



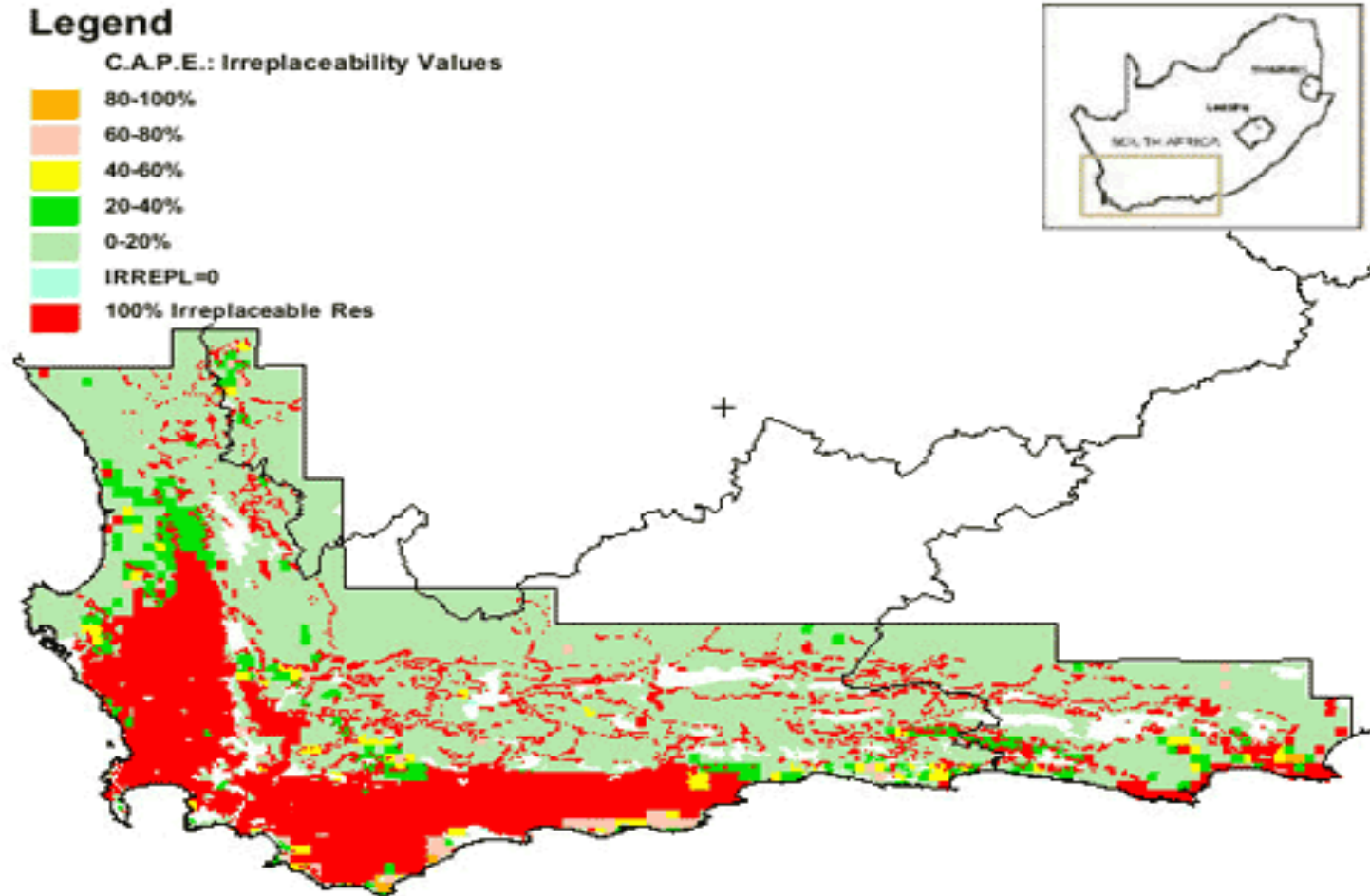
Spatial Information Management

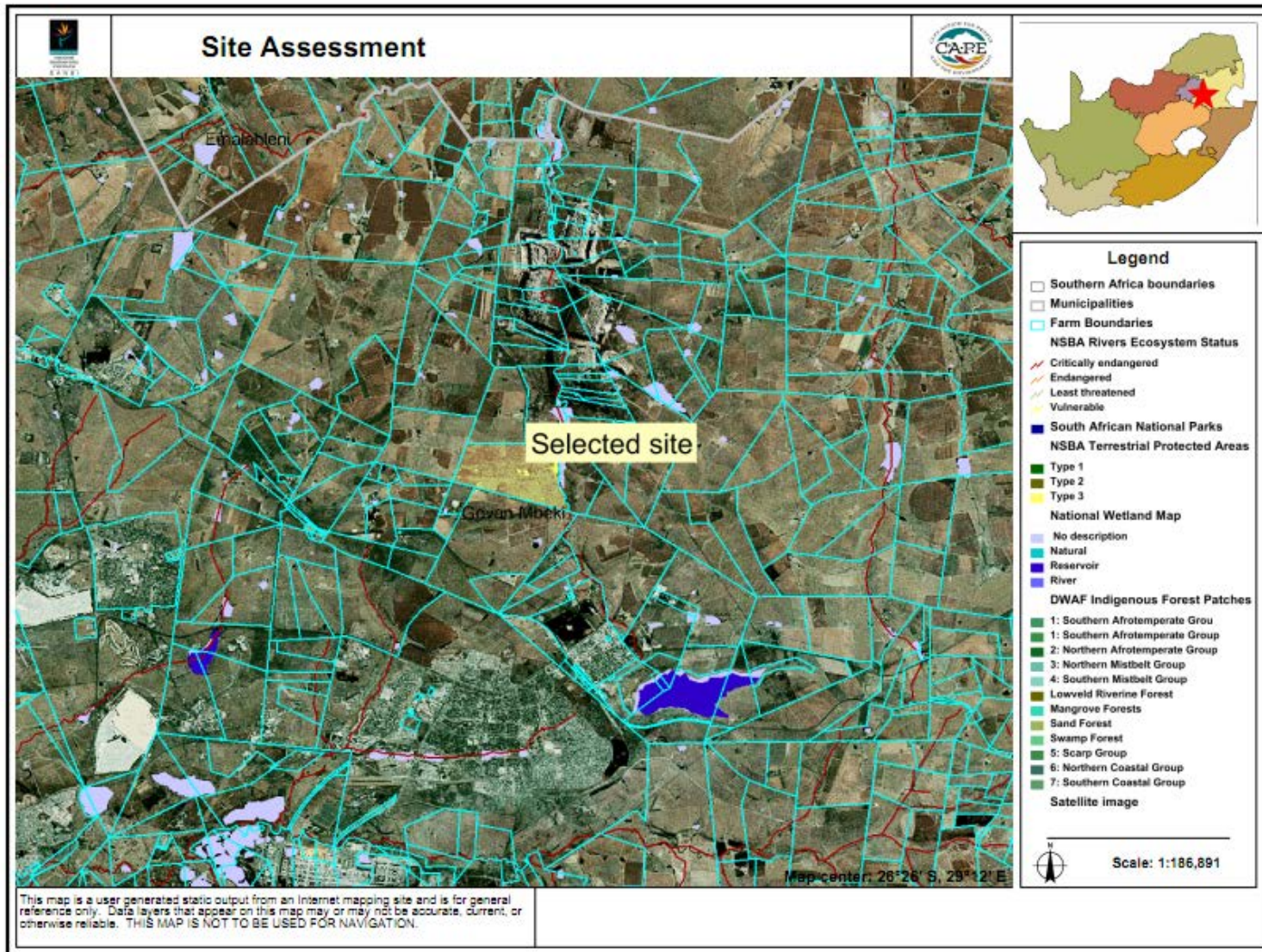
IUCN Technical Advisor ESA
region
Selwyn Willoughby

**Information Management
is not about managing
biodiversity information!**

**Unleashing the power of
data to become
actionable knowledge!**

My first task in conservation!





Site report

User details

Name : Selwyn Willoughby
Organisation :
Assessment type : Test assessment
Date : 04 Oct 2011

Land parcel details

Parcel number : 1/139
21 digit code : TOIS00000000013900001
Municipality : Govan Mbeki Local Municipality
Province : Mpumalanga
Area : 3842257,564
Perimeter : 8572,749
Hectares : 384,226

Spatial layer details

National Wetland Map

Area: 49,383795539
Area: 3,47702667848
Area: 1,29212606506

MBCP Aquatic Biodiversity Subcatchments

Category: 5 - Ecosystem Maintenance
Size (Ha): 4601,83
ZNATURL: 57,72
MIGRATION: 0
Category: 5 - Ecosystem Maintenance
Size (Ha): 11075,468
ZNATURL: 45,754
MIGRATION: 0

NSBA Rivers Ecosystem Status

Name: Trichardspruit
Length: 20231,39718
Ecosystem Status: Critically Endangered

NSBA Terrestrial Protected Areas

No records found.

NSBA Terrestrial Ecosystem Status

Vegetation type: Soweto Highveld Grassland
Protection level: Hardly protected
Ecosystem Status: Endangered

MBCP Terrestrial Biodiversity Assessment

Assessment: 4 - Important & Necessary
Size (Ha): 1757,1
Conservation management: Permitted
Game farming: Permitted
Livestock production: Permitted
Recreational development: Restricted
Rural settlement : Restricted
Dry land cropping: Not permitted
Animal farming: Not permitted
Irrigation cropping: Not permitted
Timber production: Not permitted
Urban development: Not permitted
Major development projects: Restricted
Water projects: Restricted
Underground mining: Restricted

Soil Classes

Favourable Properties: High natural fertility
Limitations: One or more of: high swell-shrink potential, plastic and sticky, restricted effective depth, wetness
Soil Class: Association of Classes 5, 6, 10, 11, 12: Undifferentiated clay:
Soil ID: S18

