
Tackling conservation in the Maloti-Drakensberg Bioregion

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Conserving a bioregion that crosses political boundaries.

Stretching across two countries (Lesotho and South Africa) and three provinces (Free State, KwaZulu-Natal and Eastern Cape) the Maloti-Drakensberg Mountains represent a bioregion of globally significant biological and cultural diversity, along with being the primary water catchment for the sub-continent. People in both countries depend on these resources for their livelihoods. Yet, despite the obvious importance of this mountain bioregion, its biodiversity, cultural heritage and ecosystem processes are seriously threatened, primarily by habitat loss resulting from land transformation and degradation. The Maloti-Drakensberg Transfrontier Project (MDTP) is a World Bank funded intervention being conducted between Lesotho and South Africa to address conservation and community development issues in the Maloti-Drakensberg Bioregion (see map). The challenge for the MDTP is to conduct the conservation of this exceptional and unique mountain region across political borders, while ensuring that the development

needs of local populations are met. The MDTP has identified two broad requirements for addressing the threats to the natural heritage of this bioregion, namely: (1) ensuring all biodiversity patterns (ecosystems, habitats, and key species) and the ecological processes that sustain them are represented in a conservation network and (2) informed conservation management.

Ensuring conservation representivity in the bioregion.

Systematic Conservation Planning (SCP) offers us a defensible way to identify areas that are important for achieving biodiversity targets. In doing so, SCP also helps prioritize and focus the limited financial and human resources of conservation agencies. The starting point for SCP is to identify what biodiversity should be where. This is achieved by collating existing data from a range of sources: conservation agencies, herbaria, museums and universities. Based on a GAP analysis of the required and available data, targeted field surveys are conducted to fully understand the distribution of critical ecosystems and species. The next step is to state explicit targets for each biodiversity

feature to answer the question of how much land we believe is needed to ensure the long-term persistence of ecosystems and their biodiversity. Target setting is a public process, engaging both specialists and appropriate stakeholders to ensure that the decision making process is transparent and can be interrogated. Transformed lands that have irretrievably lost the bulk of their biodiversity (e.g. plantations, ploughed fields and urban areas) are identified and treated as unavailable for conservation. Based on these biodiversity targets and the available land, a computer model (e.g. C-Plan, CLUZ or Marxan) is used to identify optimal configurations of areas to meet conservation and development objectives. In doing so, SCP takes cognisance of threats (e.g. potential spread of alien plants) and conservation opportunities (e.g. biodiversity-friendly land-uses).

This latter consideration is important as SCP recognizes that we will not be able to meet our conservation goals if we are to rely on proclaimed conservation areas alone. In selecting priority areas for conservation, SCP aims to minimise the conflict between conservation and competing landuses such as agriculture and plantation forestry. In line with this thinking, a range of 'tools' have been developed nationally and internationally for achieving conservation targets that complement sustainable development objectives (e.g. conservancies, incentives, stewardship agreements, and education programs). Areas calculated as irreplaceable, i.e. if lost will cause a target not to be met, are 'red-flagged' for priority effort and protection from inappropriate



Photo: Kerry-Lee Schwikkard

development.

Increasing development pressures necessitate a growing need for such decision-support systems to guide land-use planning activities (e.g. spatial development frameworks in municipalities). While most SCPs focus on biodiversity, the Maloti-Drakensberg Bioregion SCP will be quite unique in its simultaneous use of biodiversity and cultural heritage features for prioritising conservation action.

Addressing conservation management.

Without informed management, conservation lands exist in name only, giving rise to the term, "Paper Parks". Indeed, many protected areas and conservancies have no formal management plan, which results in uncoordinated and ineffective management actions on the ground. Rangelands represent over 80% of the natural vegetation of the Maloti-Drakensberg bioregion, making them the focus of management activities. The management of rangelands for biodiversity and ecosystem processes centres on the manipulation of disturbances, primarily fire and grazing. Given the 'sour' nature of the bioregional grasslands, native herbivore numbers (and therefore grazing intensity) are naturally low. Historically, there were seasonal upland-lowland migrations of grazing herds, but these would not have penetrated very high into the mountains. Fire, and not grazing, is thus the dominant management tool in conservation lands. At the other

