

Conservation social networking, ecotourism and land-use planning in Maputaland, southern Africa

Smith, RJ¹, OG Chiziane², TEM Libanze², HA Mabilana³, S Maphalala⁴, S Masilela⁵, H Matimele^{1,3}, E Matsinhe⁶, R Matusse⁶, A Monadjem⁷, T Mullier⁸, M Ngwenya⁵, BA Nhancale³, C Nhancale², CP Ntumi³, CP and K Roques⁵

Introduction

Maputaland is a global biodiversity hotspot, prime ecotourism destination and home to some of southern Africa's poorest people. Lack of alternative livelihoods has led to habitat loss through unplanned subsistence agriculture, so in response the Eswatini (Swaziland), Mozambique and South Africa governments launched the Lubombo Transfrontier Conservation Area (TFCA) initiative in 2000 (Fig 1 & 2).

A) Developing the online social network for conservation areas and groups

Izele (www.izele.org) is an online social network for conservation areas and organisations to share news, information and maps with their neighbours, visitors, supporters and partners (Fig 3). Izele was launched in South Africa in 2017 and for this project we have expanded the network to include Eswatini and Mozambique. As part of this, we are supporting each conservation area and group in Maputaland to create and use Izele pages (Fig 4 and Fig 5). This will promote their work to visitors and donors, fostering a community that understands the value of biodiversity conservation.

B) Promoting conservation area- and community-based ecotourism

Ecotourism is a growing industry in Maputaland but most tourists visit the South African section, as they are unaware of opportunities in Eswatini and Mozambique (Fig 5). To overcome this we are adding ecotourism functionality to Izele and working with local businesses so they can better promote their available accommodation, services and activities (Fig 6). We are particularly supporting the conservation area- and community-based ecotourism ventures so they can add this information to their Izele pages, which will help support job creation in these rural areas.

C) Identify priority areas for biodiversity and ecotourism

The Maputaland conservation planning system contains data on a number of important ecosystem types, species and ecological processes (Fig 7). In this project we will update this biodiversity data and incorporate relevant information from Izele, producing a spatial zoning plan to identify the best locations for conservation, ecotourism and agriculture, thus supporting alternative livelihoods and reducing poverty. The analysis will use Marxan with Zones (Watts et al, 2000) and an updated version of the CLUZ plugin for QGIS (Smith, 2019) developed as part of this project (Fig 8).

In a previous project we developed a planning system that helped establish 30,000 ha of protected areas and guide US\$6.5 million of conservation investments (Smith et al, 2009).

Our new project builds on this to: (A) develop an online social network for Maputaland's conservation areas and groups; (B) promote their conservation area- and community-based ecotourism enterprises, and; (C) identify priority areas for biodiversity and ecotourism.