Information Management - 101

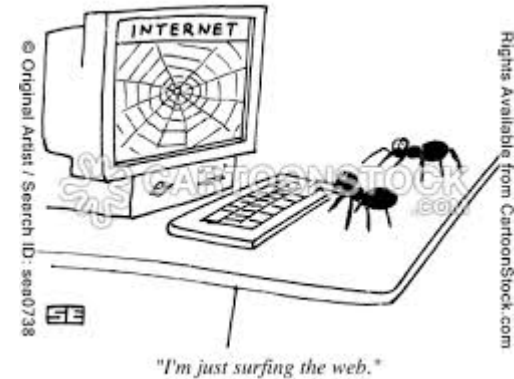
Collate / gather



Organise



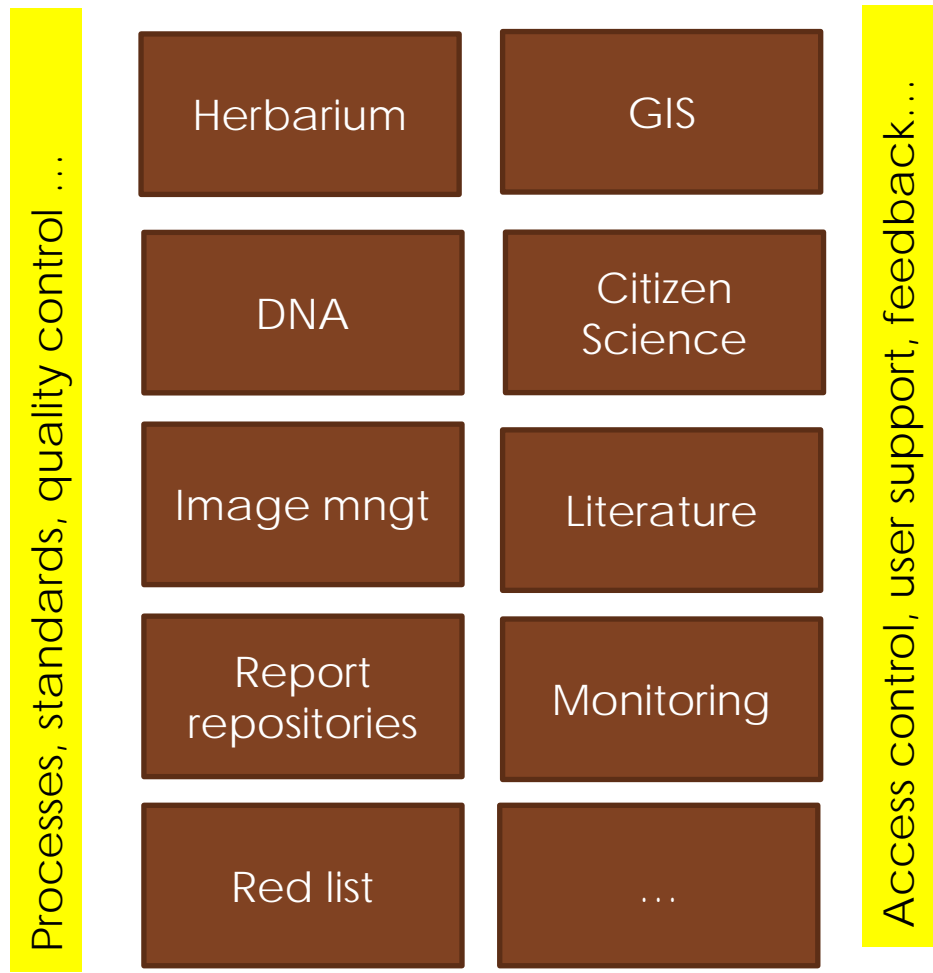
Access



Data types

- Genetic data
- Species data
- Landscape data
- Monitoring data
- Literature
- Images/video

