TERN

Australia's
land ecosystem observatory

Ben Sparrow
TERN Exec Group
Program Lead –
Surveillance Monitoring

Forum on international cooperation among research infrastructures: Brussels, 19 November 2018

NCRIS
National Research Infrastructure for Australia
An Australian Government Initiative

TERN is supported by the Australian Government through the National Collaborative Research Infrastructure Strategy.

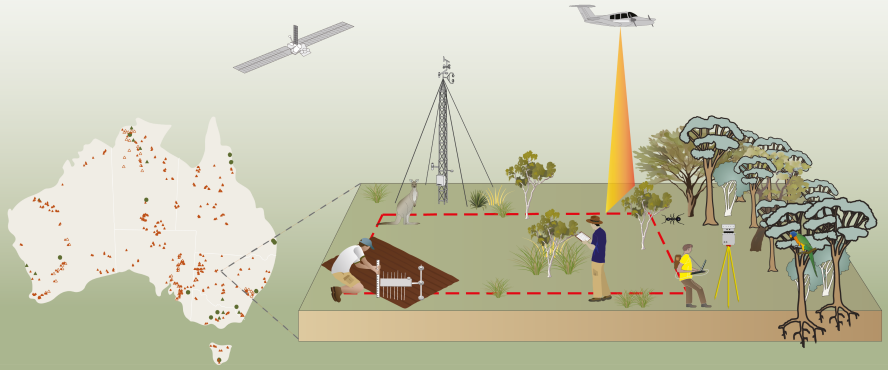
Biodiversity

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

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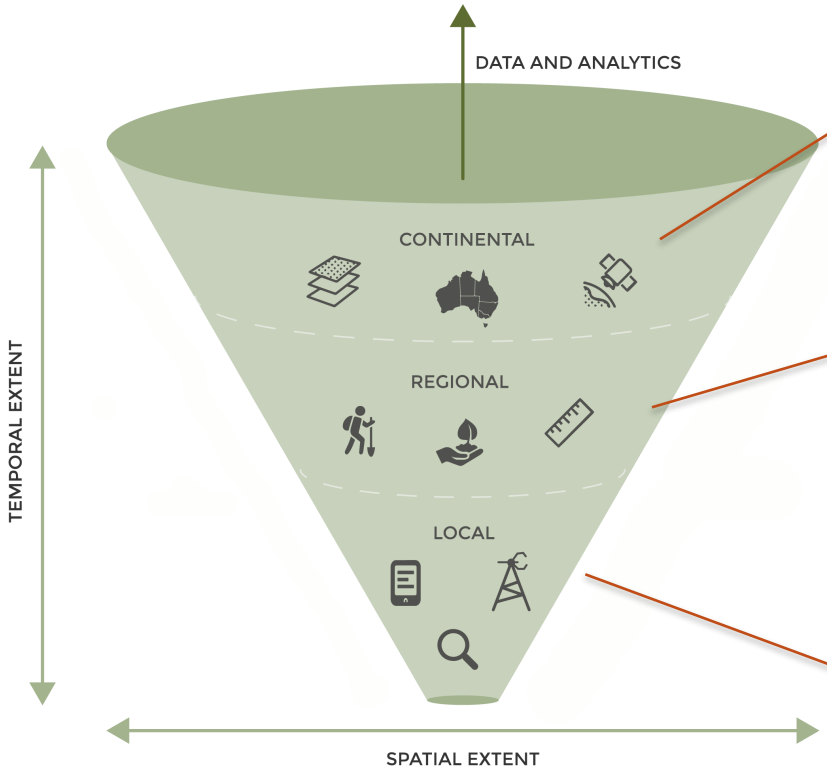
more than **600** ecosystem observing sites

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



Landscape Monitoring

- Where and When is Change occurring?

Ecosystem Surveillance Monitoring

- What is changing?
- What direction is that change?
- What is the magnitude of this change?

Ecosystem Process Monitoring

- Why is change occurring?
- Dow do we mitigate unwanted change?