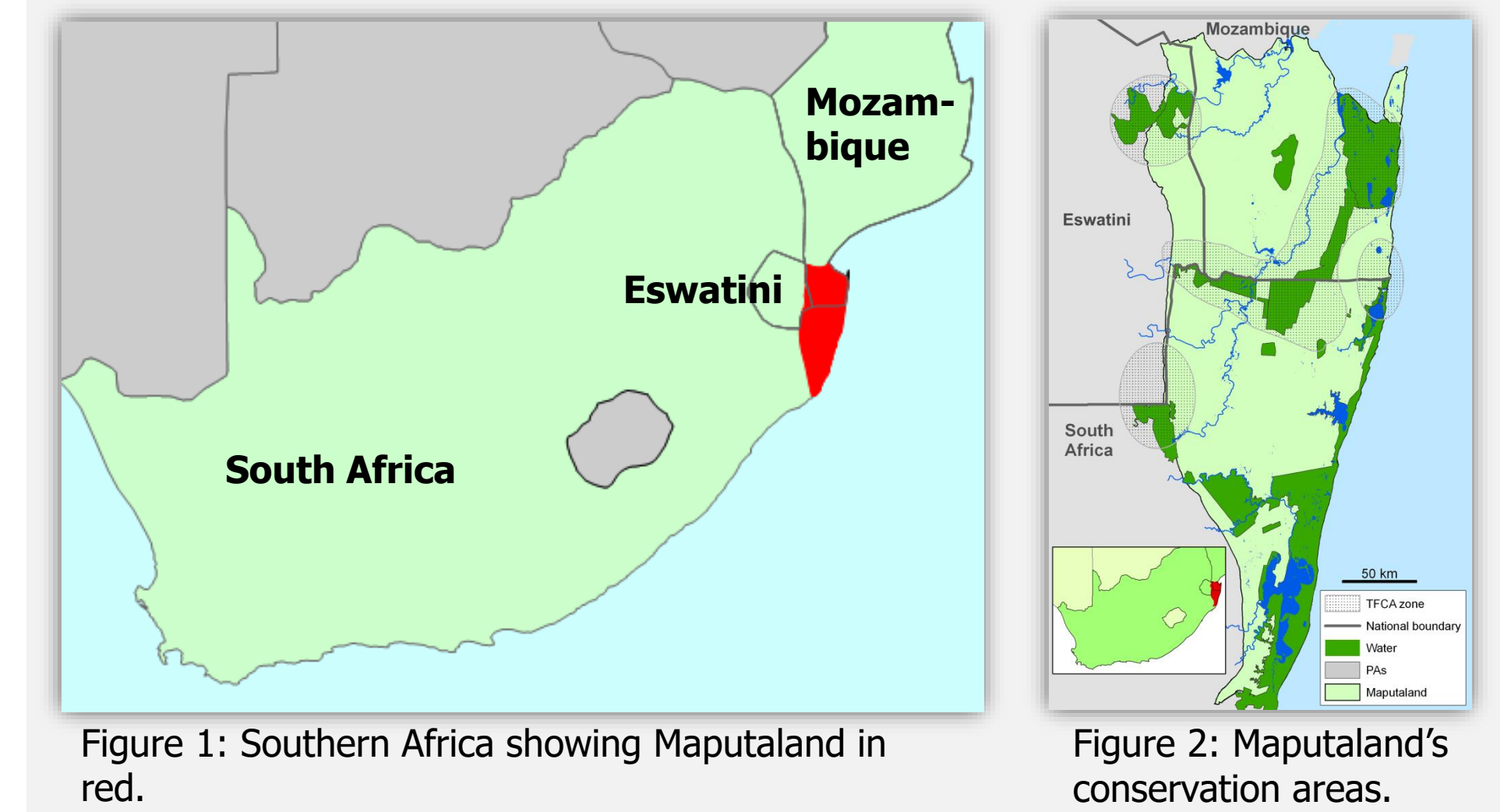


Figure 1: Southern Africa showing Maputaland in red. Figure 2: Maputaland's conservation areas.

