



Australian Research Data Commons

# Data and Platforms to Meet Australia's Future Research Needs

ARDC Leadership Forum  
February 2024



ARDC is enabled by NCRIS





## 2030 Geophysics Collections

Making national high-resolution geophysics reference collections suitable for exascale computing in 2030

Led by - NCI

Partners

AuScope | TERN



# AgReFed

Making the most of  
agricultural data for  
research

Led by - Federation University

## Partners

University of Sydney

University of Southern Queensland

Queensland Cyber Infrastructure Foundation





# Air-Health Data National Data Asset

Consolidated air pollution and health data to inform economic and environmental policy changes.

Led by - Curtin University

## Partners

The University of Sydney  
Department of Planning and  
Environment NSW (DPE NSW)  
Australian Institute of Health  
and Welfare (AIHW)

Environmental Protection Authority  
Victoria  
Monash University  
The University of Queensland  
NHMRC Centre for Safe Air (CSA)



# AusTraits

A national database of Australian plant traits that synthesises data on 500 traits across 30,000 plant taxa.

Led by - UNSW

## Partners

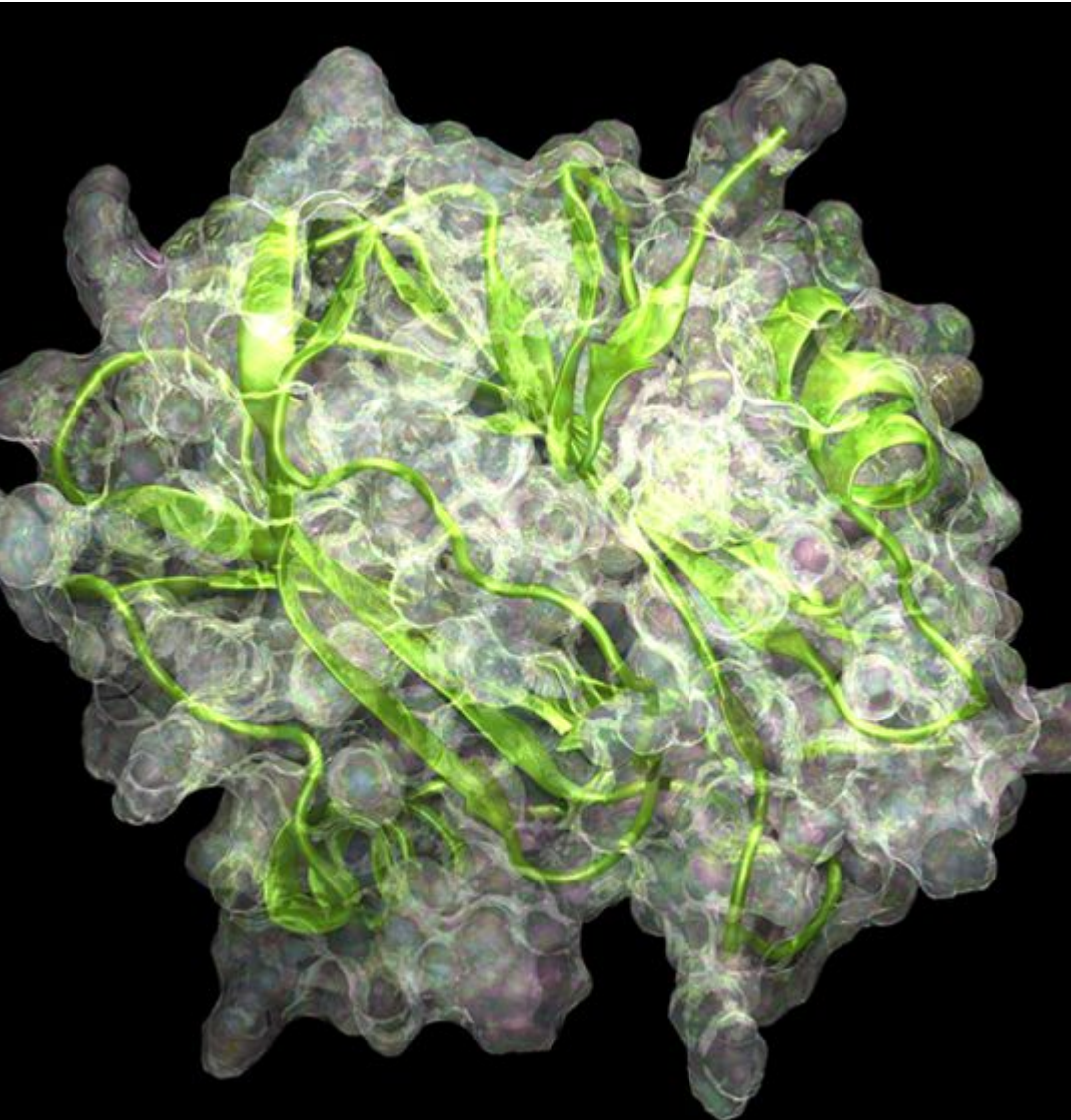
Western Sydney University  
Macquarie University  
Royal Botanic Gardens  
and Domain Trust  
Centre for Australian  
National Biodiversity  
Research  
The University of  
Melbourne  
EcoCommons Australia  
CSIRO