Management systems

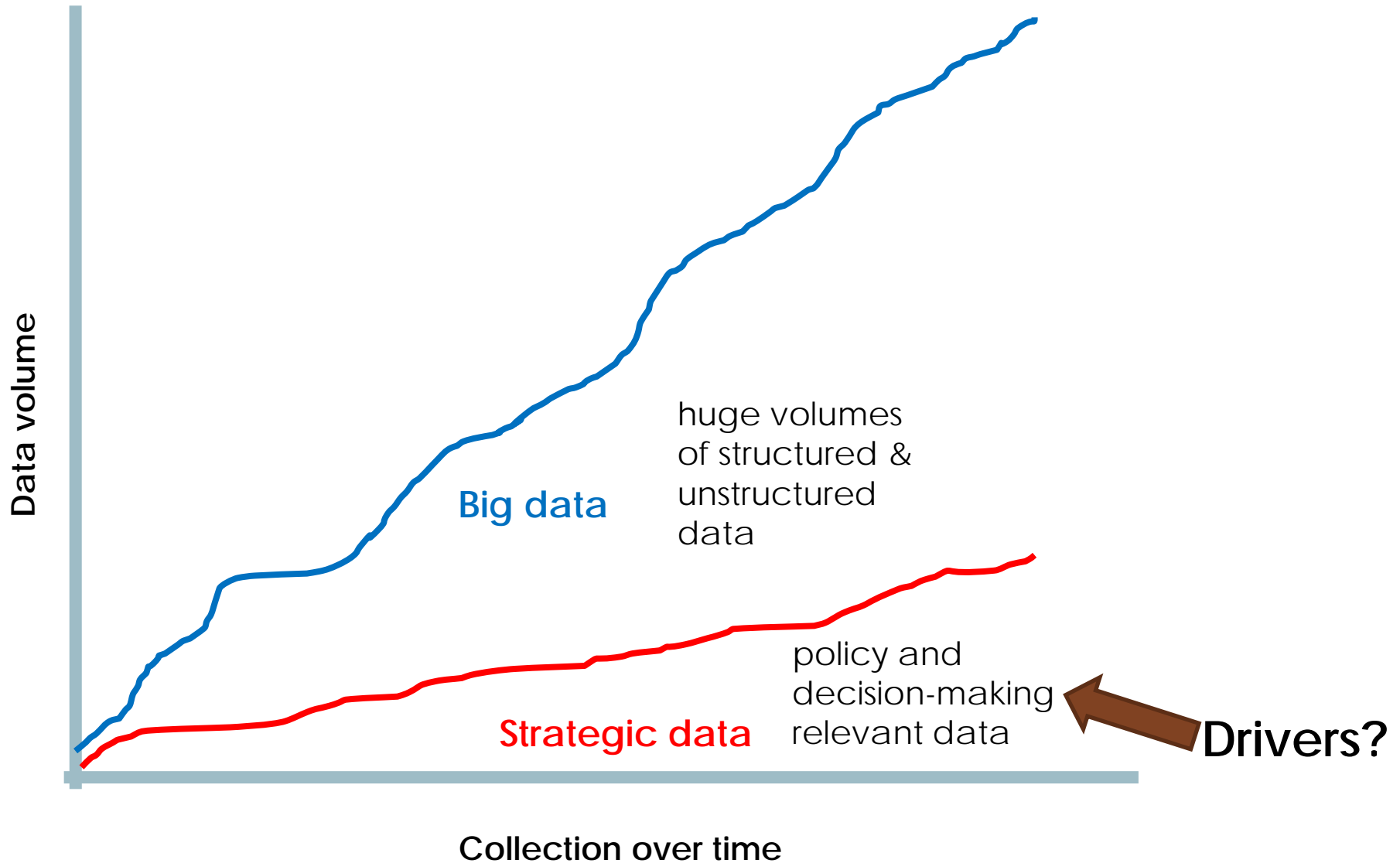


User tools

- Maps online
- Species online
- Redlist
- Invasives
- Citizen Science
- literature
- Decision-supp

IT infrastructure & building capacity

More....



Data types

- Genetic data
- Species data
- Spatial data
- Monitoring data
- Literature
- Images/video

Processes, standards, quality control ...

Management systems

Herbarium	GIS
DNA	Citizen Science
Image mngt	Literature
Report repositories	Monitoring
Red list	...

Access control, user support, feedback...

User tools

- Maps online
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- Decision-supp

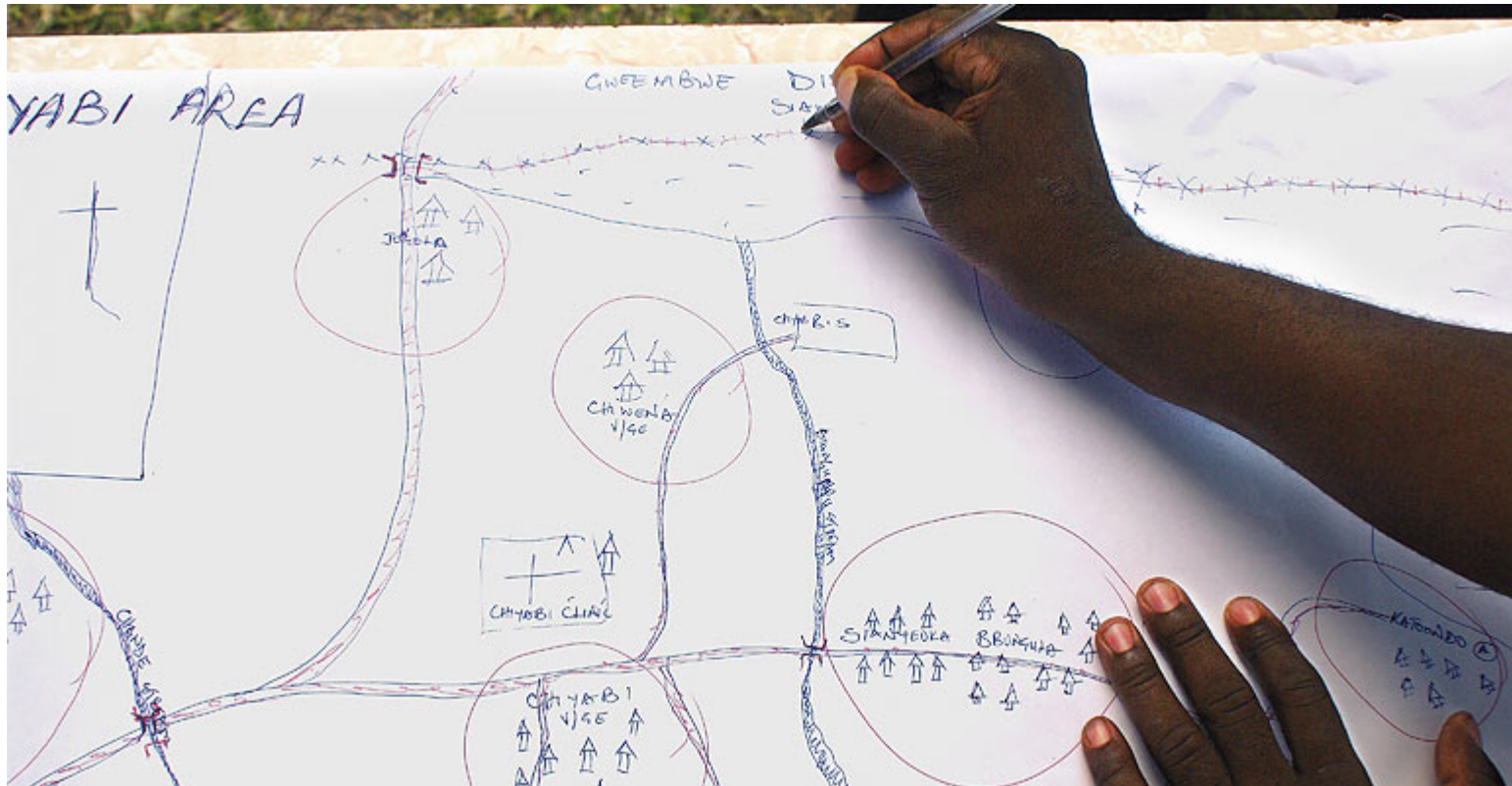
More....