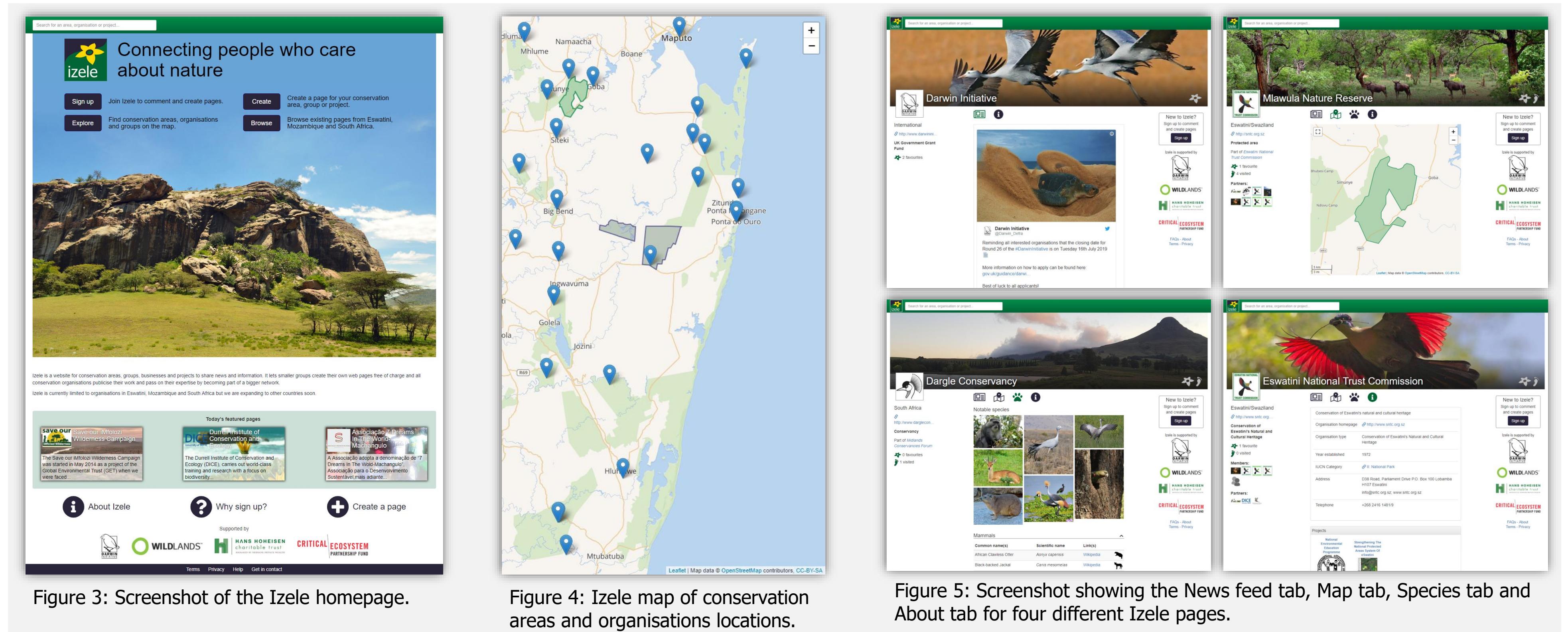


Figure 3: Screenshot of the Izele homepage. Figure 4: Izele map of conservation areas and organisations locations. Figure 5: Screenshot showing the News feed tab, Map tab, Species tab and About tab for four different Izele pages.



Figure 5: Community-based ecotourism in Maputaland is an important source of income for some rural communities in Eswatini, Mozambique and South Africa. Figure 6: Screenshot showing the new Amenities tab in Izele that promotes ecotourism services and activities.

