

NATURAL RESOURCES SECTION: CAPABILITY STATEMENT



agriculture
& rural development

Department:
agriculture
& rural development
PROVINCE OF KWAZULU-NATAL

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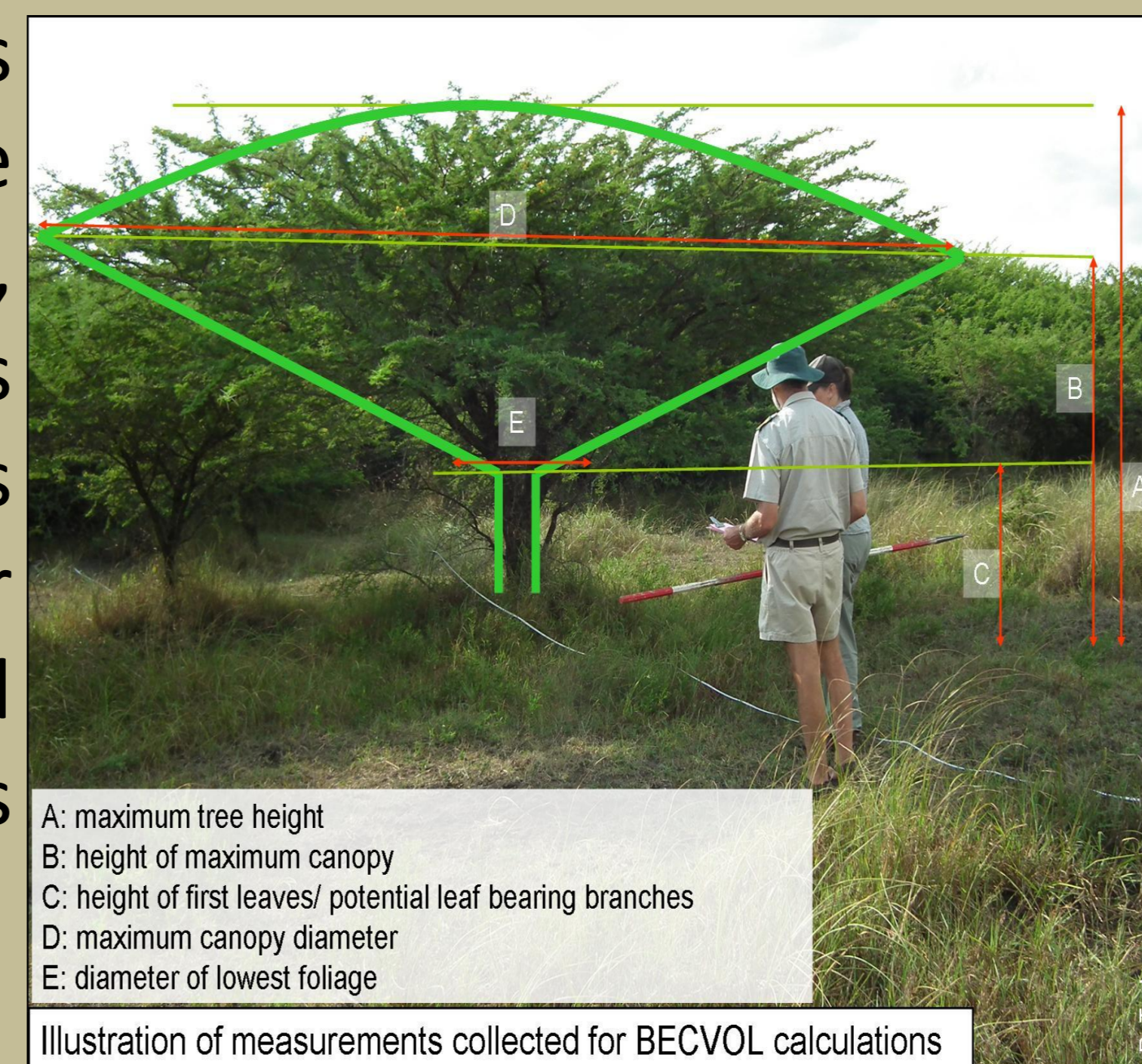
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WHO WE ARE