IT infrastructure & building capacity

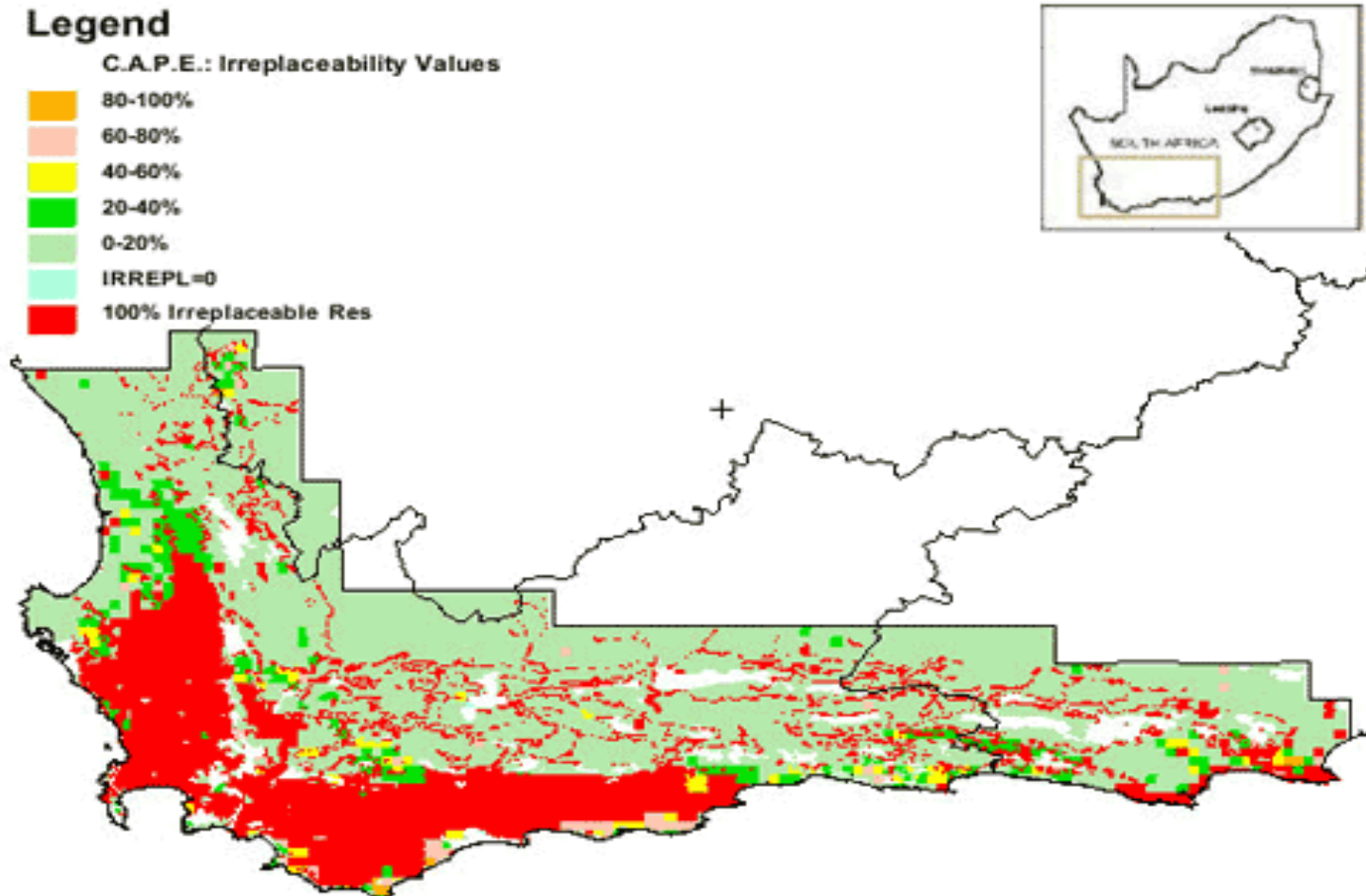
GIS / Mapping

- Why are we making the maps?
- Who are making maps for?
- Where are we getting our information from?
- What message do we want to convey?