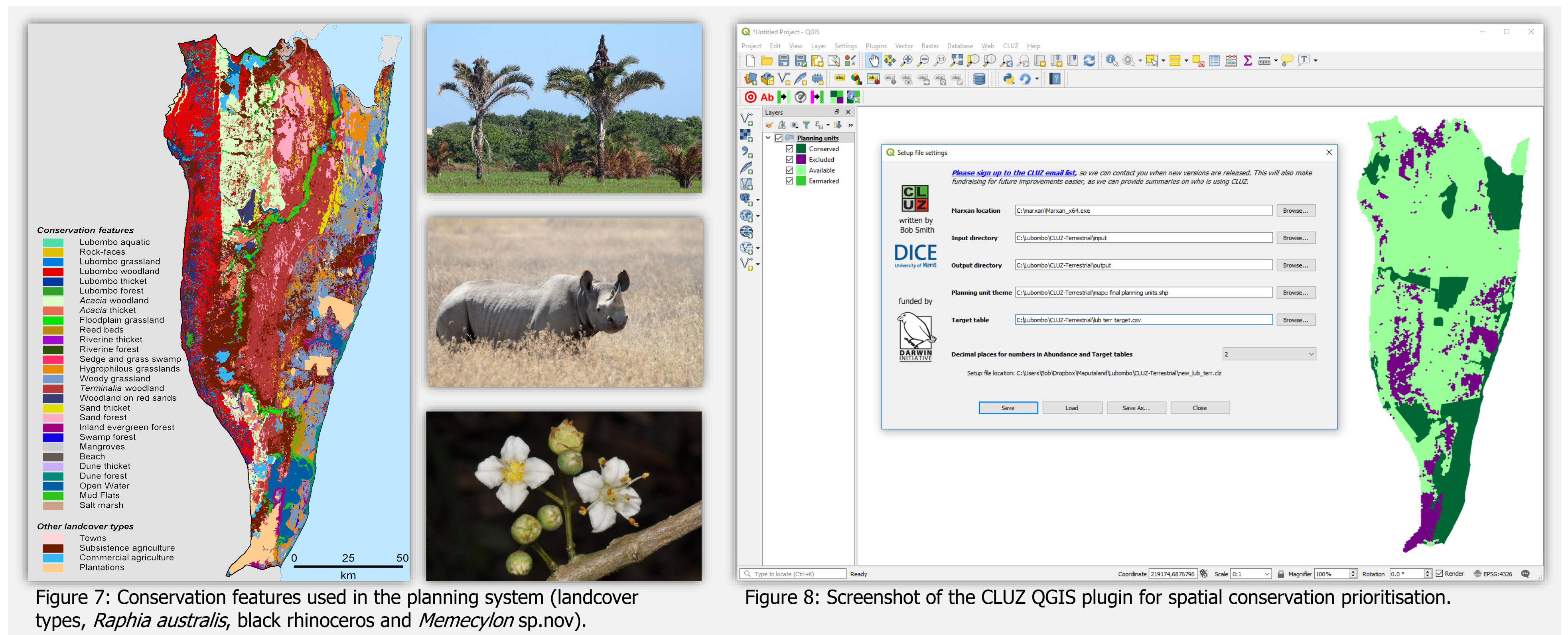
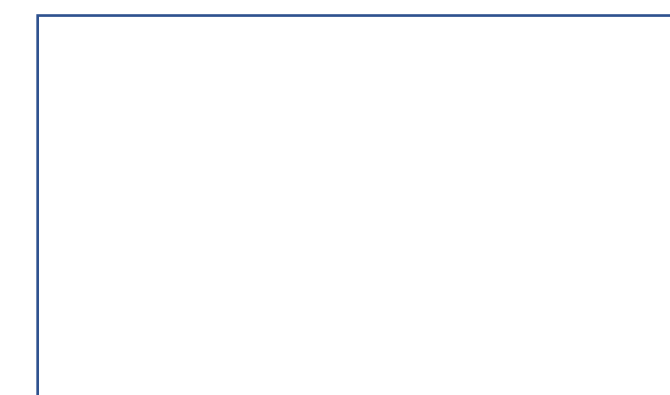


Figure 7: Conservation features used in the planning system (landcover types, *Raphia australis*, black rhinoceros and *Memecylon sp.nov*). Figure 8: Screenshot of the CLUZ QGIS plugin for spatial conservation prioritisation.



(1) Durrell Institute of Conservation and Ecology, (2) KUWUKA JDA, (3) Universidade Eduardo Mondlane, (4) Eswatini National Trust Commission, (5) All Out Africa, (6) Administração Nacional das Áreas de Conservação, (7) University of Eswatini, (8) Izele.

References

Smith, RJ, Easton, J, Nhancale, BA et al (2008). Designing a transfrontier conservation landscape for the Maputaland centre of endemism using biodiversity, economic and threat data. *Biological Conservation*, **141**, 2127-2138.
 Smith, RJ, Veríssimo, D, Leader-Williams, N, Cowling, RM, Knight, AT (2009). Let the locals lead. *Nature*, **462**, 280-281.
 Smith, R (2019). The CLUZ plugin for QGIS: designing conservation area systems and other ecological networks. *Research Ideas and Outcomes*, **5**, e33510
 Watts, ME, Ball, IR, Stewart, RS et al. (2009) Marxan with Zones: software for optimal conservation based land- and sea-use zoning. *Environmental Modelling and Software*, **24**, 1513-1521.