



INTERNATIONAL MIRE CONSERVATION GROUP

Introducing the first in a series of knowledge exchange webinars!

The International Mire Conservation Group (IMCG) and Peat Early Career Researcher (ECR) Action Team aim to encourage the exchange of knowledge by organising a series of webinars.

Webinar topic:

Landscape ecological research into peatlands in South Africa and Lesotho and its significance for their conservation and restoration

Webinar details:

This first webinar will take place on **Tuesday 12 May 2026**

Start time 08:30 CET Finish time 10:00 CET

Each speaker will have 20 minutes followed by 10 minutes for questions and discussion

Speakers and presentation topics

- **An introduction to the landscape ecology of Southern African mires**
Guest Speaker: Piet-Louis Grundling
- **Ecohydrological functioning of headwater peatlands in the Maloti–Drakensberg Escarpment**
Guest speaker: Dr Ts'epo Sekaleli
- **Stratigraphy and Ecohydrology of Recent and Historical Peat Fires in South Africa**
Guest speaker: Jason le Roux

Speaker bios can be found on the registration page and presentation summaries follows:

If you would like to join this webinar, please use [this link to register](#)

The session will be recorded and shared on YouTube

If you have any problems, please contact Marie Butler email: mbutler@wildlifetrusts.org

You are very welcome; we hope to see you there!

On behalf of the IMCG Main Board and the Peat ECR Action Team

Speaker Bios and presentation summaries

Dr Piet-Louis Grundling

An introduction to the landscape ecology of Southern African mires

Piet-Louis Grundling is a peaty-ologist with 30 year experience in mire-ralogy. He joined the IMCG in 2000, served as MB, EC and chair (2 terms). He travelled with the IMCG on 6 continents. Learned a lot, is still learning and has never look back!

The Southern African landscape is dominated by an ancient and complex geology and geomorphology and coupled with an irregular rainfall pattern and climate variations have resulted in an unique landscape and biodiversity. This biodiversity is expressed, among other things, in the range of wetlands occurring in southern Africa. Permanent, seasonal and temporary wetlands in all shapes and sizes occur from the seepage zones, valley bottom marshes, floodplains and pans in the interior, to the coastal peatlands, swamps, lakes and estuaries. Therefore, giving rise to a myriad of mire types within this array of wetland. However, only 2 to % of the region's surface might comprise wetlands. Less than 5 % might be peatlands and they are thus very rare and unique wetland type in Southern Africa and are very important ecosystems due to the biodiversity they support, their limited size, distribution and threats to them due to population pressure and development.

Peatlands occur in various eco-regions mostly along the relatively well watered, eastern coastline: in the subtropical interdune mires of the Mozambique Coastal Plain (MCP), as well as on the central plateau: in the temperate Highveld sponges and valley bottom fens. Based on both peat dating and pollen analyses, it is apparent that the historical development of the peatlands in the eco-regions in the interior of the country has been different from that of the peatlands along the coastal areas. The peatlands associated with the eco-regions in the interior of the country are relatively younger, and have also developed under more stable climatic conditions than those along the coastal areas

Ts'epo Sekaleli

Ecohydrological functioning of headwater peatlands in the Maloti–Drakensberg Escarpment

Ts'epo Sekaleli has recently completed his PhD in Integrated Water Management at the University of the Free State. His study focused on two peatlands, approximately 3,245 m.a.s.l, in the Maloti Mountains. These peatlands drain into the Malibamatsó River and into the Katse dam, from which Lesotho transfers 800 million cubic metres of water (800 000 000 000 Litres) annually to South Africa. He studied the landscapes on which these peatlands are located to understand their hydrological functioning. He is eager to collaborate in future research of these peatlands.

This study examines the ecohydrological functioning of headwater peatlands in the Maloti–Drakensberg Escarpment, with a focus on the Motete and Matsoku systems. Using an integrated approach combining hydrology, hydrochemistry, and peat properties. The results identify gully

erosion as a dominant driver of change. Gullies lower local water tables, particularly where incision is deep, as observed in Matsoku, and disrupt the natural storage and release of water within the peat. Areas adjacent to gullies increasingly function as recharge zones, leading to enhanced drainage, peat oxidation, and reduced water retention capacity.

Hydrochemical and isotopic data confirm the strong influence of groundwater, while also indicating localised changes in water quality near gullies, including increased acidity. These changes are reflected in shifts in vegetation and peat condition. Degraded peat shows higher bulk density, lower organic matter, and reduced capacity to store water, all of which negatively affect baseflow regulation.

Overall, the study shows that these peatlands are under pressure from ongoing degradation, with clear implications for both ecosystem functioning and water resources. The findings highlight the need for practical management interventions that address gully erosion and restore hydrological conditions to maintain the role of these systems in sustaining downstream flows.

Dr Jason le Roux

Stratigraphy and Ecohydrology of Recent and Historical Peat Fires in South Africa

Jason le Roux is a soil scientist working on wetland and peatland ecosystems in South Africa. He has conducted research on peatland hydrology, hydraulic properties, and stratigraphy, with a focus on burnt peatlands. His work also includes soil carbon assessments, soil classification surveys, and monitoring soil health. More recently, he has contributed to predicting changes in crop distributions, drought and floods and under climate change scenarios in South Africa.

Peatlands of the Maputaland Coastal Plain cover <0.1% of South Africa's land area, but contain the majority of the country's peat resources and underpin key hydrological and ecological processes. Sustained water-table decline driven by commercial forestry and climate variability has initiated desiccation, peat fires, and extensive degradation.

This study evaluated the effects of these disturbances on peat functionality across Vasi Pan, and the long-term stratigraphic record of Mfabeni Mire. Results found that desiccation substantially reduces porosity, hydraulic conductivity, and water-holding capacity, whereas secondary transformations, and in some cases burning, can partially restore hydrological processes through enhanced macroporosity and reduced hydrophobicity. Stratigraphic evidence from Mfabeni suggests historical periods of desiccation and recovery. Overall, sustaining appropriate water-table levels remains critical for preventing further degradation, conserving carbon stocks, and maintaining the long-term ecological functioning of these peatlands.