Member Node Description: Terrestrial Ecosystem Research Network

Version 1.0   5/26/15   TERN Data Contributors

General

Name of resource:	Terrestrial Ecosystem Research Network (TERN)
URL(s):	http://www.tern.org.au/
Institutional affiliation(s):	The University of Queensland
Primary geographic location:	Brisbane, QLD, Australia
Project Director & contact info:	craig.walker@adelaide.edu.au
Technical Contact & contact info:	tom.saleeba@adelaide.edu.au
Age of resource:	Since 2015
Funding support:	National Collaborative Research Infrastructure Strategy
Proposed Unique Identifier:	urn:node:TERN

Content

Content description/collection policy (1 paragraph, domain and spatial/temporal coverage, uniqueness of content, exclusions, as applicable):

The Terrestrial Ecosystem Research Network (TERN) connects ecosystem scientists and enables them to collect, contribute, store, share and integrate data across ecosystem science disciplines across Australia. We have built on both existing and new data collection programs and established nine interconnected facilities spanning the Australian ecosystem science spectrum. TERN operates as a network of facilities. Each facility manages their own repositories and have developed their own data management framework that will give access to data and related metadata for scientists and policy makers. The TERN Data Discovery Portal (TDDP) enables users to search and discover data across the different Facility portals from a single platform. Once suitable metadata are located in the TDDP, users can connect to the TERN Facility data delivery infrastructure to download the data for further offline processing. TERN publishes data collections related to coastal ecosystem, continental scale remote sensing, soil attributes and climate variables, ecological plot-based survey, time-series flux and micro-meteorology and synthesis products.

Types of data (complex objects, text, image, video, audio, other):

Variable; specific to the Facilities Complex objects, images, text, audio

Data and metadata availability (rights, licensing, restrictions):

Most data are available under Creative Commons suite of licenses including the latest CC V4.0 International; see the TERN Data Licensing Policy (www.tern.org.au/datalicence).

Option for embargo (yes/no, duration):

Some of the datasets have embargo

Size of holdings (number and size of datasets, mean and median granules (files) per dataset):

Currently, there are close to 1800 data collections; the size of the datasets varies from continental scale gridded data to point-based observation (from Gigabytes to bytes).

Please describe recent usage statistics, if known, including information on annual data product downloads, annual number of users, annual number of data products used in publications:
TERN has published over 1800 data collections across different ecosystem domains. It is estimated that there are close to 10,000 users from around the world.

User interactions

How does a user contribute data? (what can be deposited, how are data prepared, are specific software required, documentation/support available)
Two methods of submissions: (1) online data submission tools (e.g., TERN Eco-informatics' SHaRED) and (2) facilitated submissions obtained by engagement with Facility collaborators and data contributors using software like Morpho and ANZMet Lite. Online guidance is provided on best practice data publishing although a new version for SHaRED is planned for released later in 2015.

How does a user acquire / access data?
Two points of access: (1) click on the hyperlink shown at *Online Distribution Info* on DataOne's OneMercury metadata page for TERN's datasets, or (2) via TERN's metadata catalogue, the TDDP to discover datasets held by TERN's domain-specific portals across the different Facilities.

What user support services are available (both for depositing and accessing/using data)?
Customised support is available online through TDDP's webform or email or contact the portal Help pages of the different Facilities.

How does the resource curate data at the time of deposit?
All repositories have data management officers to provide assistance and curate data by running customized quality control; for online submissions such as TERN Eco-informatics' SHaRED (ecological survey data), a subject matter expert and data managers check files for integrity, confirm that they are virus-free, flag inconsistent content, and do some metadata quality control (e.g. sampling effort description). Automated taxonomy and locational validations of these opaque files is planned. With facilitated submissions, some Facilities curate opaque datasets similar to SHaRED whereas integrated site-based survey data in ÆKOS is curated, reviewed and approved for publication by data custodians.

Technical characteristics and policies

Software platform description, incl. data search and access API(s):
TERN uses several platforms to publish data collections; Majority of Bio-geophysical data is described using ISO 19115 and catalogued using GeoNetwork. The ecological data is described using EML and catalogued using Metacat. Rich contextual plot-based ecological data is published using Australian Ecological Knowledge and Observation System (AEKOS). The TDDP harvest metadata from all the TERN repositories to provide an aggregated view of all TERN data collections.

Service reliability (including recent uptime statistics, frequency of hardware refresh, if known):
TERN relies on NeCTAR and RDSI, cloud-based National eResearch Platform to host and publish data. These platforms with multiple nodes across Australia have some down time and it is estimated that the uptime is around 97% including scheduled maintenance, upgrades, etc.

Preservation reliability (including replication/backup, integrity checks, format migration, disaster planning):

All our services are replicated across different sites; large data collections are also replicated across different cloud nodes.

User authentication technology (incl. level of create/modify/delete access by users):

Some of the repositories use LDAP-based authentication to provide access to data.

Data identifier system and data citation policy, if available:
TERN has a facility to assign DOI to data and there are several datasets with DOI. All data published under TERN have license attached to data. Even though TERN wants to publish data under least restrictive licenses, data contributors who own the intellectual property are able to select the most appropriate license under which data is published. Data users are advised to adhere to the licensing policy and all citation information will be provided with the data.

Metadata standards (including provenance):
TERN uses ISO 19115, EML, RIF-CS and customized metadata format (AEKOS published data).

Capacity/services to DataONE

At what functional tier will you initially be operating? (see http://bit.ly/MNFactSheet for definitions)
- ☒ **Tier 1: Read only, public content**
- ☐ **Tier 2: Read only with access control**
- ☐ **Tier 3: Read/write using client tools**
- ☐ **Tier 4: Able to operate as a replication target**

If you can host data from other member nodes, what storage capacity is available?
No hosting from other member nodes

Can you provide computing capacity to the broader network? If so, please describe.
We can provide limited cloud-based computing capacity to the broader network in collaboration with nationally funded eResearch Infrastructures.

Other Services

What other services or resources (such as expertise, software development capacity, educational/training resources, or software tools) can be provided of benefit to the broader network?
TERN provides assistance in the ecosystem data management, software development to make data accessible to wider research community and run workshops on the use of the TERN infrastructures to access and use data. TERN Eco-informatics technical staff provide ongoing support on site-based survey data integration, ecological vocabularies/trait development, information (ontological) modelling and data description modelling. Other specialties are data relationship management, data licensing and citation.