Atlas of Living Australia  
Landcare Research New  
Zealand  
University of New England  
Murdoch University  
University of Arizona  
Department of Agriculture,  
Water and the Environment:  
Australian Biological  
Resources Study  
Parks Australia

Arthur Rylah Institute for  
Environmental Research  
NSW Department of Planning,  
Industry and Environment  
Western Australia Department  
of Biodiversity, Conservation  
and Attractions  
Greening Australia







# Australasian Computational and Simulation Commons

Consolidated, valuable data derived from quantum mechanical calculations and atomic-level computer simulations of molecular systems.

Visit project outputs: [ATB](#) and [ACSC](#)

Led by - The University of Queensland

## Partners

Curtin University  
Australian National University  
University of Wollongong  
Monash University  
University of Melbourne

University of Technology Sydney  
Griffith University  
Latrobe University  
Adelaide University



# Australian Scalable Drone Cloud

A national ecosystem for  
drone data management.

Led by - Monash University

## Partners

AuScope  
TERN

Australian Plant Phenomics Facility  
CSIRO







# Australian BioCommons Bring Your Own Data Expansion Project

Accessible, available and scalable data analysis and sharing capabilities for Australian life science researchers.

Led by - Australian BioCommons

## Partners

The University of Melbourne  
Bioplatforms Australia (BPA)  
AARNet  
Australian Access Federation  
NCI

Pawsey Supercomputing  
Research Centre  
Queensland Cyber  
Infrastructure Foundation  
Melbourne Bioinformatics  
University of Sydney

# Australian Cancer Data Network

A nationally agreed capability that links clinical practice data and clinical trial data, for federated learning and machine learning analysis.

**Led by - UNSW**

## **Partners**

South Western Sydney Local Health District  
University of Wollongong  
TROG Cancer Research  
CSIRO  
Cancer Alliance Queensland  
Illawarra Shoalhaven Local Health District

Peter MacCallum Cancer Centre  
University of Sydney  
Sir Charles Gairdner Hospital  
Royal Adelaide Hospital  
ACT Health





