

GUEST EDITORIAL

Biological diversity in Namibia: a clash of sea and land, fog and dust

Namibia is a dramatic country, not least because of its scenic juxtaposition of forbidding desert and cold marine currents, of vast gravel plains and bold inselbergs, and of tropical wetlands and waterless Kalahari woodlands. As a mainly arid land famed for its two deserts, the Namib and Kalahari, it rarely springs to mind as speciose. However, straddling woodland, savanna, Namib and Karoo biomes, Namibia is a surprisingly species-rich country. Partly because the Namib Desert in particular is so ancient, its biotic communities are extraordinarily interesting and rich in endemics.

With renewed international awareness of our biotically extraordinarily diverse neighbour South Africa (*Biodiversity and Conservation* 5(5), 1996), with which we share many ecological affinities as well as an often painful human history, it seemed an appropriate time to summarize the results of our recent country study of Namibian biological diversity, supported by the Global Environment Facility, in a special issue of this journal. Although Namibia is the most arid country in sub-Saharan Africa, with many unique landscapes, species and habitats, many of our near-endemics and other species of conservation importance extend marginally across borders with our four neighbours to the south, east and north (South Africa, Botswana, Angola and Zambia respectively). The arid regions of southern Africa retain tantalizing biogeographic affinities with the eastern and north-eastern arid montane zones of Africa, as clues to the expansion of deserts and contraction of moist forests.

Buffeted by the cold Atlantic Ocean, and fed by the rich Benguela Current, Namibia's coastal and marine habitats are among the most productive in the world. As Sakko describes in this issue, our marine biodiversity is the result of a sort of oceanographic struggle between the cold Benguela current and periodic intrusions of warm, tropical waters from Angola. Naturally a dynamic and complex system, these highly productive waters have sustained lucrative fisheries for many years. However, fisheries management has not taken adequate account of the natural variability of the system, and Namibian marine resources have had a sorry history of overharvesting through ignorance, greed, and short-term political expediency overriding the warnings of marine scientists. This litany is familiar enough throughout the world, but as a developing nation heavily dependent on the fisheries sector, Namibia will see both human development and biodiversity suffer without stricter attention to long-term sustainable resource management. The lesson may also be difficult with freshwater wetlands (Curtis *et al.*), which are under greater than usual threat due to the spiralling demands for water by a rapidly growing human population.

Where it is politically and economically feasible, intelligent planning for regional co-operation within southern Africa can ease the passage of species and habitats into the 21st century and beyond. However, the recent turbulent history of the region continues in Angola, where the painful scars of decades of civil war will take many decades to heal. Namibia is a peaceful and stable democracy, with excellent infrastructure and good

conservation expertise, and will inevitably have to carry a heightened international responsibility for those endemic and other species we share with Angola. Most of these endemics occur along the Kaoko escarpment, which divides the Namib coastal plain from the central highlands, and marginally into the southern provinces of Angola. The papers by Maggs *et al.*, R.E. Griffin, M. Griffin, and Robertson *et al.* in this volume all make this point for plants, arachnids, mammals and birds, respectively, and a forthcoming paper by E. Marais and J. Irish describes analogous patterns for the huge and important group of insects. Simmons *et al.* then analyse Namibia's patterns of congruent endemism, where plants, invertebrates and vertebrates all have concentrations of endemic species. As the major evolutionary refuge for southern African arid species, the Kaoko escarpment is one of several areas needing urgent protection.

On the surface, biodiversity conservation in this arid, tourism-oriented nation seems well assured. After all, 13.8% of our land area is formally protected by state-controlled parks and reserves alone. Added to this is a healthy and growing amount of privately and (recently) communally held land, managed as private reserves, game farms or conservancies. And despite a damaging history of land conflict, racially based expropriation and exclusion by successive colonial governments, and lingering perceptions of conservation as a paramilitary activity, Namibia has made quantum strides away from its divisive past, which could have derailed biodiversity conservation efforts completely after independence in 1990. Central to this transition has been the development of a community-based natural resource management (CBNRM) programme, which has facilitated the return to rural people of rights to, and responsibilities for, biotic resources. Wildlife conservancies are now being set up and adopted by groups of people on both privately and communally held land as a way to ensure the long-term welfare of natural resources on which they depend, as well as to derive direct financial benefit from them. New, progressive environmental legislation supporting these ideals is being drafted to replace the old, fragmented and sometimes contradictory laws of the apartheid years.

Alas, we in Namibia cannot rest yet. Namibia's protected area network is heavily skewed towards the Namib biome, while savannas, woodlands and the Karoo biome remain badly under-represented. Entire types of vegetation are wholly unprotected, and while they do not always face immediate conservation threats, the potential for degradation can only rise precipitously with our 3.2% human population growth. The paper by Barnard *et al.* uses the information presented in this issue on biodiversity hotspots and centres of endemism to identify priorities for additional conservation areas, and discusses both traditional and creative ways of achieving good conservation protection while satisfying human development needs and aspirations. Approaches based on contractual parks, biosphere reserves and community management offer the best ways forward, but it is essential that novel approaches be scrutinized with a big magnifying glass. To date, for example, the success of Namibia's CBNRM programme in its aim of conserving biodiversity has not been quantitatively tested.

A country like Namibia is not very much like, say, Costa Rica or Borneo or Uganda. Its biodiversity and its conservation needs are radically different to those of moist, populous countries. We offer up some of our results, policies and perceptions for discussion because, as a predominantly arid country, our patterns of biodiversity and our strategies for its conservation may be an effective model for other arid countries. Our economy is based on pastoralism, commercial livestock production, subsistence dryland cropping, mining, tourism and fisheries; many of our people represent societies in transition; and rapid

population growth threatens to unbalance people's traditional ways of managing highly variable resources. Adaptive management has always been the key to survival in the Namibia of the past, and will continue to be in the future. We believe this is true in much of Africa, as well as other arid and semi-arid zones of the world.

Phoebe Barnard

*Namibian National Biodiversity Programme,
Directorate of Environmental Affairs,
Ministry of Environment & Tourism,
Private Bag 13306, Windhoek,
Namibia*