

Towards daily maps of water hyacinth: exploiting synergies of Sentinel 2 and 3



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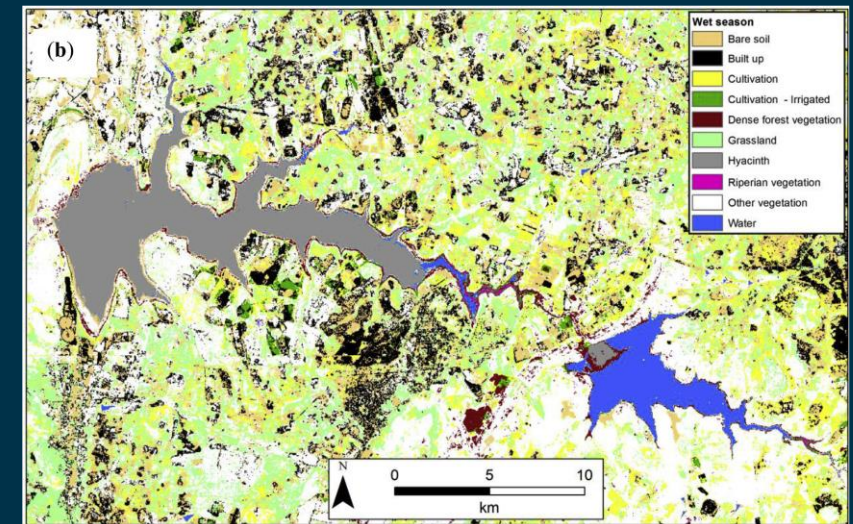
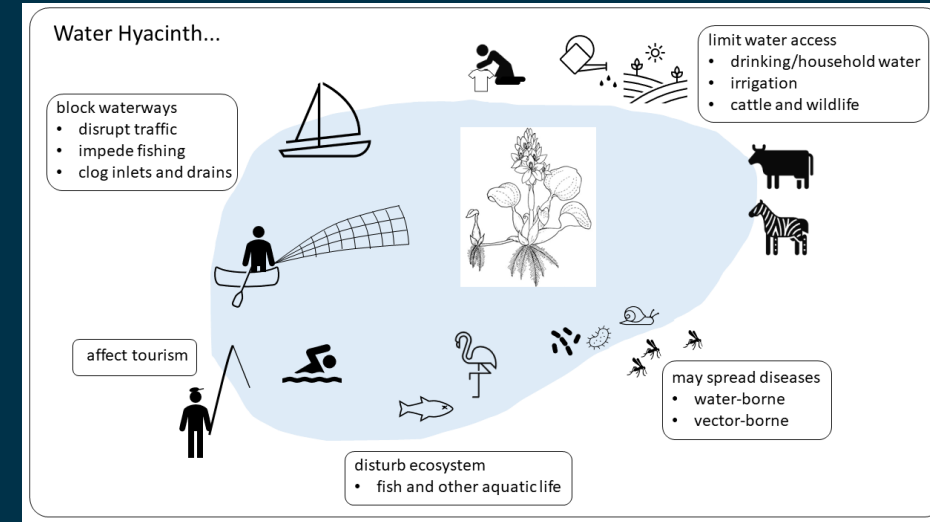
Scientific Background and Objectives

- Water hyacinth (WHY) is one of the world's most disturbing invasive plant species