# Australian Characterisation Commons at Scale

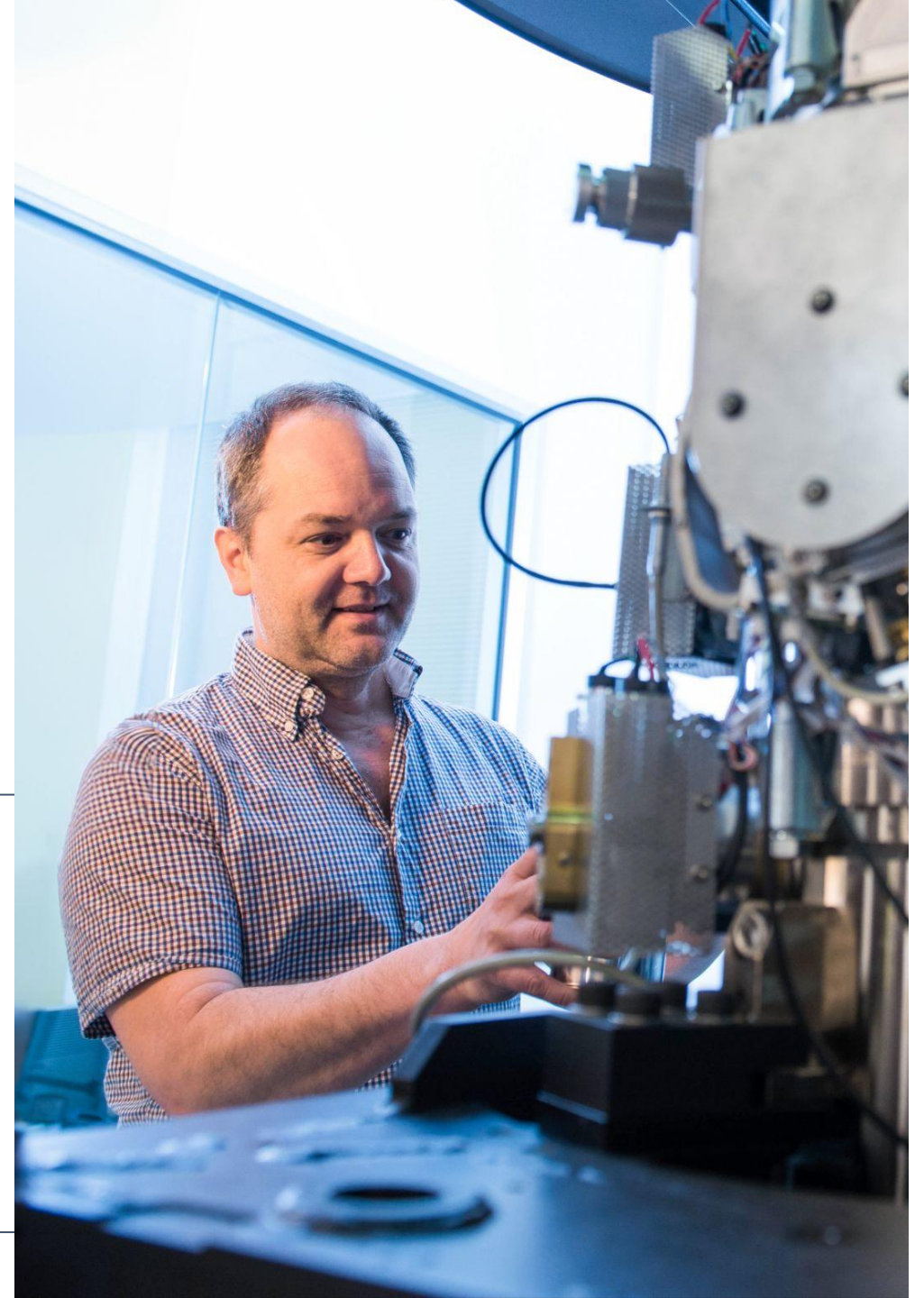
Resolving the big-data challenges for researchers in microscopy, and imaging by providing digital characterisation resources, including online environments, computing facilities, data and training.

**Led by - Monash University**

## **Partners**

AARNet  
Microscopy Australia  
National Imaging Facility  
Pawsey Supercomputing Centre  
Queensland Cyber Infrastructure Foundation

The Florey Institute of Neuroscience and Mental Health  
The University of Melbourne  
University of New South Wales  
University of Queensland  
University of Sydney  
University of Western Australia  
University of Wollongong





# Australian Child and Youth Wellbeing Atlas

A freely accessible nationwide platform featuring geospatial and temporal visualisation of comprehensive child health and wellbeing indicators at local and national levels

Led by - University of Western Australia

## Partners

Australian Research Alliance for Children and Youth

Australian Human Rights Commission

Commissioner for Children and Young People Western Australia

Australian Institute of Health and Welfare  
Childrens Health Queensland

Child UnLTD

Deakin University

Murdoch Children's Research Institute

NeuroPower

The Ian Potter Foundation

QUT

University of Sydney

UNSW



# Australian Companion Animal Registry of Cancers

Australia's first national registry of cat and dog cancers, backed by real-time data.

Led by - The University of Queensland

## Partners

QUT  
University of Sydney  
Gribbles Veterinary Pathology

IDEXX  
University of Adelaide  
Murdoch University





# Australian Digital Observatory

National infrastructure to access and analyse dynamic human data on the web

Led by - QUT

## Partners

University of Melbourne  
UNSW

The University of Queensland  
Queensland Cyber  
Infrastructure Foundation



# Australian Electrophysiology Data Analytics PlaTform

An open, national platform for  
reproducible electrophysiology  
data analysis and sharing.

