

Ramoelo A. Skidmore A.K. Cho M, Mathieu R, Schlerf M. Heitkonig I. Prins H.H.T. **2011**, *Towards regional mapping of grass nutrients using remote sensing in Greater Kruger National Park*

Poster presented at the: 9<sup>th</sup> *Kruger National Park Network Meeting*, Kruger National Park, Skukuza, South Africa (13-18 March 2011).

### **Abstract**

Regional maps of grass nutrients are important to inform decision making regarding the management of savanna ecosystems. Grass nutrients plays a crucial role in understanding the distribution, densities and feeding patterns of both wild herbivores and livestock. Grass nutrients have rarely been mapped at the regional scale because of the lack of satellite-based sensors that sample reflected light in the red-edge region which is sensitive to foliar chlorophyll and nitrogen (N). Medium resolution satellites are also generally ill-suited to discriminate grass and tree signals in heterogeneous and patchy savannas. The emergence of high resolution multispectral sensors with red-edge information such as RapidEye provides new avenues for rangeland resource quality assessment at regional level. The objective of the study is to estimate and map grass N at regional scale using vegetation indices derived from RapidEye images. The study area covers Kruger National Park (KNP), SabiSands and Bushbuckridge communal rangelands. Grass samples were collected in the field and were chemically analyzed for foliar N concentration. RapidEye images were collected at the same time then the field data collection. The red-edge normalized difference vegetation index (NDVI) and the conventional NDVI were compared. The red edge NDVI yielded higher estimation accuracy as compared to the conventional NDVI. The study exhibited the potential to map grass nutrients at a regional scale to inform the decision makers (farmers, resource and park managers) for effectively managing the savanna ecosystems.