SASSO Workshop

Skukuza, Kruger National Park, Mpumalanga

24 and 25 April 2025

The first SASSO Workshop (soil excursion) of 2025 will be held in the Skukuza area of Kruger National Park. The event will span two days, during which participants will explore the soils, landscapes, catenae and vegetation at three significant and interesting sites (Fig. 1).

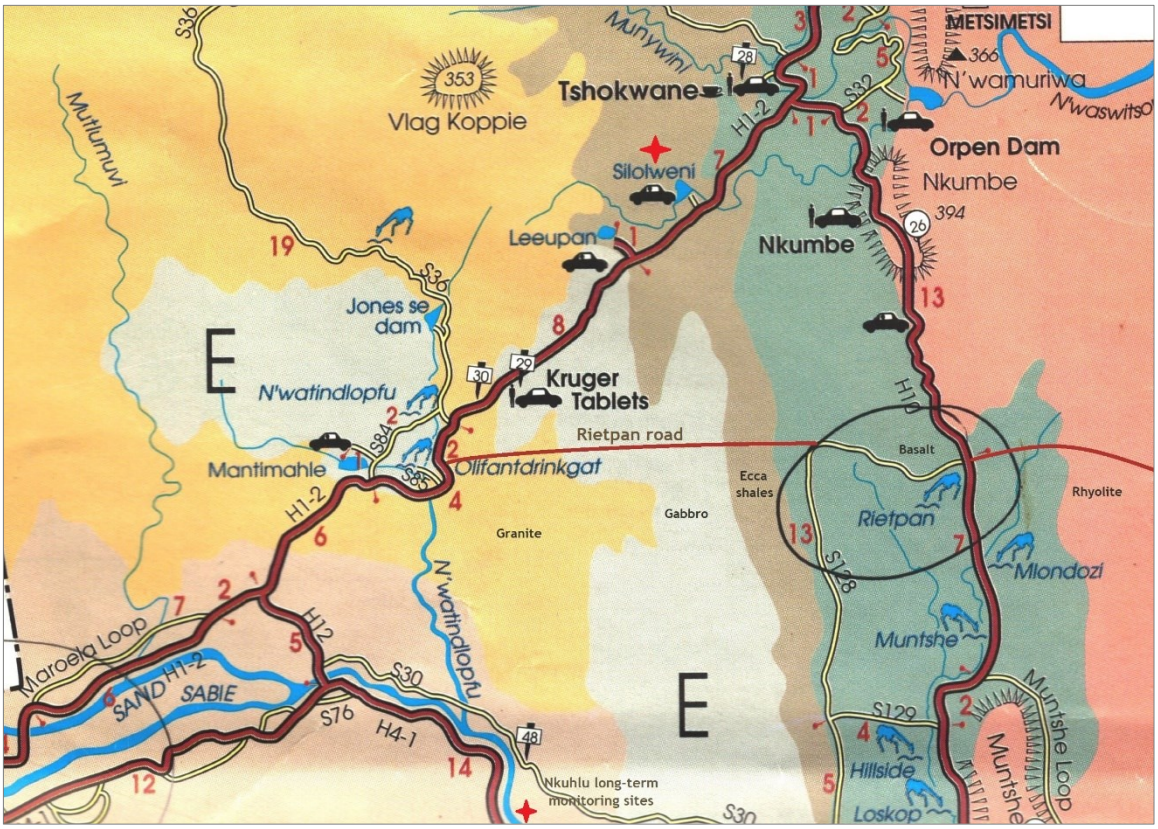

Figure 1: Indicating the three study sites: Rietpan firebreak road, the Nkuhlu long-term monitoring sites and the Silolweni Dam degradation sites

INTRODUCTION & BACKGROUND

Skukuza Camp, located in the heart of Kruger National Park in Mpumalanga, South Africa, serves as a key centre for wildlife conservation, research and eco-tourism. Positioned near the Sabie River, it offers a diverse range of habitats, including riverine bush and open savannah, which support a variety of wildlife, including the Big Five. Originally established as a research field station, the camp plays a pivotal role in sustainable wildlife management and biodiversity conservation while promoting responsible eco-tourism.