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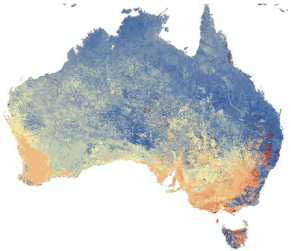
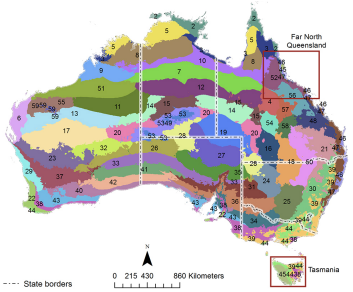
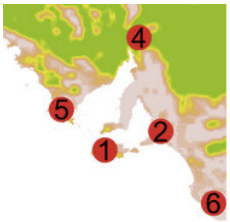
TERN data: key biodiversity examples

- Landscape Monitoring
  - Phenology
  - Land cover dynamics
  - GEOSS Ecosystem Mapping
- Ecosystem Surveillance Monitoring
  - Threatened species/ ecosystem
  - Biodiversity hotspots
- Ecosystem Process Monitoring
  - Carbon, energy, water fluxes
  - Ecoacoustics
  - Phenocams







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Open infrastructure

Example: plant functional trait data

Social infrastructure

Example: indigenous collaborations in biodiversity data

Data Freely Available via web portal

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Samples As
Infrastructure

Temporal data streams contributing to achieving SDGs

15

AUSTRALIA'S MANGROVE OBSERVING SYSTEM

by TERN Australia

https://sdgs.org.au/projects/

Target (Contribute to progress on the Target, not necessarily the Indicator)	Goal	Indicator (Direct measure or indirect support to the Indicator)
1.4 1.5	1 No poverty	1.4.2
2.3 2.4 2.c	2 Zero hunger	2.4.1
3.3 3.4 3.9 3.d	3 Good health and well-being	3.9.1
	4 Quality education	
5.a	5 Gender equality	5.a.1
6.1 6.3 6.4 6.5 6.6 6.a 6.b	6 Clean water and sanitation	6.3.1 6.3.2 6.4.2 6.5.1 6.6.1
7.2 7.3 7.a 7.b	7 Affordable and clean energy	7.1.1
8.4	8 Decent work and economic growth	
9.1 9.4 9.5 9.a	9 Industry, innovation and infrastructure	9.1.1 9.4.1
10.6 10.7 10.a	10 Reduced inequalities	
11.1 11.3 11.4 11.5 11.6 11.7 11.b 11.c	11 Sustainable cities and communities	11.1.1 11.2.1 11.3.1 11.6.2 11.7.1
12.2 12.4 12.8 12.a 12.b	12 Responsible consumption and production	12.a.1
13.1 13.2 13.3 13.b	13 Climate action	13.1.1
14.1 14.2 14.3 14.4 14.6 14.7 14.a	14 Life below water	14.3.1 14.4.1 14.5.1
15.1 15.2 15.3 15.4 15.5 15.7 15.8 15.9	15 Life on land	15.1.1 15.2.1 15.3.1 15.4.1 15.4.2
16.8	16 Peace, justice and strong institutions	
17.2 17.3 17.6 17.7 17.8 17.9 17.16 17.17 17.18	17 Partnerships for the goals	17.6.1 17.18.1

