ECOASSETS

Streamlining access to data from Australian national environmental research infrastructures for State of the Environment reporting and beyond

THE CHALLENGE

Every five years, the Australian Government delivers the State of the Environment (SoE) report, a review of how Australia's environment is being affected by changing pressures on land and marine areas and how these changes will impact the economy and society.

Australian research infrastructures and their data partners collect massive amounts of data each year on all aspects of the environment, but this information does not feed readily into the processes that support reporting at the national scale or in each State and Territory.

Through EcoAssets, three of Australia's national research infrastructures are working together to deliver integrated data for SoE reporting and other environmental assessments.

THE PARTNERS

In partnership with the Australian Research Data Commons, the EcoAssets project (doi.org/10.47486/XN005) will build data linkages between three world-leading research infrastructures funded under Australia's National Collaborative Research Infrastructure Strategy (NCRIS).

The Atlas of Living Australia (ALA) aggregates evidence of the distribution of all Australian plant and animal species, bringing together data from labels on museum specimens, field surveys, citizen science observations, molecular sequencing and literature.

The Integrated Marine Observing System (IMOS) operates a wide range of observing equipment throughout Australia's coastal and open oceans, covering physical, chemical and biological variables.

The Terrestrial Ecosystem Research Network (TERN) measures key attributes through time for Australia's terrestrial ecosystems from the continental scale down to hundreds of field sites at representative locations.

These infrastructures are working with the Department of Agriculture, Water and the Environment (DAWE) to ensure that their data combine to meet the needs for SoE and other national monitoring and assessment processes.

Atlas of Living Australia
ala.org.au

IMOS
Integrated Marine Observing System

tern
Ecosystem Research Infrastructure

ARDC
Australian Research Data Commons

Australian Government
Department of Agriculture, Water and the Environment

NCRIS
National Research Infrastructure for Australia
An Australian Government Initiative

THE **APPROACH**

All three research infrastructures - ALA, TERN and IMOS - collect data on Australia's biodiversity and maintain metadata on environmental survey and monitoring activities. Through EcoAssets, they are sharing these resources in standard formats for aggregation as integrated data assets.

EcoAssets will identify opportunities to increase alignment between data from all partners, in particular to simplify spatiotemporal analysis and to address differences in terminology and vocabularies.

The research infrastructures will operationalise EcoAssets data pipelines so that each data asset developed by the project can be versioned at regular intervals, ensuring that SoE reporting and similar processes will have access to comparable time series for key measures of the state of Australia's environment and biodiversity.

EcoAssets is addressing multiple stages in the data lifecycle

STREAMLINE
processing of environmental data

AGGREGATE
related data from multiple partners as large-scale national data assets

ALIGN
data assets as an organised national data collection

MAINTAIN
regularly versioned updates of the collection

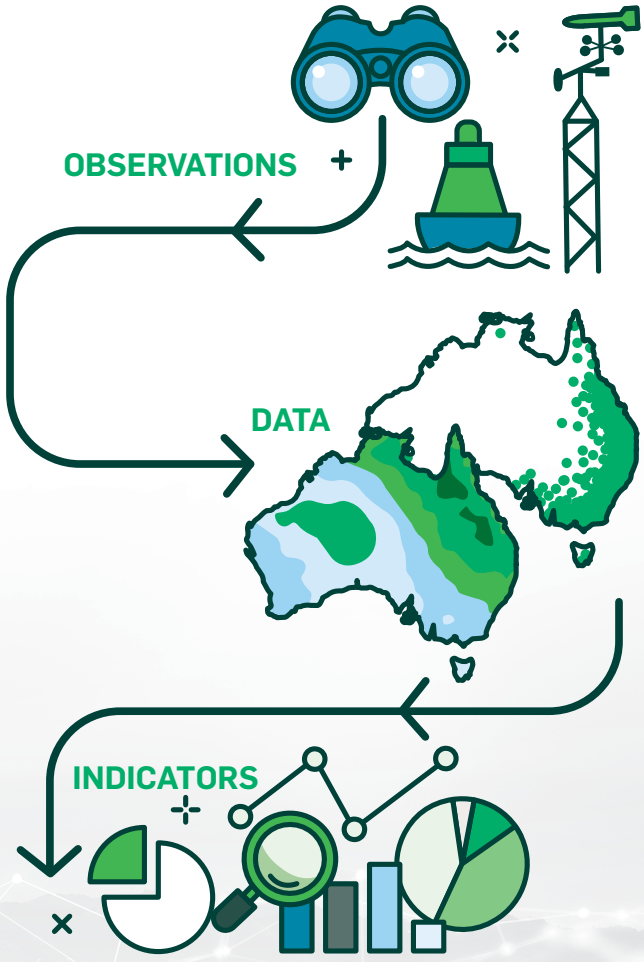
THE **PRODUCT**

EcoAssets will focus on two cross-infrastructure data assets.

1. **Integrated species distribution data asset** updated regularly with new data collected by all three infrastructures. IMOS collects survey data on marine communities around Australia's reefs and tracks individual fishes and other animals via tags and acoustic telemetry. TERN conducts a wide range of site-based surveys from which species distribution data will be extracted. These will be combined with all the other species distribution data sources aggregated by the ALA.

2. **Integrated survey and monitoring activity data asset** summarising the effort applied towards understanding different aspects of the Australian environment. TERN and IMOS both maintain some fixed monitoring infrastructure and collect data and metadata by undertaking time series site-based surveys. The ALA collates data from standardised biodiversity surveys, including published project metadata. These sources will all be mapped and organised using a common vocabulary to facilitate comparison of survey effort across time and space.

The EcoAssets data collection will also serve as an umbrella for discovery and access to other nationally significant environmental data assets offered by each infrastructure. Bringing these resources into a common framework will encourage wider reuse and standardisation.



For more information, contact **ala@csiro.au**

Last updated: June 2021