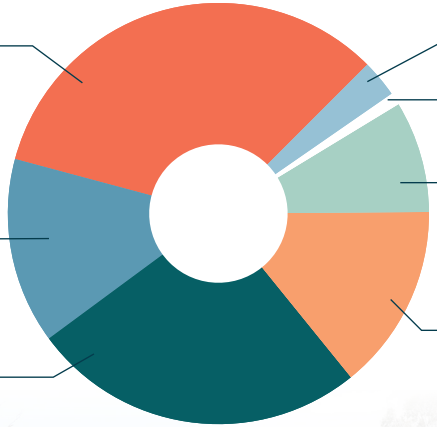
More than:

- **1000** ecosystem observing sites
- **50** national and international partners
- **2100** peer-reviewed papers using TERN data
- **2700** open datasets
- **90** year continuity for some datasets
- **150,000** environmental samples
- **6000** unique users/year
- TERN is recommended by *Nature* for ecology data. See *Nature recommended repositories.*
- A member of the Global Ecosystem Research Infrastructure (GERI)

TERN Data Users



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Ecosystem Research Infrastructure
Australia

tern
Ecosystem Research Infrastructure

TERN provides world class research infrastructure to monitor and understand changes to our environment and climate and enable predictions of future risk. It works accross 3 key themes:

Biodiversity

Observing biodiversity from gene to ecosystem levels, monitoring patterns of change and the drivers of change.

The national scope of TERN's activities, our networks of scientists and technical staff, and our focus on sharing and synthesising data are enabling the development of a continental-scale understanding of what is happening to Australia's biodiversity to enable effective stewardship.

Carbon and Water

Monitoring the interaction between ecosystems and climate including the exchange of carbon, water and energy and responses to extreme events.

TERN's data collection infrastructure and end-user-focused products are delivering better ways of measuring and understanding Australia's current and future environmental carbon and water stocks and flows as we move towards net zero and beyond.

Land and Terrain

Tracking key processes such as natural hazards, land use, and climate change; and monitoring soils and vegetation to build a better national picture of our major ecosystems.

TERN enables Australia to progress towards sustainability on a continental scale, allowing agriculture, industry and consultants, government agencies and the ecosystem science community to work across jurisdictional boundaries, measure and monitor change, and manage our ecosystem assets.

tern.org.au

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Ecosystem Research Infrastructure

NCRIS
National Research Infrastructure for Australia
An Australian Government Initiative

We acknowledge the Traditional Owners and Custodians throughout Australia. We honour their connections to land, water, biodiversity and culture and pay our respects to their Elders past, present and emerging.

August 2023

Key Operating Partners

The University of Queensland Australia · James Cook University Australia · CSIRO · The University of Adelaide

Co-investment

Queensland Government · Government of Western Australia · NSW Government · Government of South Australia