6 CLEAN WATER AND SANITATION

11 SUSTAINABLE CITIES AND COMMUNITIES

13 CLIMATE ACTION

15 LIFE ON LAND

17 PARTNERSHIPS FOR THE GOALS

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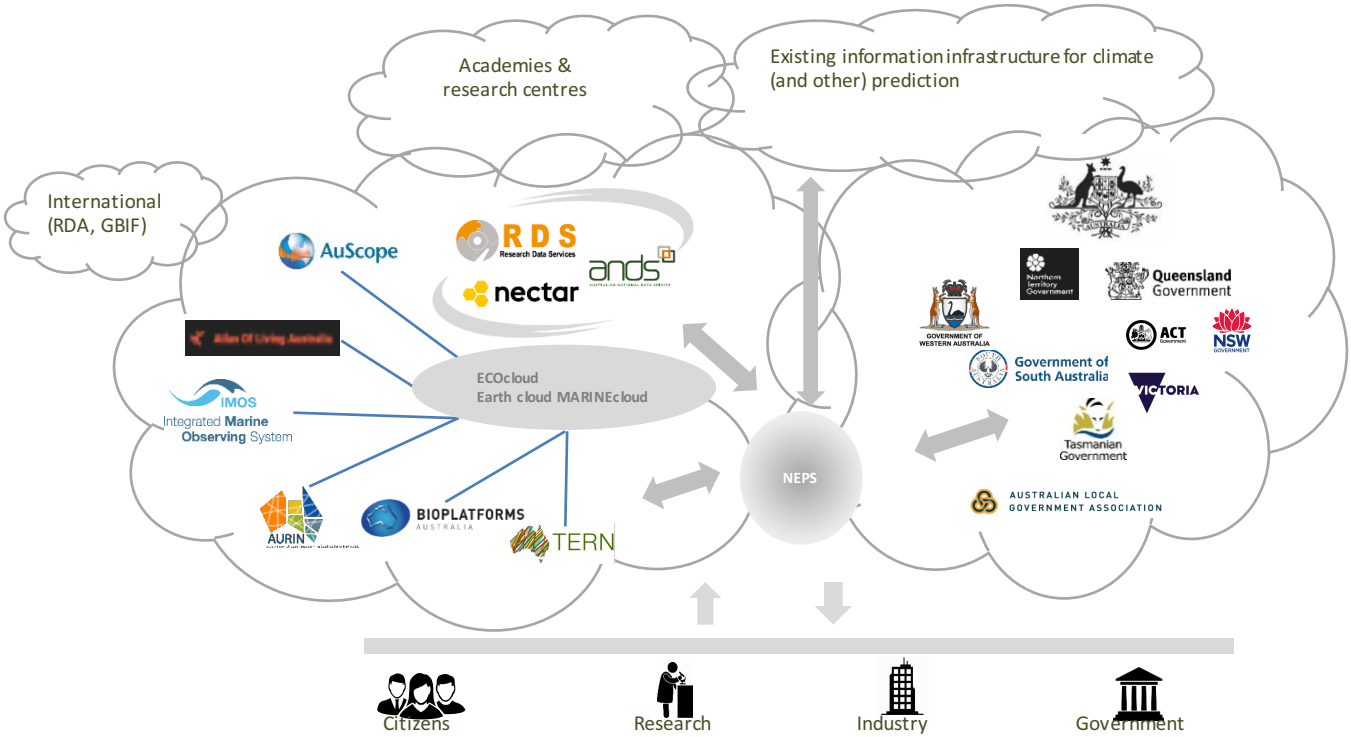
Courtesy: Dr Alex Held

Key contributor to –
National Environmental Prediction System



Environmental information community

Australia's ecosystem observatory 2018-2022

AU$40M NCRIS funding secured for 2018 - 2023

Participating in an Australian project to develop a common national approach to environmental economic accounting

LONG-TERM ECOSYSTEM RESEARCH

AusLTER Forum at ESA 2018

Tuesday, 27 November 2018
10:45-18:00

REGISTER NOW via www.esa2018.org.au

Temporal data streams contributing to achieving Sustainable Development Goals

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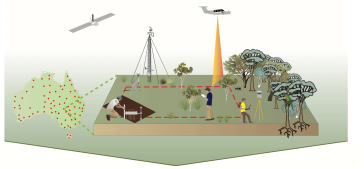
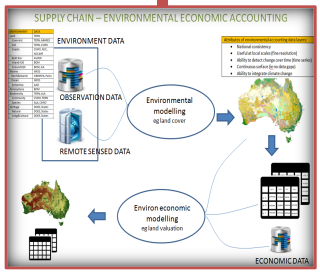


DATA INTEGRATION, ANALYSIS, AND DELIVERY

Investment planning underway for a National Environmental Prediction System



Workshop on 27/11 for long-term ecological & agricultural researchers to reinvigorate AusLTER

www.esa2018.org.au

https://sdgs.org.au/projects/

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TERN and a Global Environmental Research Infrastructure

Strengths in:

