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BLINK AND THEY MIGHT BE GONE

– latest biodiversity assessment highlights dangers to SA's wetlands

Wetlands are South Africa's most threatened ecosystem, with nearly half of the country's wetland types critically endangered. This is one of the main findings of the latest National Biodiversity Assessment (NBA), officially launched earlier this year. Compiled by Lani van Vuuren.

The recently completed NBA 2011 provides an assessment of South Africa's biodiversity and ecosystems, including headline indicators and national

maps for the terrestrial, freshwater, estuarine and marine environments. The main purpose of the document, launched by Minister of Water & Environmental Affairs, Edna Molewa, in iSimangaliso Wetland Park, earlier this year, is to provide a regular high-level summary of the state of South Africa's biodiversity. It is intended for decision makers both inside and outside the biodiversity sector.

The latest assessment process was led by the South African National Biodiversity Institute in partnership

with a range of organisations, including the Department of Environmental Affairs, CSIR, and South African National Parks. It follows on from the National Spatial Biodiversity Assessment 2004. This time round the scope of assessment has been broadened to include key thematic issues as well as a spatial assessment. Among others, the NBA 2011 also deals with species of special concern and invasive alien species, while presenting new work on geographic areas that contribute to climate change resilience.

CRITICALLY ENDANGERED

Wetlands are particularly important for South Africa considering its semi-arid characteristics. Wetland ecosystems are vital for purifying water and regulating water flows, acting as sponges that store water and release it slowly, filtering pollutants and easing the impacts of droughts and floods in the process. They also support a rich diversity of species, which have both intrinsic and economic value.

Progress in the last couple of years in terms of the development of a National Wetland Inventory and a national wetland classification system meant that, for the first time, the NBA includes a national assessment of wetland ecosystems. Much of the data used for the biodiversity assessment was gleaned from the National Freshwater Ecosystem Priority Areas project (for more on this project, see 'SA's first freshwater priority areas atlas launched' in *the Water Wheel* January/February 2012).

Unfortunately, it does not paint a rosy picture. The NBA found wetlands to be the most threatened of all South Africa's ecosystems, with 48% of wetland ecosystem types critically endangered. Around 300 000 wetlands remain, making up only 2,4% of the country's surface area. While available historic data on South Africa's wetlands are rare, it is estimated that more than 50% of the country's original wetland areas have already been lost in substantial parts of the country.

Since a single wetland ecosystem type can include some wetlands that are in good ecological condition and others that are in poor condition, the NBA does not simply assess the condition of wetlands. Rather it takes the analysis further to look at the proportion of each wetland ecosystem type that remains in good ecological condition, giving an assessment of ecosystem threat status for wetland ecosystem types.

Consistent with the picture for river ecosystems, there is a band of

critically endangered and endangered ecosystems along the escarpment belt and around major cities. The pattern in wetland ecosystem threat status is frequently influenced by the condition of rivers. (Similarly, destruction of wetlands impact river condition as the former then no longer filters and traps pollutants before it ends up in the river). Disturbingly, 65% of South Africa's wetland ecosystem types are currently threatened (48% critically endangered, 12% endangered and 5% vulnerable), making wetlands the most threatened of all ecosystems.

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Floodplain wetlands have the highest proportion of critically endangered ecosystem types, followed by valley-head seeps and valley-bottom wetlands. These wetland classes, especially floodplain wetlands, are often associated with highly productive lands and are often the ones that are dammed, drained or bulldozed for agricultural purposes. Other threats to wetlands include road construction, forestry plantations, dumping of solid waste, mining and toxic waste disposal.

Coal-mining, which provides most of South Africa's energy supply and earns foreign exchange through exports, presents a particular challenge for wetland health. The close proximity of many shallow coal seams to wetlands means that open-cast coal mines frequently destroy hundreds of hectares of wetlands to remove the coal beneath them, compromising the water purification and flood prevention role that wetlands

play and exacerbating the problem with water quality that already exist in heavily-mined catchments.

Until the 1980s, agricultural policy in South Africa deliberately encouraged draining and cultivation of wetlands. Although this has changed and there is much more awareness today about the value of wetlands, the loss of wetlands that resulted cannot entirely be reversed.

Only 11% of wetland ecosystem types are well protected, with 71% not protected at all, reflecting the fact that wetland ecosystems have not been taken systematically into account in establishing and expanding land-based protected area. This means that there is clearly scope for the protected area network to play a bigger role in protecting South Africa's wetlands.

Red hot poker plants (Kniphofia praecox) provide a colourful display in a wetland close to Howick, KwaZulu-Natal.



Rocer de la Harpe/Africa Media Online

Wetland ecosystem types in the Lowveld region and northern KwaZulu-Natal are relatively well protected by the Kruger National Park and iSimangaliso Wetland Park respectively, while the mountain catchment areas in the Western Cape provide protection for some wetland ecosystem types. Unfortunately, wetland ecosystem types in the arid interior are strikingly under-protected.

“As long as they have not been irreversibly lost to cultivation or concrete, many wetlands that are in poor condition can be rehabilitated to at least a basic level of ecological and hydrological functioning.”

A wetland in the Cederberg Wilderness Area is decorated with colourful mosses. Only 11% of the country's wetlands fall within protected areas.