**Led by** - Swinburne University of Technology

## **Partners**

The University of Queensland  
University of Sydney  
National Imaging Facility

Australian Brain Alliance  
Oracle for Research





# Australian Housing Data Analytics Platform (AHDAP)

Connects academics, government, industry and communities to the best available data, analytics and insights to assist in solving the challenges facing Australia's housing future.

Led by - UNSW

## Partners

Australian Institute  
of Health and Welfare  
AURIN

FrontierSI

Australian Bureau  
of Statistics

National Housing Finance  
and Investment Corporation

NSW Government  
Spatial Services  
Omnalink Pty Ltd  
Commonwealth Bank  
of Australia  
Curtin University  
Swinburne University

The University of Queensland  
University of Canberra  
University of Melbourne  
University of South Australia  
University of Tasmania



# Australian Imaging Service

The national federation for securely managing and analysing clinical and preclinical imaging data.

Led by - The University of Sydney

## Partners

National Imaging Facility  
QCIF  
QUT  
SAHMRI

UNSW  
Neuroscience Research Australia  
Macquarie University  
The University of Western Australia  
The University of Queensland



# Australian Pest Genome Partnership

Easily accessible reference quality genomic data assets for some of Australia's top pest and invasive species

**Led by - CSIRO**

## **Partners**

ANU  
Macquarie University  
University of Melbourne  
Australian BioCommons

Queensland Department  
of Agriculture and Fisheries  
South Australian Research  
and Development Institute







# Australian Text Analytics Platform

An open source environment for researchers with tools and training for analysing, processing, and exploring text.

Led by - University of Queensland

## Partners

University of Sydney

AARNet



# Australian Transport Research Cloud

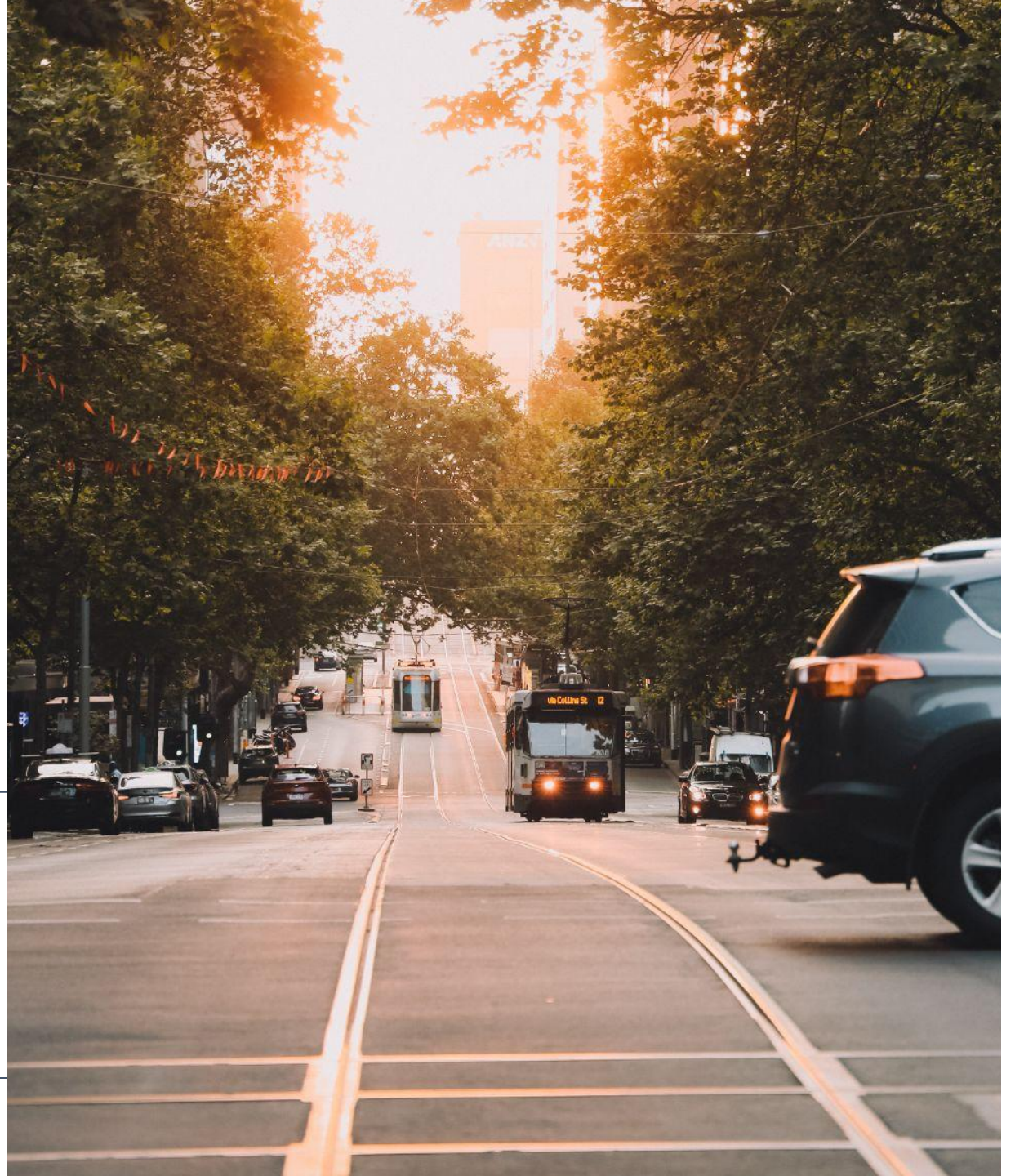
Data and tools to accelerate  
transport research and  
impacts across Australia

