

WETLAND

Raising awareness of the existence, importance, and need for conservation of South African wetlands

Wetlands are distinct ecosystems comprising land that is transitional between terrestrial and aquatic systems, and vegetation cover that is typically adapted to flooded or saturated soils. There are numerous beneficial ecosystem services provided by wetlands to humans and animals, which include: protection and improvement of water quality and quantity; supply of food to humans and nutrients to plants; carbon sequestration; storage of flood water in wet periods and maintenance of surface water flow in dry periods; erosion control during heavy rainfall events; maintenance of ecosystems productivity; provision of habitat for threatened and endangered plant and animal species; recreational and educational opportunities, as well as creation of sustainable products and livelihoods, by providing a range of resources for people, including wetland plants harvested for manufacturing crafts and grazing for animals in the winter months. So writes Nadia Araya, Alanna Rebelo, Althea Grundling, Piet-Louis Grundling, Jason le Roux, Nwabisa Masekwana, Lerato Maboja and Kwazi Zuma.

Wetlands in South Africa's landscape today make up only 2.2% of the country's area, yet wetland ecosystem types are mostly under-represented in the National Wetland Map. The National Biodiversity Assessment 2018 confirmed that wetlands are the most threatened South African ecosystems, with only 15% of the extent in a near-natural ecological condition; 18% moderately modified and 67% heavily to severely/critically modified; while 62% of wetland ecosystem types are critically endangered. Furthermore, about 73% of inland wetlands are threatened and unprotected.

A study by Skowno et al. in 2021 reported that 83% of wetlands are critically endangered in South Africa. This is particularly true for peatlands, which contain a high amount of organic matter in their soils due to being inundated permanently for most of the year. The permanently saturated conditions of a peatland do not permit oxygen to break down the organic matter, which allows peat to accumulate over time. South African peatlands are very old (from 3 000 years to 45 000 years old). This, coupled with their slow accumulation rates (on average 1 mm per year), means that peatlands are not easily replaceable. The copious water supply in peatlands and the ease of draining of peat make peatlands highly attractive for agriculture. This is especially relevant in drier landscapes with low agricultural potential soils such as in Maputaland, northern KwaZulu-Natal, where peatlands are over-exploited.

The Colbyn Valley Wetland, located in the heart of Pretoria, Gauteng, is among the few ultimate urban wetland survivors in South Africa.



Tamsyn Sherwill

Colbyn Valley Nature Reserve, located in the heart of Pretoria, Gauteng

The Colbyn Valley Wetland covers an area of about 15 ha and is formed by backflooding of the Hartbeesspruit River where it flows through a quartzitic ridge, along with the contribution of groundwater. This led to the formation of a peatland. The intensive use of this peatland for agricultural activities in the past, including construction of drainage ditches and irrigation trenches, have drained parts of the wetland. In addition, the ZASM railway line of the 1890s was built across the reserve,

which was later aggravated by building the Koedoespoort line that divided the wetland into two parts, causing compaction of the soil and altering the drainage conditions.

The Vyeboom Wetland located in the Fynbos Biome, Western Cape, is an example of a threatened palmiet peatland ecosystem in South Africa. This wetland is situated upstream of the Theewaterskloof Dam, near Cape Town. The dam covers an area of 25 ha and is the main contributor to Cape Town's water supply. At present, only 4% of the Vyeboom Wetland's total land surface area is degraded, while the remaining area is expected to degrade over a period of 50 years, following spatial changes over time.

The Riviersonderend River feeds the Vyeboom Wetland, and it has the highest runoff of all the tributaries that feed the Theewaterskloof Dam catchment, causing it to backflow. This, in turn, floods the Vyeboom Wetland during wet winter months, while the water recedes to the main channels in drier summer months. Flooding of the Vyeboom Wetland by the Theewaterskloof Dam appears to be the principal cause for advancing headcut erosion within this wetland. The Vyeboom Wetland is also impacted by irrigation activities upstream and alongside the wetland.

Cape Winelands Biosphere Reserve



Vyeboom Wetland, located above the Theewaterskloof Dam near Cape Town, Western Cape.

To raise awareness of the existence, importance, and need for conservation of South African peatlands, on 1 February 2024 the Agricultural Research Council (ARC) held the premiere of a short film titled 'The Plight of South Africa's Peculiar Peatlands', to celebrate World Wetlands Day 2024. The film was funded by the Embassy of the Federal Republic of Germany and formed part of a project titled: 'Biodiversity-Climate Nexus for Wetland Management'. The premiere took place at the ARC-Central Office in Pretoria and was attended by various organisations that support peatland research. The peatland film was subsequently disseminated across several media platforms, including YouTube, LinkedIn, Facebook, Instagram and WhatsApp, and received more than 3 300 views in just 17 days after its release. To watch the film, go to [The Plight of South Africa's Peculiar Peatlands](#)

World Wetlands Day 2024 celebrations continued with two wetland awareness events held at the Mhangele Wetland, Moreleta Kloof, on 2 February (attended by 60 children) and the Colbyn Valley Nature Reserve on 3 February 2024 (attended by more than 160 children). A third event took place on 10 February 2024 at Cluny Farm, Midrand, where the peatland film was

shown to 67 people, including 15 environmental organisation representatives and 23 people from Diepsloot.



ARC-CO

Participants who attended the peatland film premiere and networking event on 1 February 2024 at ARC-Central Office, Pretoria.

These events were centered around the participation of children from various schools in Pretoria. Several activities were conducted by the ARC, Department of Forestry, Fisheries and the Environment (DFFE) and Department of Water and Sanitation (DWS) to raise awareness about the importance of wetlands and the need for their protection, conservation and preservation.

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ARC-NRE

World Wetlands Day 2024 celebrations by the ARC staff and students.

ARC-NRE



World Wetlands Day 2024 event at the Mhangele Wetland, Moreleta Kloof. A wetland model (left) and ecosystem wildlife diversity (right) were explained to children from three primary schools: Glenstantia Primary, Eastside Primary and Laerskool Constantiapark.

ARC-NRE



World Wetlands Day 2024 event at the Colbyn Valley Wetland. Children participating in a quiz about wetland management (left) and identifying wetland plant species (right).

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