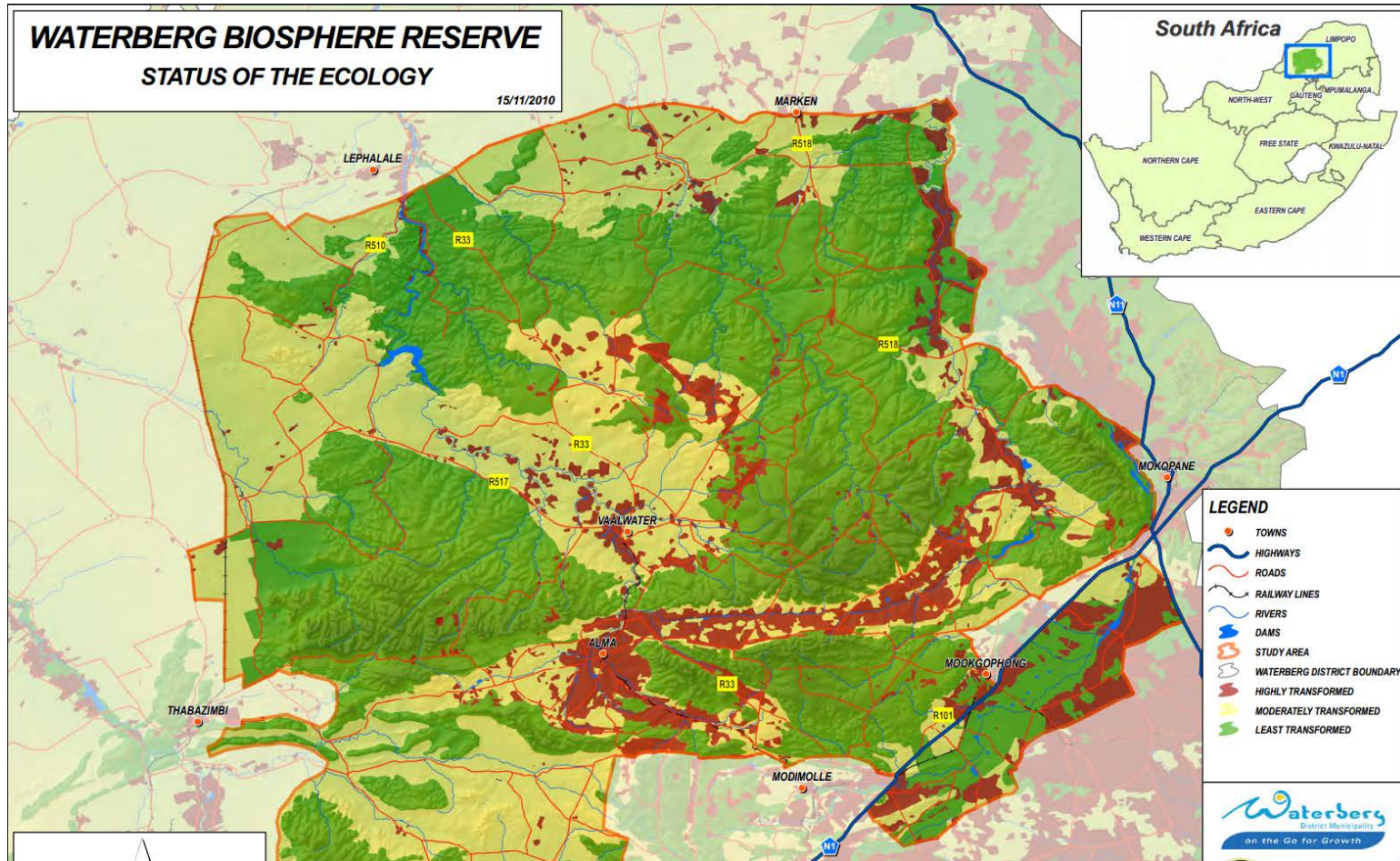
Local community – where are the natural resources and how to use it sustainably?



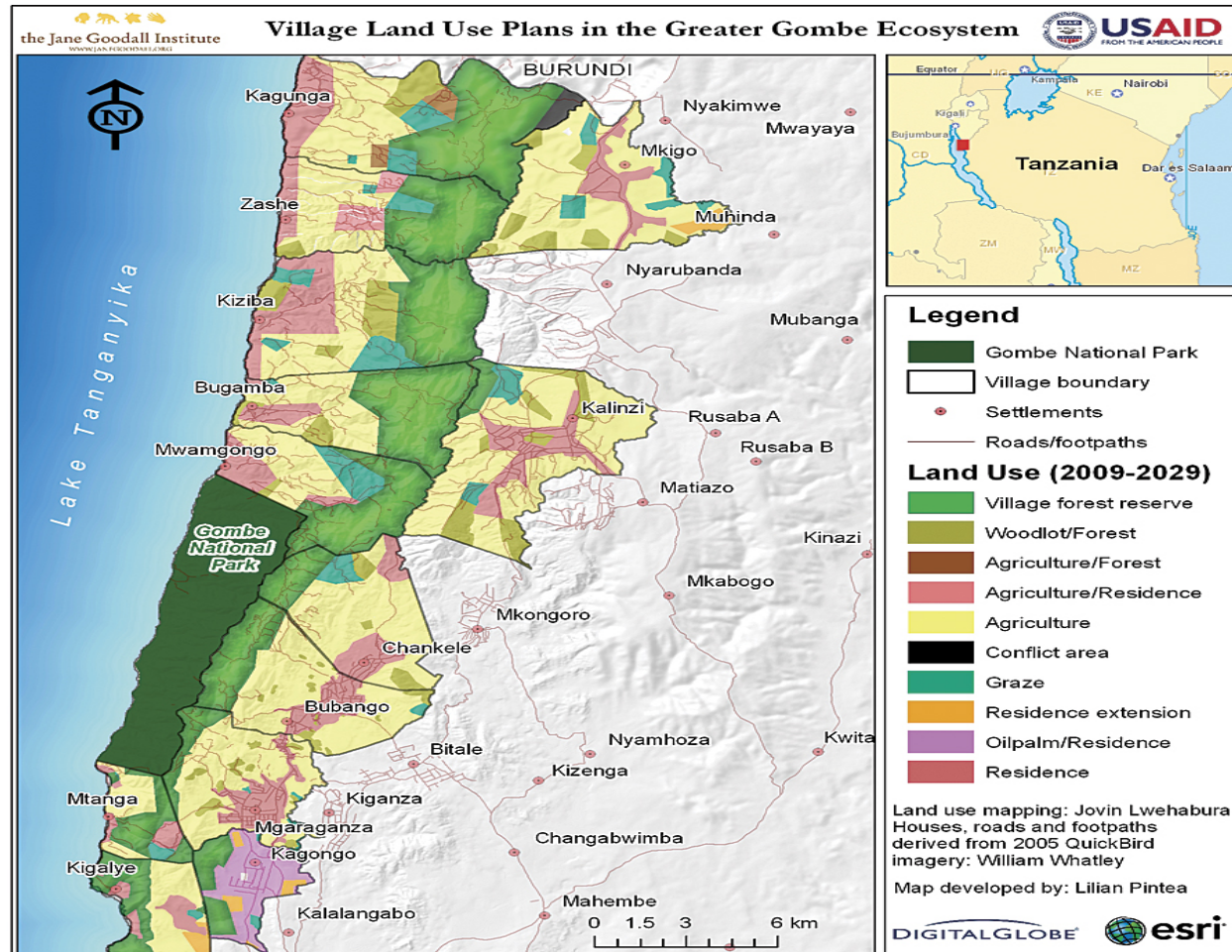
Experts/scientists – what are the ecological processes and patterns?