**Led by - AURIN**

## **Partners**

University of Melbourne  
University of NSW  
University of Sydney  
Monash University

The University of Queensland  
University of Western Australia  
HERE Technologies







# Australian Urban Health Indicators

A suite of new indicator data assets that improve the understanding of the health of Australian urban and regional populations

Led by - AURIN

## Partners

PHRN  
QUT

RMIT  
Cancer Council Queensland



# Biomedical Data Asset

Integrated clinical and experimental genotype-phenotype data for biomedical discovery and disease management.

**Led by** - Phenomics Australia

## **Partners**

Bioplatforms Australia

School of Public Health and Preventative Medicine / ASPREE, Monash University

John Curtin School of Medical Research, Australian National University





# Biosecurity Commons

A cloud-based decision-support platform for modelling and analysing biosecurity risk and response.

Led by - University of Melbourne

## Partners

Centre of Excellence for  
Biosecurity Risk Analysis  
(University of Melbourne)

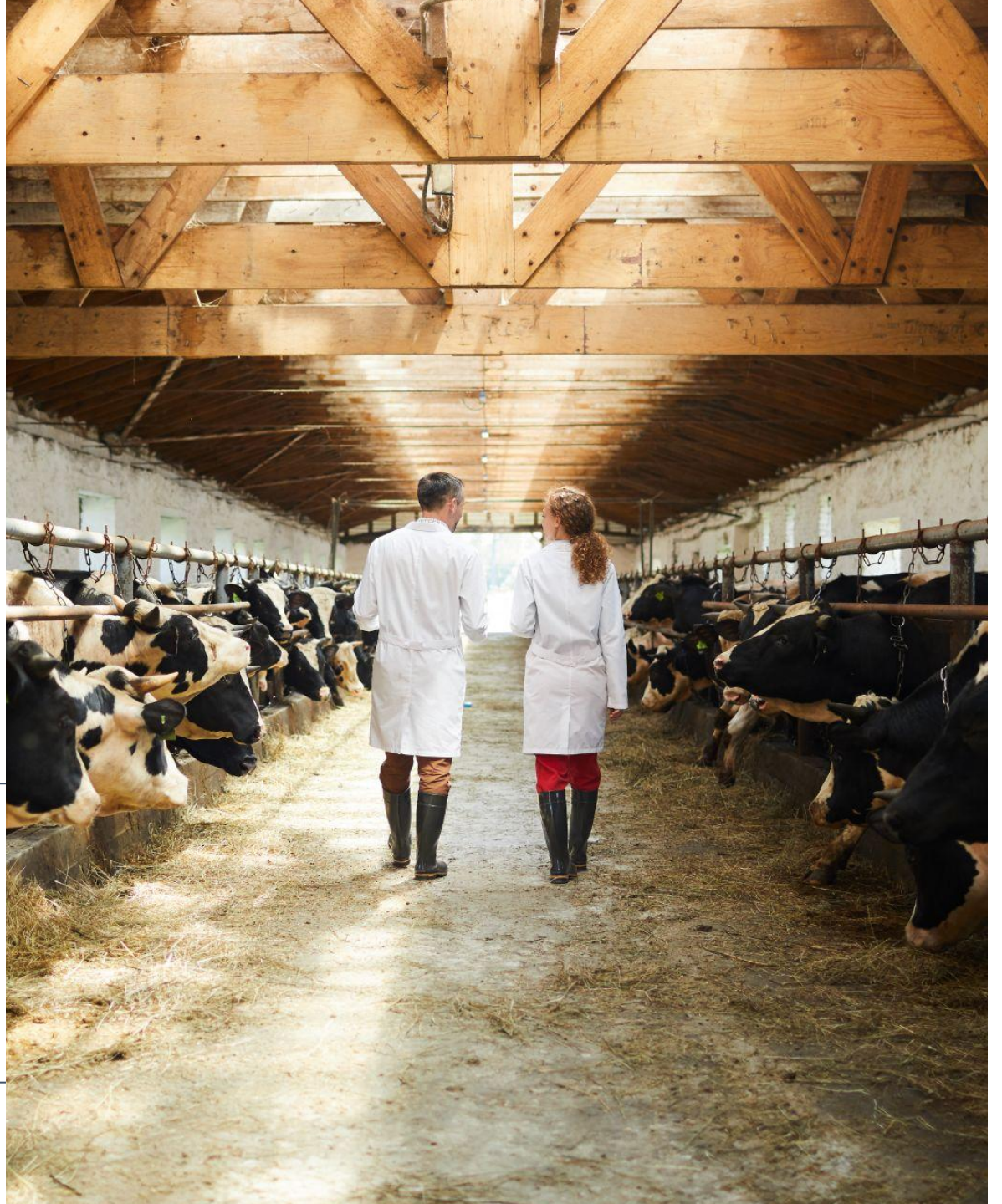
Queensland Department of  
Agriculture and Fisheries