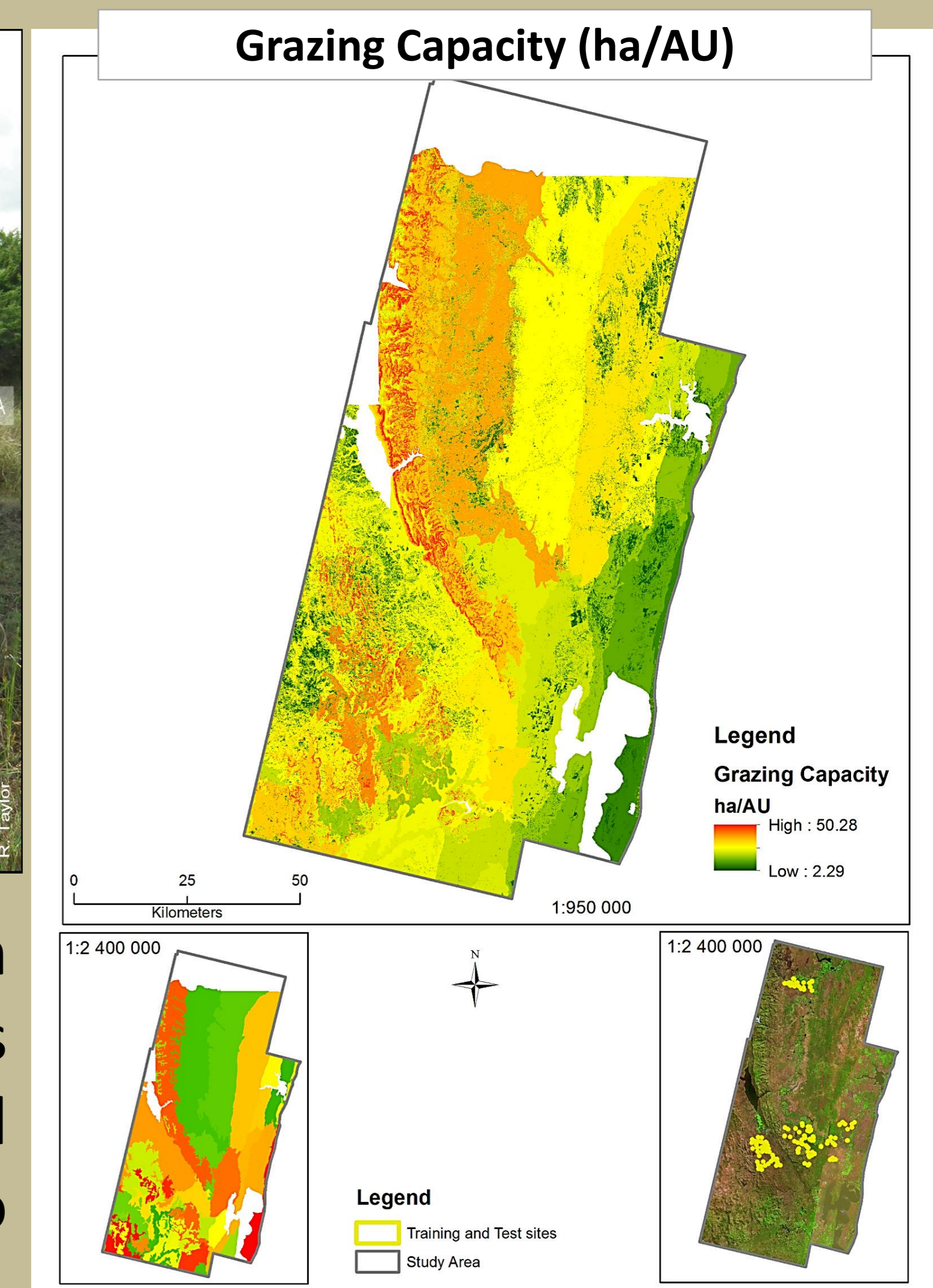
The Natural Resources Section (NRS) is based at Cedara and is part of the KwaZulu-Natal Department of Agriculture and Rural Development. Our staff component includes 8 Registered Professional Scientists with scientific specialities ranging from climate, soil, vegetation, ecology to GIS and remote sensing. Our goal is to characterise the natural resources, optimise agricultural potential and enhance productivity through sustainable natural resource management in KZN.

RANGELAND MANAGEMENT

The vast majority of KZN is under natural rangeland and is utilized for pastoralism, wildlife and water production. The rangeland and ecological scientists at the NRS describe, quantify and map the production driven vegetation resources of KZN, in order to update the range condition database, as well as the grazing and browse capacity norms for KZN. Our scientists are involved in key Provincial initiatives and partnerships such as the Stewardship Programme and projects with Ezemvelo KZN Wildlife.