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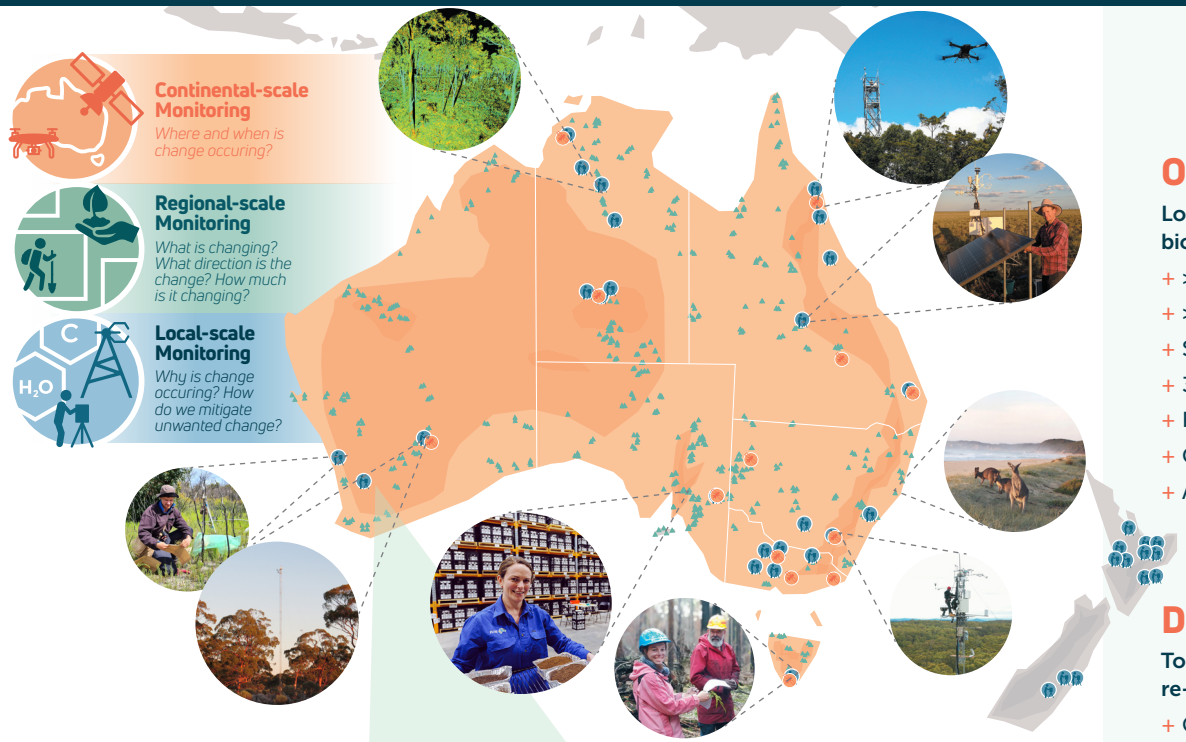

TERN Australia operates a continental-to-local field-based observatory across ecosystem types, regardless of landuse. It uses expertise, sensors, surveys and standard protocols to deliver specimen collections, data and analytics.

Site-based Research Equipment

A network of ecosystem monitoring sites and sensor data streams available to long-term researchers

+ Eddy covariance flux towers
+ Radiometers
+ Anemometers
+ Infra-red Gas Analysers
+ Spectrometers
+ CosmOz soil moisture meters
+ Groundwater bores
+ Ecoacoustic sensors
+ Phenocams
+ Terrestrial laser scanners
+ UAV/drones
+ Camera traps
+ Photopoints
+ GHG chambers
+ and more

Open Data

Long-term preservation and open access for ecosystem and biophysical data via the TERN Data Discovery Portal

+ >40 continental-scale remote-sensing data products
+ >30 soil and landscape attributes
+ Soil and vegetation survey data from >1000 plots
+ 30 min time-series micrometeorology data from >30 flux towers
+ Phenocam and acoustic sensor data from 15 SuperSites
+ Calibration and validation data for remote sensing
+ Aggregated state government survey data for >98,000 plots

TERN Data Discovery Portal

The TERN Data Discovery Portal provides a single point of access to all datasets and available metadata published by TERN's observing platforms, contributors and collaborators. Keywords, geographical parameters and contextual search options enable you to find the data you are looking for.

Data Infrastructure

Tools that support the discovery, analysis and re-use of data

+ Cloud-based virtual desktop to run and share experiments (CoESRA)
+ Data submission, harmonisation and retrieval of ecological data (SHaRED)
+ Discover, map and analyse landscape-scale ecosystem datasets (Data Visualiser)
+ Cloud-based analysis, synthesis and training platform

Research and Management Tools

Services that facilitate research, education and management

+ Catalogued plant and soil sample library

  Researchers from around the world freely access this facility to study soil and plant samples from Australian ecosystems, along with associated data.
+ Nationally consistent field methods
  - The AusPlots Survey Protocols Manual
    - *The Ecological Field Monitoring Protocols Manual* contains 24 Ecological Monitoring System Australia (EMSA) modules
  - Drone Data Collection Protocol
+ Guidelines for calibration and validation of remotely-sensed data
+ Field data collection apps
  - *Monitor* Field Survey Collection App
  - Bird Survey App
+ Decision making resources that report on and interpret changes in our ecosystems and their services
  - Threatened Species Index (TSX)
  - Australia's Environment Report