Australian Government Department of  
Agriculture, Fisheries and Forestry

EcoCommons Australia

Griffith University

The Atlas of Living Australia







# Catching Oz Waves

## National infrastructure for in-situ wave observations

Led by - IMOS

### Partners

NSW Department of  
Planning and Environment

The University of  
Western Australia

RPS MetOcean Pty Ltd

CSIRO

Bureau of Meteorology

Deakin University

The University of Melbourne

Pilbara Ports Authority

OMC International

Queensland Department of  
Environment and Science

University of Tasmania

Australian Institute of Marine  
Science

Western Australia Department  
of Transport

Manly Hydraulics Laboratory



# Coronial Findings

Free, digital access to coronial investigation results from across the nation on AustLII for a safer, more just Australia

Led by - UNSW

## Partners

University of Technology Sydney  
Curtin University  
Coroners Court of Victoria  
Coroners Court of New South Wales  
Coroners Court of Queensland

Coroners Court of South Australia  
Coroners Court of Western Australia  
Magistrates Court of Tasmania  
ACT Magistrates Court  
NT Coroners Office







## EcoAssets

Ecosystem data integration to support national environmental reporting

Led by - Atlas of Living Australia

### Partners

TERN  
IMOS

Australian Government Department  
of Climate Change, Energy, the  
Environment and Water (DCCEEW)