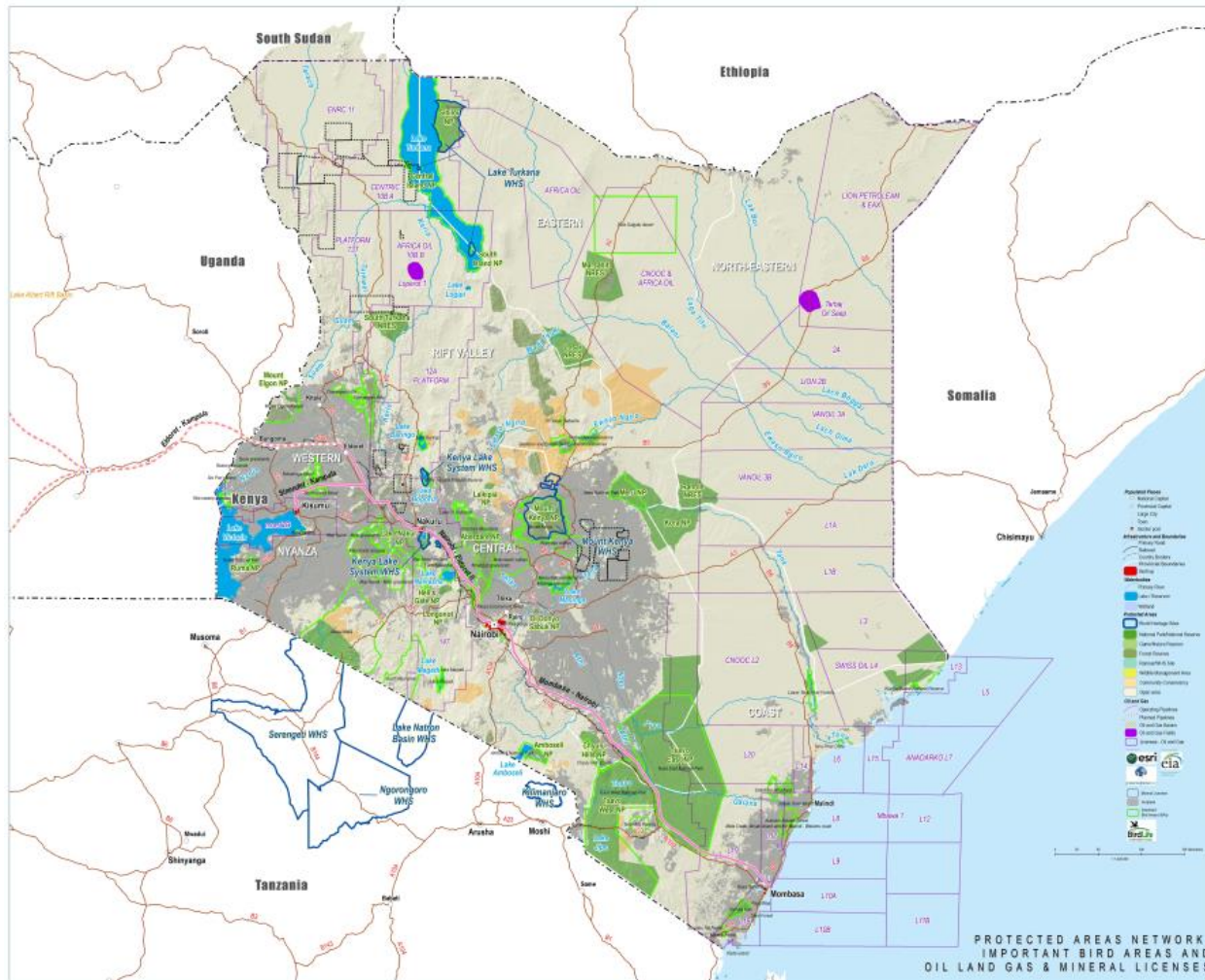
Reserve managers – how best to manage the area (fire regime, grazing...)



