TERN

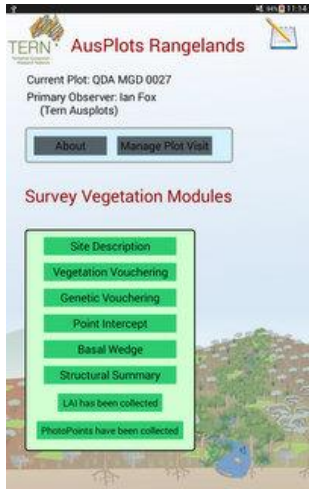
Australia's Land Ecosystem Observatory

Jenny Mahuika

NCRIS
National Research Infrastructure for Australia
An Australian Government Initiative

TERN Purpose[1]

National infrastructure for collecting, collating, storing and sharing Australia's terrestrial ecosystem data sets and knowledge.



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[1]TERN is supported by the Australian Government through the National Collaborative Research Infrastructure Strategy from 2009

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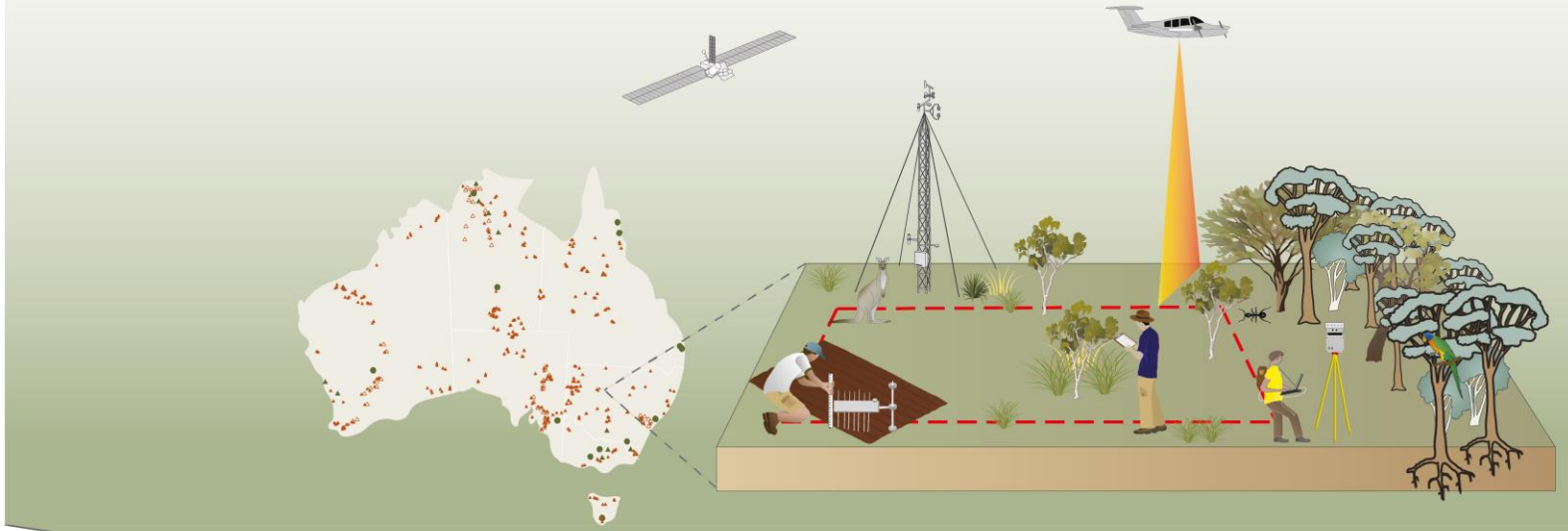
Biodiversity

Land & terrain

Carbon & water

NATIONAL DATA COLLECTION: FIELD, AIRBORNE, AND SATELLITE

TERN's national infrastructure includes on-ground, airborne and satellite data collection with data integration and delivery infrastructure that is designed to deliver information, knowledge and tools that are meaningful at local, regional, continental and global scales.