# EcoCommons Australia

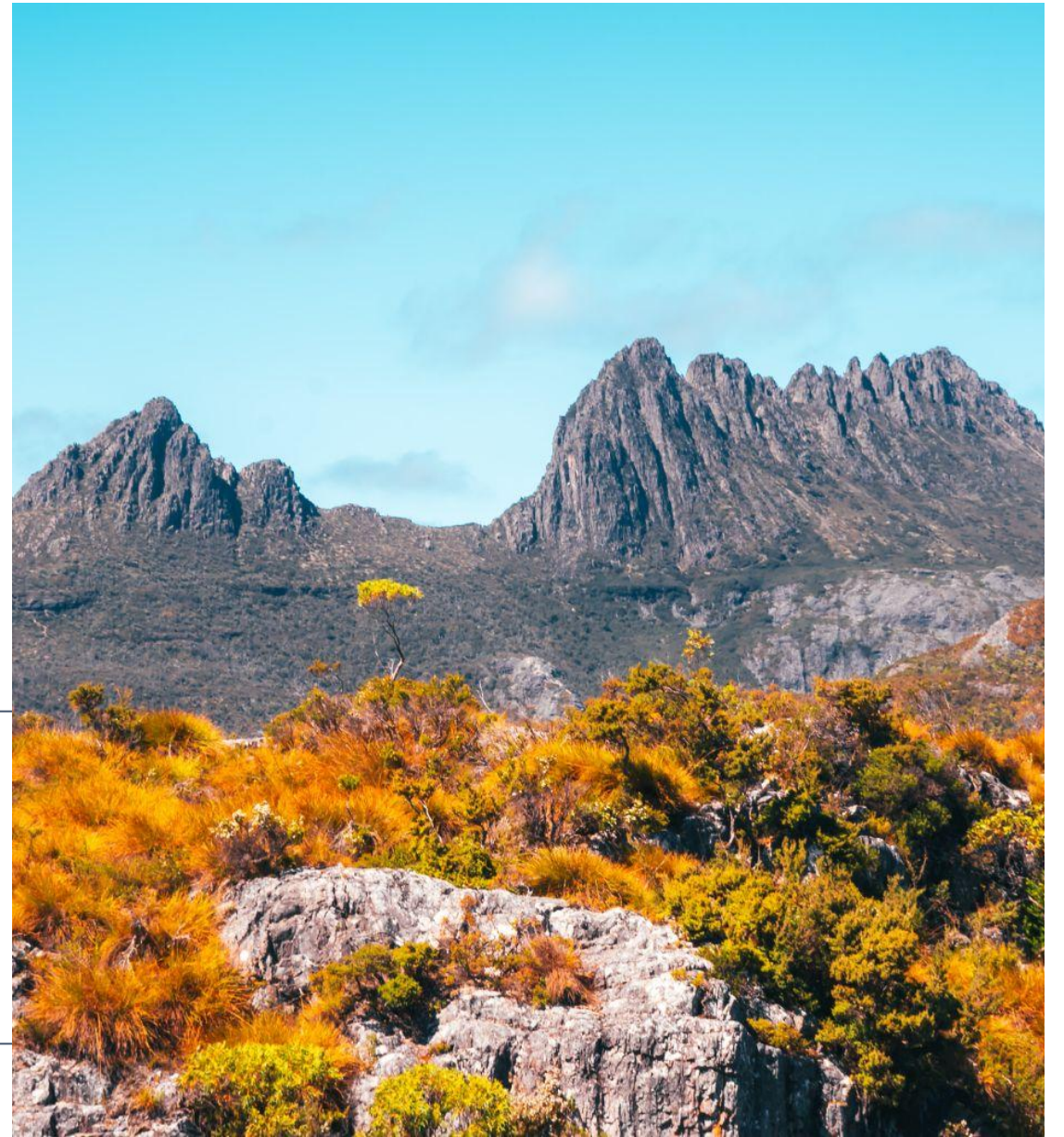
A world-first collaborative commons for analysing and modelling ecological and environmental challenges.

**Led by - Griffith University**

## Partners

Queensland Cyber  
Infrastructure Foundation  
Atlas of Living Australia  
TERN  
CSIRO Land and Water

Macquarie University  
University of New South Wales  
University of Melbourne Centre of  
Excellence for Biosecurity Risk Analysis





# Electronic Medical Records as a National Data Asset

A national, research-ready hospital electronic medical record data asset

Led by - The University of Melbourne

## Partners

MACH  
Health Translation Queensland  
Health Translation SA  
Maridulu Budyari Gumal NSW  
AIHW  
CSIRO  
Queensland Health

UNSW  
The University of  
Queensland  
Sydney Local Health  
Area District Health  
Informatics Unit  
UNSW  
The Austin Hospital

Victoria Office of the Chief  
Medical Information Officer  
Victorian Comprehensive  
Cancer Centre (VCCC)  
Alliance  
Western Health  
Peter MacCallum  
Cancer Centre



# Machine Learning eResearch Platform (MLeRP)

Gives Australian researchers more flexible and greater access to valuable GPU resources for a wide range of machine learning tasks.