Decision makers / planners – what is the best configuration of land-use use within and outside of PAs.



Policy makers / Politicians – what are the options?



Policy makers / Politicians – what are the options



Things to consider when representing information

- Values/Culture
- Representation (nomenclature)
- Data sensitivity & other legal aspects
- Data standards
- Data collection methods
- Conveying of consistent messages

IM skills needed

Role	Taxonomist / Field worker / scientist...	Analyst, Scientist	GIS Specialist & Cartographer	Web Developer	Database developer	Information Manager
Purpose	Data collection	Combine data sets & looks for insights (intelligence)	Analyse & represent spatial data	Develop websites to collect and share data	Create databases, migrate data, ensure overall data integrity (quality)	ID information needs, how to manage & share data & understands the legal aspects.
Skills	Data collection methods, tools and standards	Analysing trends and patterns in the data	Creates maps and conveys a story /message	Programming skills such as Drupal or Java	Database skills, Access, SQL, Oracle...	Information Management skills, management & PM

Training needs / pathway

Training

<ul style="list-style-type: none"> • Intro to GIS • Intro to data collection, collation, standards, methods & tools (incl QC) • Introduction to cartography 	<ul style="list-style-type: none"> • Database management • Web development • GIS analysis • Cartography • Information Policy 	<ul style="list-style-type: none"> • GIS (intro to advanced) • Information Management • Knowledge management 	<ul style="list-style-type: none"> • Diploma • Degree • Short courses
<ul style="list-style-type: none"> • In workplace • Mentoring • Conservation organisations • HEI • Private service providers 	<ul style="list-style-type: none"> • Specialised training providers – GIMS, ESRI, • BIOPAMA will produce a biodiversity information policy framework 	<ul style="list-style-type: none"> • MOOCS – Coursera, Class-central (PACE, Drexel, Syracuse) 	<ul style="list-style-type: none"> • HEI • (e.g. UWC incorporating BIM & land-use planning into biodiversity conservation)

Examples of available tools

Story Maps

The screenshot shows a web browser window displaying an ESRI Story Map. The browser tabs include 'ESRI Conservation Pr...', 'Conservation and Su...', 'Mangroves & Clim...', and 'BIG HOLES'. The address bar shows 'storymaps.esri.com/stories/2014/mangroves/'.

Mangroves
Nature's Defense Against Climate Change

Conakry, Guinea

The city of Conakry, Guinea has expanded from a population of fewer than 40,000 in the 1960's to over 1.6 million today. The image to the right shows the expansion of urban development from 1986 (within the spyglass) to 2014. Urban areas (yellow) have sprawled into mangrove forests (dark blue) and other vegetation (light blue).

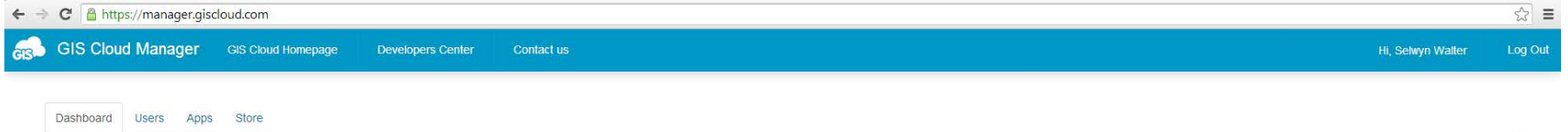
As the population continues to rise, the **threat of mangrove deforestation increases**. In 2008 the United Nations Environmental Programme reported that mangroves were being cleared for agriculture and harvested for firewood, but that the proportion of protected lands also increased, improving hopes for a sustainable future.

United Arab Emirates

The main map area shows a satellite-style map of a coastal region with a color-coded overlay. A circular spyglass is positioned over a specific area, showing a magnified view of the land cover. The legend indicates that yellow represents urban areas, dark blue represents mangrove forests, and light blue represents other vegetation. The map includes navigation controls (home, zoom in, zoom out) and a scale bar.

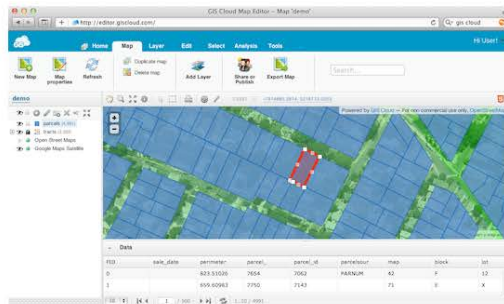
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GIS Cloud



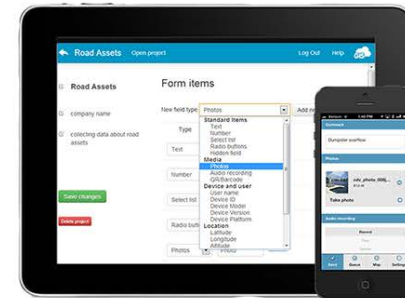
I want to

Create, upload, author, publish & share my spatial data



Start

Collect, inspect and manage field data



Start

UrtheCast

← → ↻ www.urthecast.com



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The dogmas of the quiet past, are inadequate to the stormy present.

Abraham Lincoln