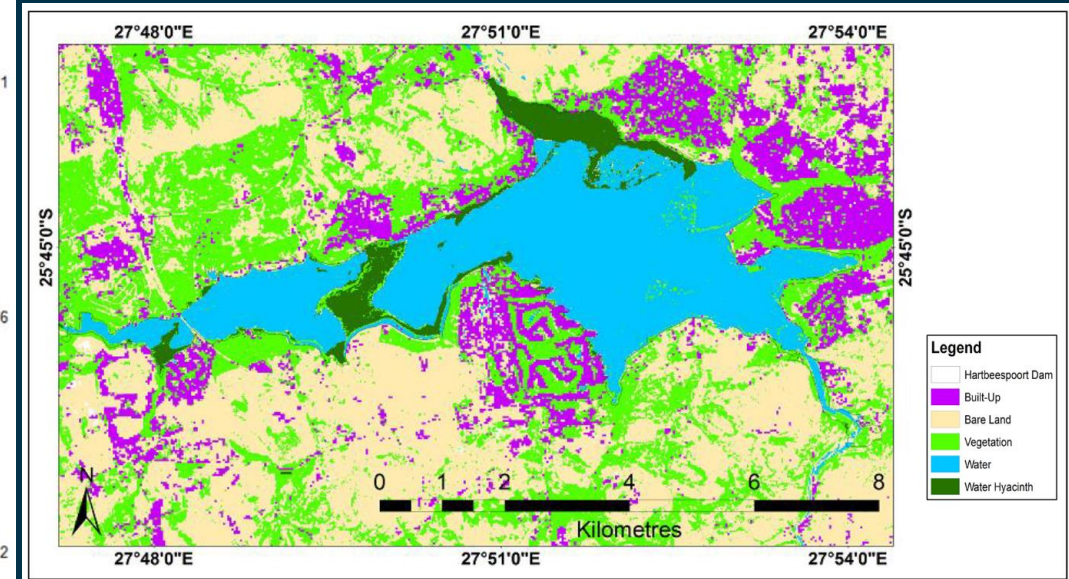
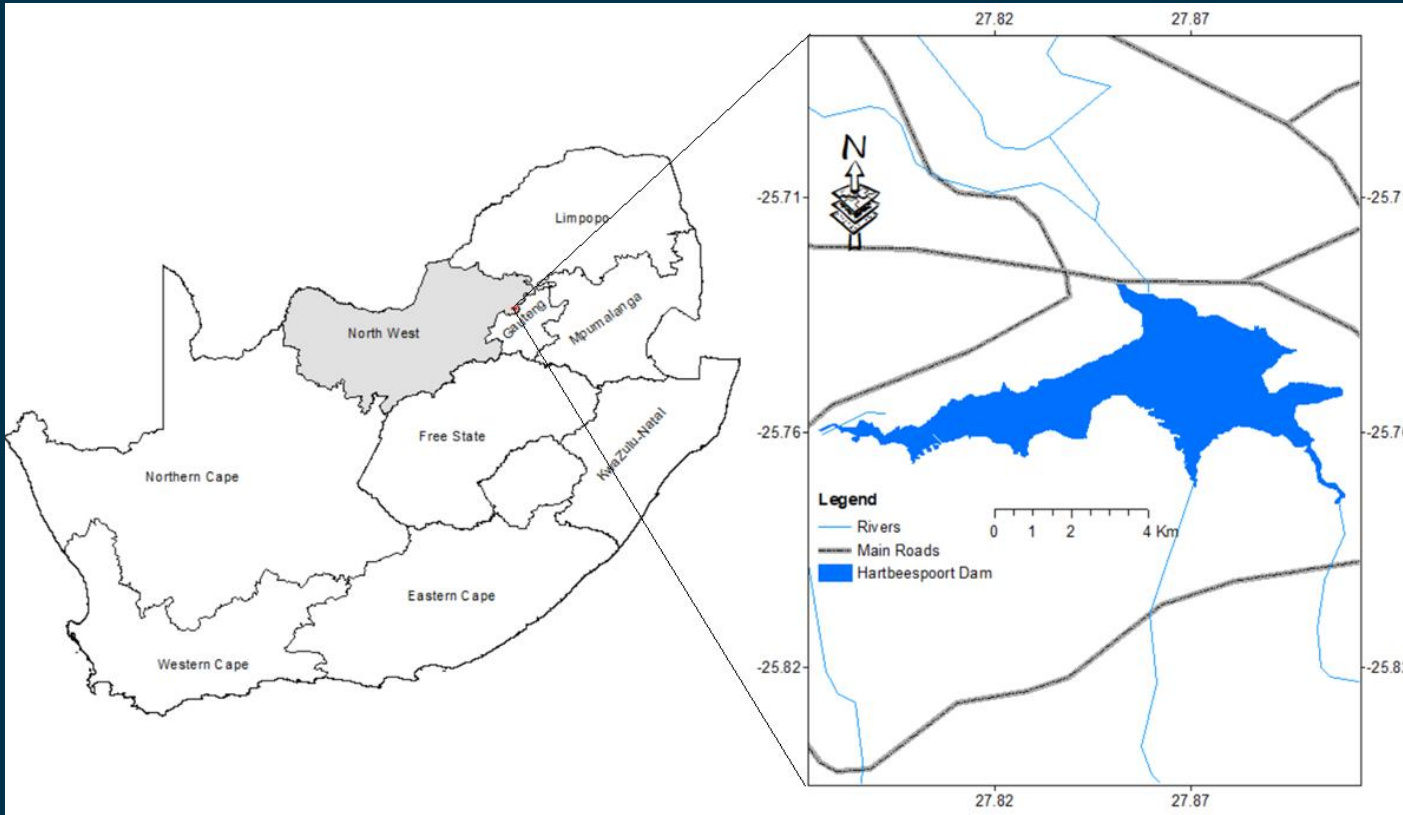
HARTEBEESSPOORT HYACINTH CRISIS CONTINUES

- Removal of WHY is expensive; eradication all but impossible
- Remote sensing presents a valuable approach for WHY mapping
- To aid WHY management, we will **create daily maps of WHY cover probability** based on merged Sentinel 2 and 3 data



Water hyacinth cover of Lakes Manyame and Chivero, Zimbabwe, mapped using Landsat-8. Figure from Dube et al., 2017

- The study will be conducted at Hartbeespoort dam reservoir



Water hyacinth cover of Hartbeespoort Reservoir, South Africa, mapped using Sentinel-2 OLI data. Classified image from Keebine, MSc thesis, 2019

Objective: Develop a tool which exploits the synergy of multiple satellite missions to map water hyacinth cover daily

1. Develop and apply WHY detection algorithm for MSI Level-2 reflectances;
2. Create WHY maps from OLCI Level-2 NDVI data;
3. Design and apply algorithm for merging OLCI and MSI WHY maps;
4. Develop and apply gap-filling algorithm to generate daily WHY maps;
5. Execute validation campaigns and create validation maps of WHY cover;
6. Validate WHYmapping algorithm;
7. Present results and validation in an open access journal publication and at international conferences



Project Team

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