extreme, many rangelands in the bioregion are subjected to excessively high livestock numbers, around 18 times that of the natural carrying capacities realized in conservation areas (Antelope carrying capacity having naturally stabilized at around 1 AU/55 ha at Giant's Castle compared to a livestock stocking rate of 1 AU/3 ha recommended for surrounding grasslands). Subsequently, in reviewing our understanding of disturbance effects, we have focussed on fire management in conservation lands and livestock grazing in communal areas. This assumes that commercial livestock operations apply the optimum mix of fire and veld grazing that, while not necessarily true or ideal for biodiversity conservation, maintain appreciable levels of biodiversity (O'Connor 2005).

While southern Africa has an impressive history of grassland research, much of this has been driven by agricultural production and therefore focussed on the dominant grasses, rather than the forbs (wild flowers) that constitute most of the plant diversity of these ecosystems (van Wyk 2004). Although the resulting management regimes applied to our grasslands are not necessarily suited to conservation objectives of biodiversity conservation. Nevertheless, research, and subsequently grassland management, has been shifting over the last couple of years (e.g. Morris 2004) and is ripe for review to focus and direct future work. To date, the MDTP has reviewed fire best-practice, with the theme of 'Burning for Biodiversity,

and is working to integrate this into a GIS-based decision support tool to guide conservation burning practices. The current phase is to review grazing best-practice for communal land-tenure, identifying appropriate interventions that can combine grazing and conservation objectives.

Expanding conservation management beyond fire and grazing.

Beyond fire and grazing, the MDTP has been working to improve and coordinate activities round a range of other management concerns: 1) track and trail maintenance, 2) extractive use of natural resources, and 3) alien plant and animal species. Tracks and trails are the main way in which people access the Maloti-Drakensberg Mountains, however if these are not maintained they become both uncomfortable to use and an ecological threat. To address this, the MDTP, along with Ezemvelo KZN Wildlife, is working to improve the hiking maps and has developed a protocol for auditing trails (a national first). Annual trail audits will provide managers with detailed information on the trail system to prioritize, budget and plan for annual maintenance.

The natural and cultural resources of the bioregion form the basis of many peoples' livelihoods and as such need to be utilized sustainably. To this end, Ezemvelo KZN Wildlife, in collaboration with the MDTP, has developed an access policy for conservation areas and a protocol to monitor rates of extractive resource use from the bioregion.

Alien species threaten the integrity of the bioregion, degrading rangeland condition in the case of invading plant species (e.g. bramble and wattle) and aquatic faunas in the case of trout. The MDTP is developing a GIS-based prioritization model for clearing alien woody plants in collaboration with the Working for Water Programme, and also has a project to identify and deal with emerging alien plant threats. The MDTP is also working with the Plant Protection Research Institute to motivate for a biological control agent for bramble, based on genetic studies to separate economic and invasive species. In terms of alien fish, which represent both a threat to aquatic biodiversity and ecotourism opportunity, a river zonation plan is being produced to identify potential trout-free zones in collaboration with key stakeholders.

Pulling it all together

This diverse range of activities, are pulled together in an overarching Bioregional Plan (BRP) for the Maloti-Drakensberg Mountains. The BRP is the mechanism through which all the information layers are integrated and interpreted into spatial maps highlighting the priority natural and cultural heritage areas. Most importantly, the BRP will take the next step of mainstreaming these results into the development sector, using mechanisms such as the municipality Integrated Development Plans (IDPs)

and Land Use Management Systems (LUMS). Key outcomes of the BRP are a twenty-year vision and a five-year action plan that details the steps necessary to achieve the conservation targets in the bioregion, whilst maximising livelihoods. Mainstreaming is done by involving all the key role-players, such as the conservation agencies, Departments of Agriculture and municipalities, in the development of the strategies and action plans. The success of the BRP relies very much on the level of involvement of these role-players as they will be responsible for the implementation of the action plans.

References

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Figure 1: Map of the Maloti-Drakensberg Bioregion. Bold lines: provincial and international boundaries. Narrow line: boundary of planning domain of the Maloti-Drakensberg Transfrontier Project. The areas shaded in grey are formally protected areas.