Common attributes & Standard Protocols

Entire Data Pipeline – Collection to User Analysis

Information collected and integrated at all scales

Key southern hemisphere data

Asia Pacific regional leadership

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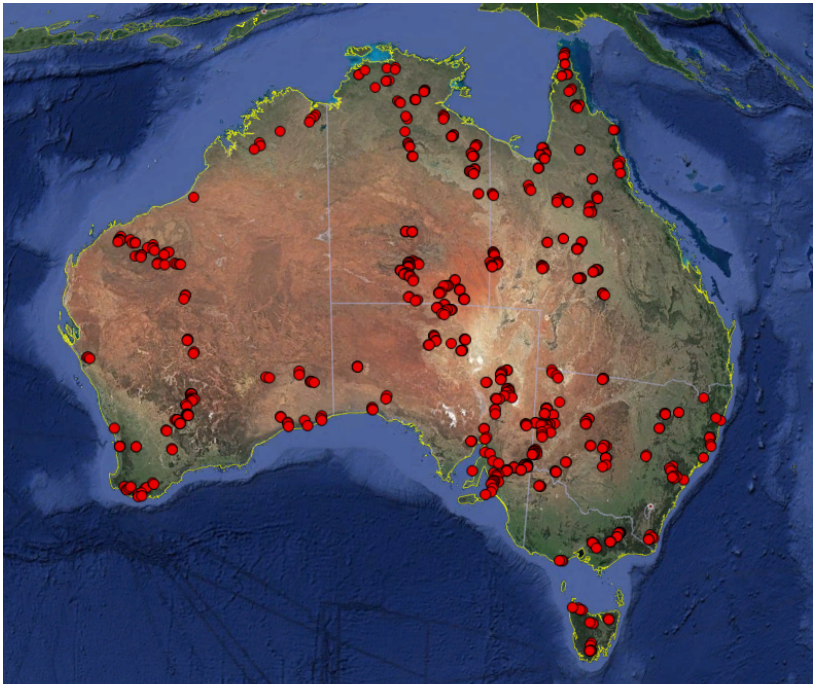
Common Attributes and Standard Protocols



+ Condition
+ Woodlands
+ Forests
+ Fauna
+ RS Validation

ausplots

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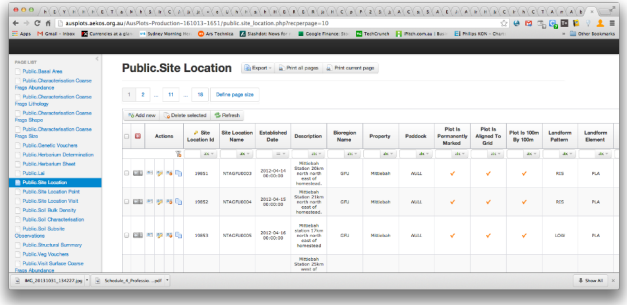
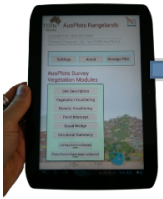
Data Pipeline



Field App



Technical Wizardry
On Cloud Computing

R

aekos

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One Portal
Soon

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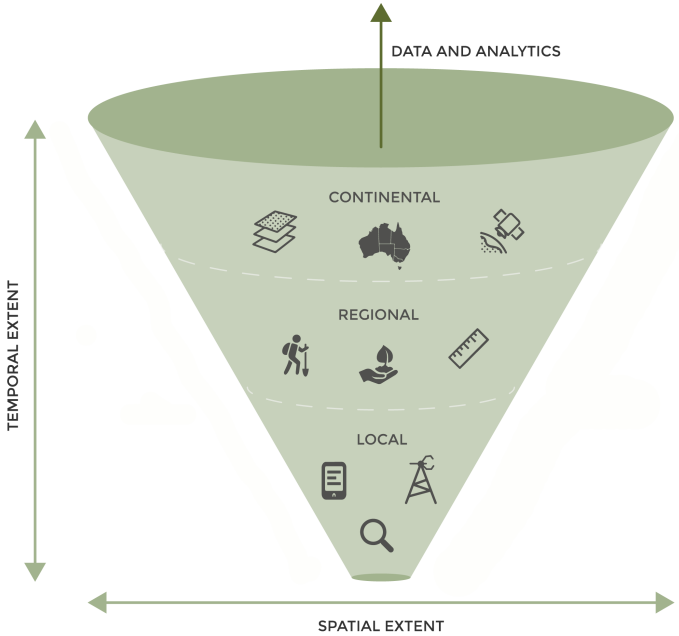
Integration Between Scales



Southern Hemisphere data & Regional Leadership

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tern.org.au

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