A: maximum tree height
B: height of maximum canopy
C: height of first leaves' potential leaf bearing branches
D: maximum canopy diameter
E: diameter of lowest foliage
Illustration of measurements collected for BECVOL calculations



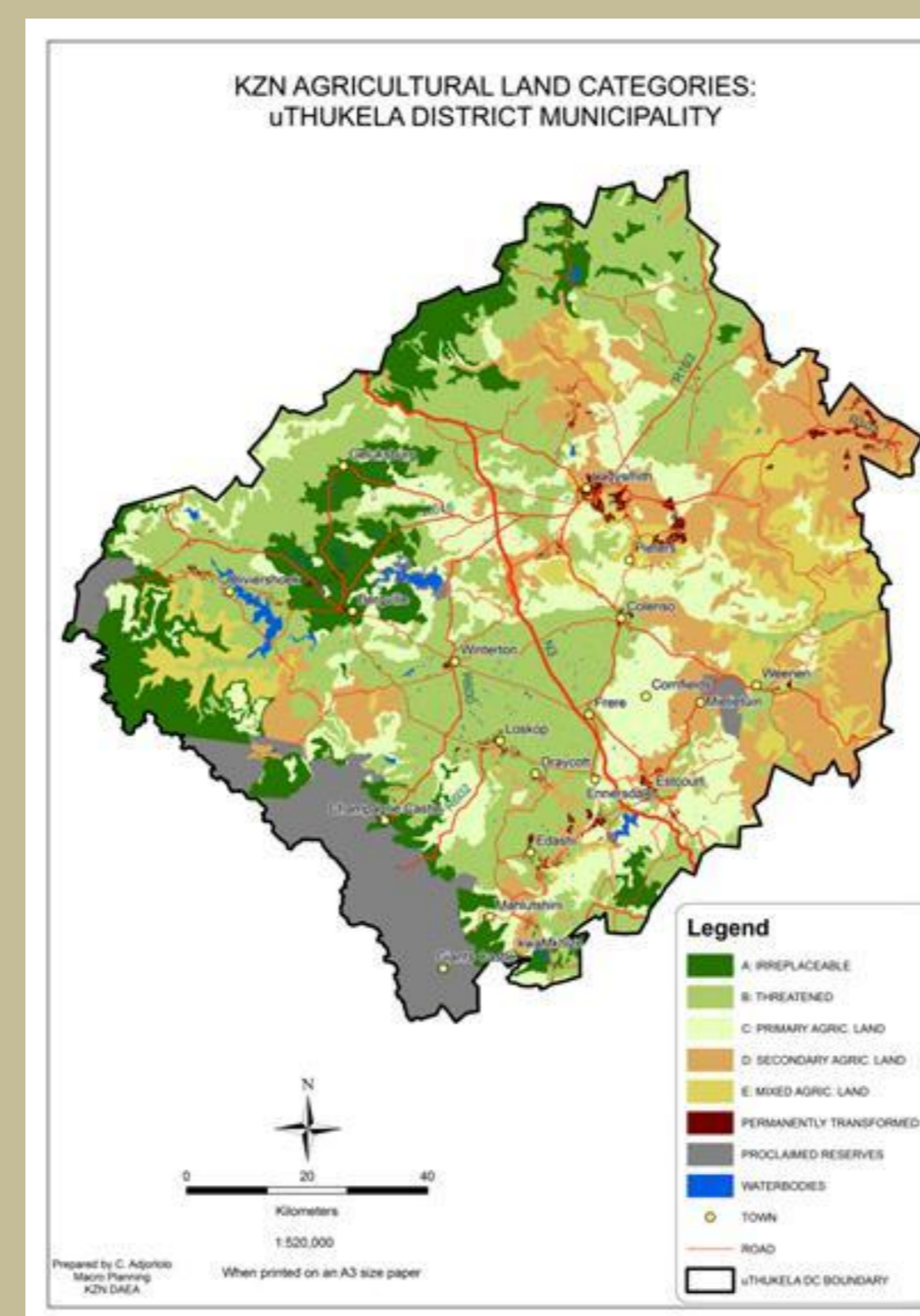
CLIMATE STUDIES

KZN ranges in elevation from sea level to over 3 300 m. This causes considerable variation in rainfall and temperature as well as all other climatic variables, which in turn influences agricultural production. NRS investigates and maps the effects of climate and water on land and farming potential throughout the Province. Climate change scenario planning is also considered as part of production modelling tools.

SOIL SURVEYS, FARM PLANS AND LAND CAPABILITY



Accurate and detailed soils information is the backbone of natural resource management and planning. NRS undertake soil surveys and land capability assessments throughout the Province for all land users. Soil surveys can provide information pertaining to soil depth, clay content and texture, which can be combined with other spatial datasets such as slope, in order to ascertain the potential of the land for agronomic use e.g. crop choice, arability and irrigability.