DATA INTEGRATION, ANALYSIS, AND DELIVERY

more than **600** ecosystem observing sites

more than **2500** open datasets

more than **50** national and international partners

more than **90** year continuity for datasets

more than **1000** peer-reviewed papers using TERN data

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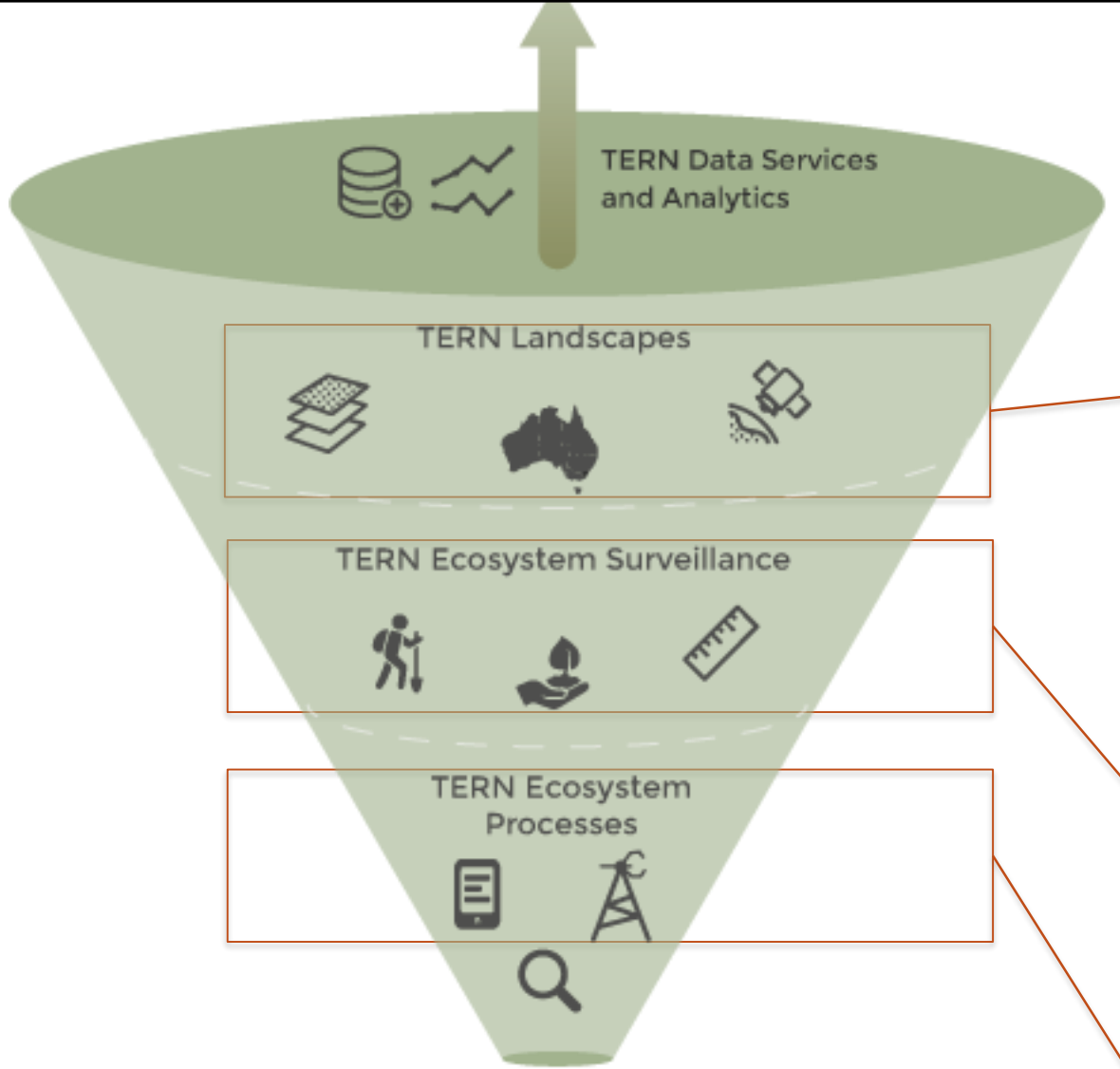
TERN in Operation