As with rivers, protected areas alone are unlikely ever to do the full job of protecting wetlands, which are vulnerable to impacts in their catchments beyond the

THE TYPES OF WETLANDS FOUND IN SOUTH AFRICA

- **Seeps** (wetlands on slopes formed mainly by the discharge of sub-surface water)
- **Valley-headed seeps** (seeps located at the head of a valley; often the source of streams)
- **Channelled valley bottoms** (valley floors with one or more well defined stream channels)
- **Unchannelled valley bottoms** (valley floors with no clearly defined stream channel)
- **Floodplains** (valley floors with a well-defined stream channel, gently sloped and characterised by floodplains features, such as oxbow depressions)
- **Depressions** (basin-shaped areas that allow for the accumulation of surface water)
- **Flats** (extensive areas characterised by level, gently undulating or uniformly sloping land with a gentle gradient)

Source: NBA 2011

boundaries of protected areas. This highlights the importance of integrated water resource management in securing the quality, quantity and timing of freshwater flows on which the functioning of wetlands depends. For all wetlands, keeping a buffer of natural vegetation intact around the wetland can go a long way towards reducing the impacts of damaging land-use practices in the catchment.

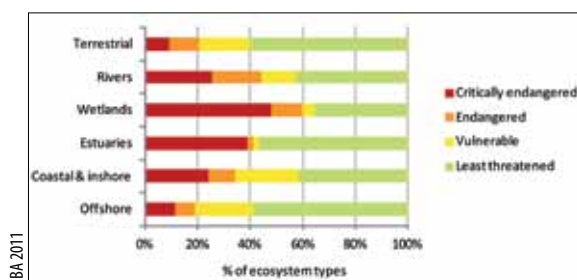
According to the authors of the NBA, the poor state of wetlands has direct implications for water quality and quantity, as well as the country's ability to adapt to climate change. Fortunately it is not all gloom and doom. Wetlands are more resilient than many other ecosystems. As long as they have not been irreversibly lost to cultivation or concrete, many wetlands that are in poor condition can be



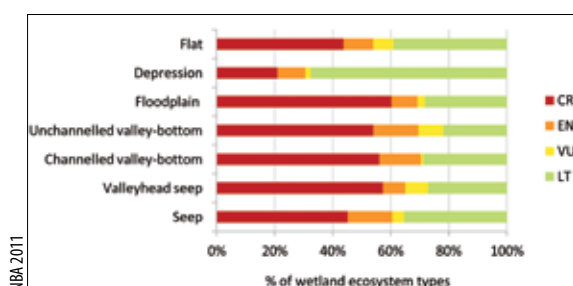


A Zulu woman cuts Ncema grass in the iSimangaliso Wetland Park for the weaving of mats. Many rural communities in South Africa depend on the products and services of wetlands.

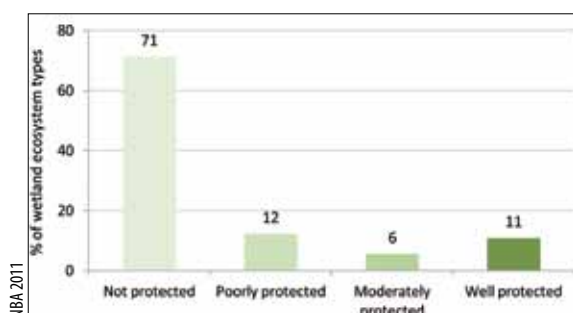
Roger de la Harpe/Africa Media Online



Top left – Comparison of threat status for terrestrial, wetland, estuarine, coastal and inshore and offshore ecosystems. Wetlands are the most threatened of all South Africa's ecosystems, with 48% of wetland ecosystem types critically endangered.



Middle left – Ecosystem threat status for wetland ecosystem types, by hydro-geomorphic class of wetland. Floodplain wetlands have the highest proportion of critically endangered types, followed closely by valley-head seeps and valley-bottom wetlands.



Bottom left – Summary of ecosystem protection levels for wetland ecosystem types. Wetlands are severely under-protected, with only 11% of wetland ecosystem types well protected.

ecological condition should be kept that way, the NBA authors say.

“The solution to protecting a representative spread of wetland ecosystem types lies in a combination of measures for on-site protection, and measures implemented upstream and in the surrounding catchment to secure the quality, quantity and timing of water upon which the wetland's character and functioning depend... Biodiversity stewardship programmes are making significant contributions to the protection of terrestrial ecosystems through the declaration of contract protected areas on land which remains in private or communal lands. An explicit freshwater focus within biodiversity stewardship programmes could extend this contribution to wetlands as well,” the NBA concludes.

To access the *National Biodiversity Assessment 2011 Synthesis Report*, and the technical reports for terrestrial and freshwater systems, as well as estuaries and marine environments, Visit: <http://bgis.sanbi.org/nba/project.asp> □

rehabilitated to at least a basic level of ecological and hydrological functioning, thus restoring ecosystem services such as water purification and regulation of water supply.

The Working for Wetlands programmes does just this, providing jobs and contribution to livelihoods at the same time. In addition to rehabilitating wetlands, priority wetlands that are still in good