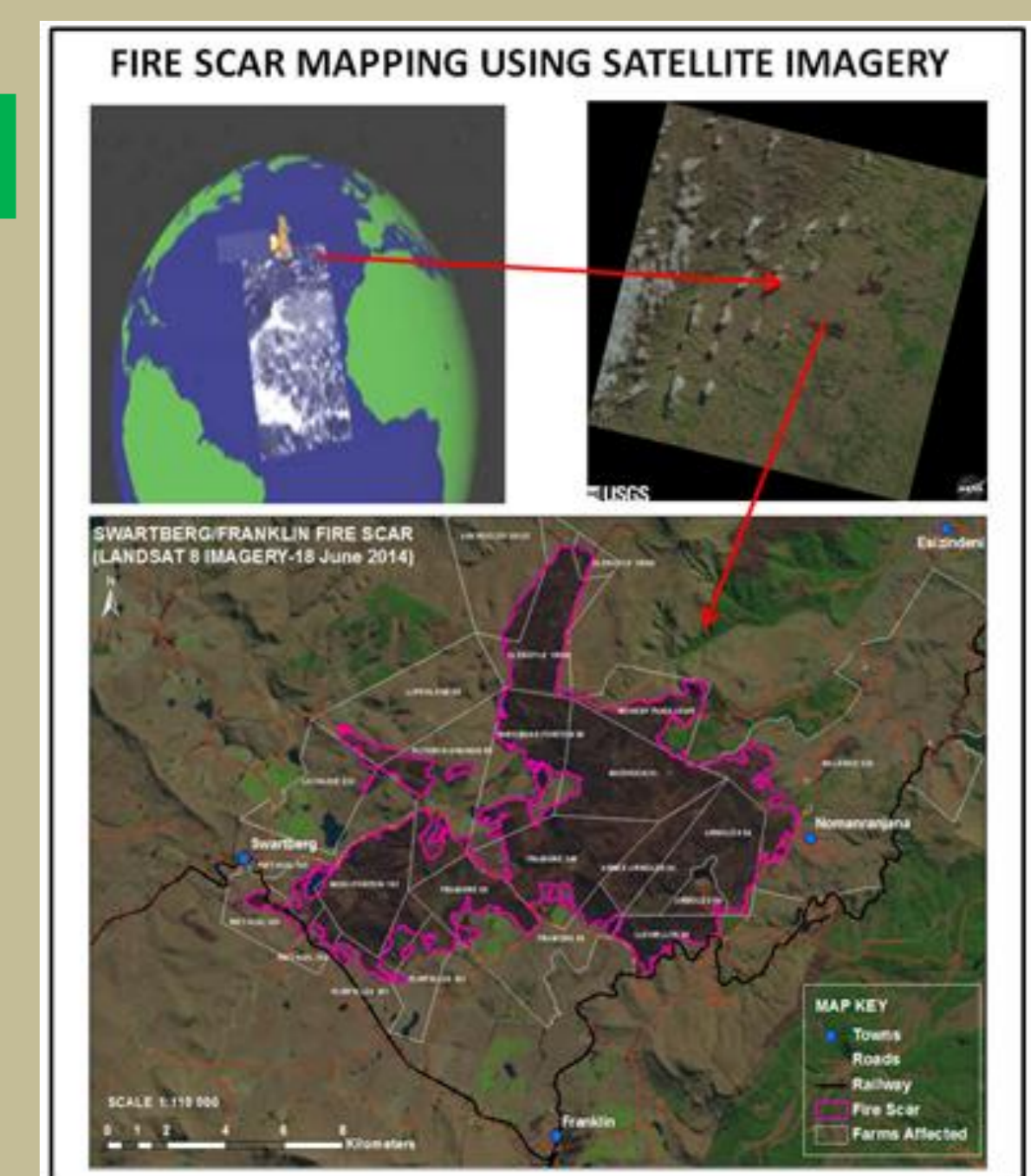


LAND USE PLANNING

The NRS provides specialist, relevant and scientifically-based input into National, Provincial and local level land use plans and strategies to enable the preservation and sustainable use of natural resources. This includes input into Municipal planning documents such as IDP, SDF and LUMS, whereby agricultural sector plans can prioritise agricultural land to ultimately safeguard food security.

GEOGRAPHIC INFORMATION SYSTEMS AND REMOTE SENSING

Geographical Information Systems (GIS) and Remote Sensing play an integral role in the NRS. Spatial techniques, using GIS and Remote Sensing, are used to characterise, monitor and describe the natural resources of the Province. Some of these techniques include fire scar mapping using earth observation technologies, grazing and browsing capacity predictive mapping, soil mapping and land suitability mapping. The GIS team also focuses on Geodatabase design and development to ensure that all spatial data of the Province are housed in a system, which allows for easy retrieval, visualisation and usage.



BIO-RESOURCE UNIT (BRU) PROGRAMME

The renowned BRU Programme, developed at the NRS, serves to provide ready access to the natural resource databases for the Province, to empower clients and extension personnel, to optimize potential and apply appropriate land use management systems to achieve greater productivity and food security while maintaining a sound resource base.