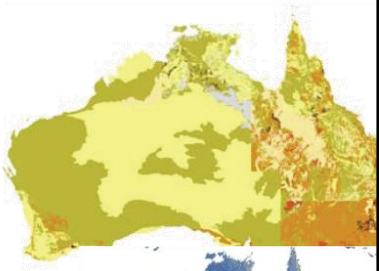
Satellite remote sensing products

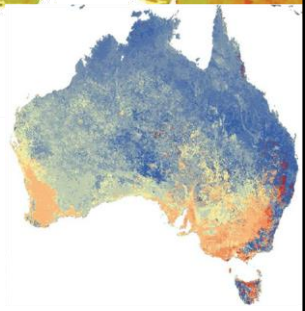
Land cover dynamics and phenology

Vegetation composition and structure

Fire dynamics and impacts

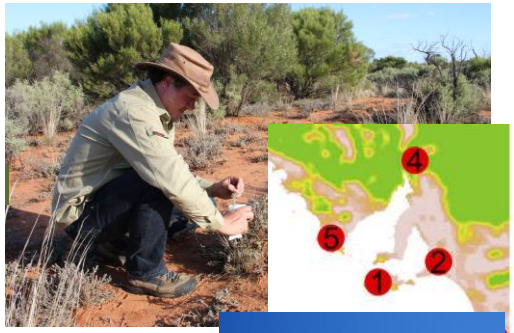
Continental Soil & Landscape data





Plot-based surveillance monitoring

Soil sample, leaf tissue samples, LAI, Basal area



Carbon, energy, water fluxes

- Phenocams
- Acoustic sensors
- Flora population

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TERN Data Services and Analytics Platform

Scope

- Continental scale gridded data products : Remote sensing, Soil and landscape products
- Plot-based surveillance monitoring: Soils, vegetation
- Intensive monitoring
  - Flux tower - sensors
  - Phenocam - sensors
  - Acoustic monitoring - sensors
  - Plot-based vegetation monitoring – human observation
  - Calibration and validation data for remote sensing - sensor
- Institution survey data (state government agencies) – Human Observation

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TERN Data Services Capability : Mandate and Context

VISION: **TERN to be recognised as a leading data and information service provider to enable a better understanding of changes in Australia's terrestrial ecosystem.**

Drivers:

- Develop an integrated approach to the planning, design, development and maintenance of the infrastructure
- New data streams available due to expansion of observation methods
- Harmonisation of heterogeneous data at different scale for national scale data products
- Proactive training and tutorials for data skills development
- Harness data standards in information management and offer a scalable platform for any synthesis activities

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TERN Data Services Capability : Mandate and Context

What success looks like:

- A single entity to deliver data and informatics needs
- TERN Data FAIR (Findable, Accessible, Interoperable, Reusable)
- Fit-for-purpose data services for national and international research communities
- Support data compatibility for different applications and science drivers including government policy
- Scalable system and services
- Interoperability with other NCRIS capabilities and future capabilities such as Earth observatories and National Environmental Prediction System

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TERN Data Services Capability : Mandate and Context

Key Focus Areas:

- Ecosystem science data management and delivery
- Data visualization: both ecology and biogeophysical
- Data standards and interoperability
- Data tools, services, applications and platform development
- Data skills development, outreach and impact measurement

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Findable, Accessible

- Provide collection level metadata in ISO 19115-3 standard
- Use GeoNetwork as a metadata catalogue

- Improve data submission capabilities
- Adopt or develop controlled vocabulary to describe platform, instruments, Observable properties, UoM, Spatial and temporal resolution, organisations and people.

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Work in Progress

- Citation parties – author; co-author
- mri: supplemental
- disclaimers

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Acknowledgement: TERN and Partners

tern.org.au

Data Access: https://portal.tern.org.au
Data Visualisation: https://maps.tern.org.au
Cloud and Virtual desktop platform: https://coesra.tern.org.au
https://ecocloud.org.au

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