The region's topography is mostly flat with occasional rises and the Sabie River provides essential water to the park's wildlife, surrounded by lush riparian vegetation. The soils here, a mixture of sandy and clay-rich profiles, support various vegetation types, from grasslands to dense forests. Skukuza is central to ongoing conservation efforts, including research on animal populations and ecosystem health, in collaboration with universities, NGOs and government agencies to ensure the long-term success of Kruger National Park as a global conservation landmark.

STUDY SITES

24 April

Day 1, full day

Rietpan Firebreak Road Transect: A Unique Pedological Laboratory

As described by Prof. Giel Laker, the Rietpan firebreak road transect in Kruger National Park is a globally unique natural pedological laboratory. No comparable site exists elsewhere. Having led and participated in numerous pedological field excursions in South Africa and abroad, Prof. Laker notes that most geological-soil studies require different, geographically disconnected sites. However, along the Rietpan firebreak road transect, at least six distinct geology-soil relationships are connected in a single, continuous line, allowing for comparative studies within a short distance.

The granite toposequence near the western entrance of the park consists of strongly acidic sandy soils on the upper and middle slopes, while the foot slope features unstable prismatic clay soils. On the basalt near the eastern exit, high-quality, extremely stable red structured clay soils are found. The prismatic clay soils are highly vulnerable to water erosion and even slight mismanagement can lead to

significant degradation. In contrast, the red structured soils are virtually indestructible. The undisturbed nature of this area also offers an excellent opportunity to study the unique relationships between different soil types and the corresponding vegetation.

In Prof. Laker's opinion, the Rietpan firebreak road transect is of national scientific importance and should be declared a protected site. Participants are encouraged to appreciate the privilege of engaging in a scientific excursion along this remarkable transect.

25 April

Day 2, morning

KNP Nkuhlu Exclusion Site, Sabi River and/or Silolwene Dam Degradation

- **Nkuhlu Exclosures**

The Nkuhlu exclosures in Kruger National Park, located along the banks of the Sabie River, serve as long-term monitoring sites for studying the effects of herbivores on vegetation. These exclosures are near the Nkuhlu picnic site and are integral to research on the dynamics of soil and vegetation within savanna ecosystems. The research tracks the impacts of climate change, grazing and fire on soil health and vegetation structure, monitoring factors like nutrient content, moisture levels and pH. This work helps assess how these factors influence ecosystem services such as carbon sequestration, water retention and biodiversity, ultimately contributing to better conservation and land management practices in the park.

- **Silolweni Dam and Surrounding Area**

The Silolwene Dam and its surrounding area, located just south of Tshokwane near the Skukuza-Tshokwane tar road, serve as a stark example of poor environmental management. Once a popular tourist destination in the 1970s and 1980s, the area was home to abundant wildlife, including lions, and featured ample water and lush grasslands. However, the soil and pastures were highly susceptible to degradation. Dr Freek Venter, former head of conservation at KNP, had warned the location was unsuitable for a dam and, unfortunately, his predictions came true. Today, the road to the dam is closed to prevent tourists from witnessing the extensive land degradation and few animals remain due to the depletion of pastures.

This situation highlights the critical importance of properly understanding the unique vulnerabilities of different soils and vegetation when placing water sources or infrastructure in sensitive environments. Incorrect placement of water points or dams can be highly destructive, particularly in areas with low ecological resilience, where recovery is limited or impossible. This case underscores the need for careful environmental planning to avoid irreversible damage to fragile ecosystems.

Travel & Accommodation

Accommodation in the Skukuza Research Camp is available as well as in the Skukuza Rest Camp and numbers for this workshop will unfortunately be capped at 30 participants. https://www.sanparks.org/parks/kruger

Further information will be communicated in due time in this regard.

Workshop participants will meet at: Skukuza Rest Camp, KNP
https://www.google.com/maps/place/Skukuza+Rest+Camp/@-24.996448,31.5893111,17z/data=!3m1!4b1!4m6!3m5!1s0x1ee8003707216b1d:0x77a1c2d7998908db!8m2!3d-24.996448!4d31.591886!16s%2Fg%2F11b7kd03by?entry=ttu&g_ep=EgoyMDI1MDEyNi4wIKXMDSoASAFQAw%3D%3D