increasing the resilience of water and agriculture systems. The evolution of climate change response plans are therefore informed by these vulnerability assessments leading to stepped up monitoring of site/target-specific variables and specific resilience-building conservation actions.

The first in-depth AWF vulnerability assessment was completed in the Virunga landscape, across mountain gorilla habitat in Rwanda, Uganda and eastern DRC in 2009-10. Recognizing that historical rainfall and temperature data across much of Africa is very patchy, AWF sought to complement "off the shelf" global data products such as WorldClim with locally available data to compile a comprehensive, if imperfect, picture. This data was combined with a vast array of species and habitat specific variables within a climate-envelope model, to produce a series of forecasts under a range of future climate scenarios. Results were then discussed in a series of participatory meetings held in the landscape involving local stakeholders, local experts and international scientists.

The Virunga vulnerability assessment recommended a series of concrete monitoring and conservation actions. Accelerated support to strengthen the diversification of local livelihoods within forest-adjacent communities was particularly emphasized as the assessment found that the impact on the landscape and its resources will be felt strongly through the reactions of local communities to climate change. However, the difficulty of forecasting from weak local data was also acknowledged and therefore the following was recommended: (i) establishment of long-term vegetation plots along a gradient transect to track shifts in vegetation distribution and phenology as related to habitat resources; (ii) deployment of weather stations to fill gaps in meteorological coverage and to track micro-climatic shifts; and (iii) expanded emphasis on monitoring of the water resource distribution, seasonal availability and access. AWF is now refining this methodology to make it more efficient to replicate, and is applying it in several other landscapes across eastern Africa.

Key lessons

While AWF recognizes that much of its ongoing ecosystem strengthening work (including work on watersheds, water harvesting and storage, forest conservation and support for sustainable agricultural livelihood systems) will support the process of adaptation,



Mountain Gorilla habitat in Rwanda

it realizes that the targeting of this work needs to be improved by vulnerability assessment. The following are some of the lessons learned so far that we would highlight:

- 1. Data availability-** climate modeling is central to the development of these vulnerability assessments and subsequent prioritized conservation programming. This process is very data intensive. Geospatial data is required to map relevant variables across the landscape including water, vegetation, species and human settlement. While much of this data is gathered as part of the AWF science programme and thus available across most landscapes, it is important to work closely with local partners to fill in data gaps and ensure shared modeling and interpretation.
- 2. Partnerships-** effective collaboration is vitally important, and AWF has sought to use external expertise to both generate species distribution models and develop capacity both in-house and with key programme partners. For the Virunga assessment AWF partnered with EcoAdapt and the University of California Davis as well as the World Conservation Society in developing and interpreting the climate-envelope model.
- 3. Capacity building-** there is a recognized need to do more training with field staff and with local partners in building understanding of best practice in adaptation, and AWF is looking for opportunities to do so.

Conclusion

AWF believes that adapting to climate change is one of the biggest challenges facing African ecosystems and societies over the coming decades, along with the challenges and opportunities presented by population growth, agricultural investment, rapid growth and declining poverty levels. AWF will use its strengths as a successful landscape-focused conservation organization and its strong relationships with local partners to test, adopt and replicate adaptation action to increase the resilience of both human and wildlife populations.

¹Secretariat of the Convention on Biological Diversity, 2009. Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change. Montreal, Technical Series No. 41, 126 pages. A Review of Climate Change Adaptation Initiatives within the Africa Biodiversity Collaborative Group Members, 2011, by WCS, CI, WWF, TNC, JGI and AWF, supported by USAID The Implications of Global Climate Change for Mountain Gorilla Conservation. A white paper prepared by the African Wildlife Foundation, the International Gorilla Conservation Programme and EcoAdapt and funded by the John D. and Catherine T. MacArthur Foundation, 2010 (<http://www.awf.org/documents/The Implications of Global Climate Change for Mountain Gorilla Conservation in AlbertineRift FINALgw Feb28.pdf>)