Led by - Monash University

## Partners

Queensland Cyber Infrastructure Foundation  
The University of Queensland



# ERICA

Secure cloud computing infrastructure for researchers working with sensitive, often large-scale data

Led by - UNSW

## Partners

The University of Melbourne  
Intersect Australia  
NSW Data Analytics Centre  
The George Institute Australia  
Australian Institute  
of Health and Welfare

SA-NT Datalink  
University of Adelaide  
University of South Australia  
University of Western Australia  
Population Health Research Network







## FAIMS 3.0 Electronic Field Notebooks

A platform for field research supporting digital capture and management in diverse situations.

Led by - Macquarie University

### Partners

CSIRO  
AARNet  
Australian National  
University

Aarhus University  
(Denmark)  
UNSW  
La Trobe University





# Fish and Shark Data

Harnessing fish and shark image data for powerful biodiversity reporting

Led by - University of Western Australia

## Partners

IMOS  
Western Australia Marine  
Science Institution (WAMSI)  
Australian Ocean Data  
Network  
WA Department of  
Biodiversity Conservation  
and Attractions  
WA Department of Primary  
Industries and Regional  
Development

SA Department for  
Environment and Water  
Parks Victoria  
NSW Department  
of Primary Industries  
CSIRO  
Flinders University  
Curtin University  
Institute for Marine  
and Antarctic Studies

SeaGIS Pty Ltd  
Australian Institute  
of Marine Science  
The Nature Conservancy  
Massey University  
of New Zealand  
South African Institute  
for Aquatic Biodiversity  
Sao Paulo State University  
Dalhousie University (Canada)



# FishID

## AI solutions for environmental monitoring

Led by - Griffith University

### Partners

The University of Adelaide

University of the Sunshine Coast

The University of Western Australia

James Cook University

Education Queensland (Moreton Bay Environmental Education Centre)

WA Department of Primary Industries and Regional Development







## G-ADOPT

Transforming data-driven modelling capabilities across the geosciences through automatic code generation

Led by - ANU

### Partners

The University of Sydney  
Imperial College London  
University of Oxford

University of Munich (LMU Munich)  
AuScope  
NCI  
Geoscience Australia



# GMRT-AusSeabed

Global multi-resolution topography for Australian coastal and ocean models.

Led by - Geoscience Australia

## Partners

UNSW  
Australian Antarctic  
Division  
CSIRO  
Australian  
Hydrographic Office

Australian Institute  
of Marine Science  
Bureau of Meteorology  
Deakin University  
James Cook University  
Lamont-Doherty Earth Observatory







# Human Genomes Platform Project

Global technologies and standards for sharing human genomics research data

Led by - Australian BioCommons

## Partners

The University of Melbourne  
Centre for Cancer Research  
The Children's Cancer Institute  
ZERO Childhood Cancer  
Garvan Institute of  
Medical Research

QIMR-Berghofer Medical  
Research Institute  
Australian Genomics  
AAF  
NCI  
Bioplatforms Australia



# Integrated Microscopy and Proteomics

AI approaches to understand the precise molecular makeup of the intracellular environment.

Led by - EMBL Australia

## Partners

Microscopy Australia

Bioplatfroms Australia

Monash University







# Language Data Commons of Australia

Making nationally significant language data available for academic and non-academic use

Led by - The University of Queensland

## Partners

Australian National University  
Monash University  
The University of Melbourne

The University of Sydney  
AARNet  
First Languages Australia



# Leveraging Data to Support Young People's Education and Wellbeing

Harmonised education and student wellbeing data for child and youth research

Led by - University of South Australia

## Partners

SA Department for Education  
Tasmanian Department for Education,  
Children and Young People  
ACT Education Directorate

National Schools  
Interoperability Program  
Education Services Australia





# Linked Data Asset for Australian Health Research

A researcher-accessible data asset that leverages national linked health datasets built by the AIHW.

Led by - UNSW

## Partners

AIHW  
 Australian Government  
 Department of Health  
 Queensland Health  
 NSW Health  
 Population Health  
 Research Network  
 University of  
 Technology Sydney  
 University of Sydney

University of Melbourne  
 Monash University  
 Bond University  
 The University of Queensland  
 University of Western Australia  
 Curtin University  
 Australian National University  
 University of Tasmania  
 University of South Australia

The George Institute  
 for Global Health  
 Hunter Medical Research Institute  
 Baker Heart and Diabetes Institute  
 Burnet Institute  
 Peter MacCallum Cancer Centre  
 QIMR Berghofer  
 Medical Research Institute  
 Telethon Kids Institute  
 Murdoch Children's Research  
 Institute



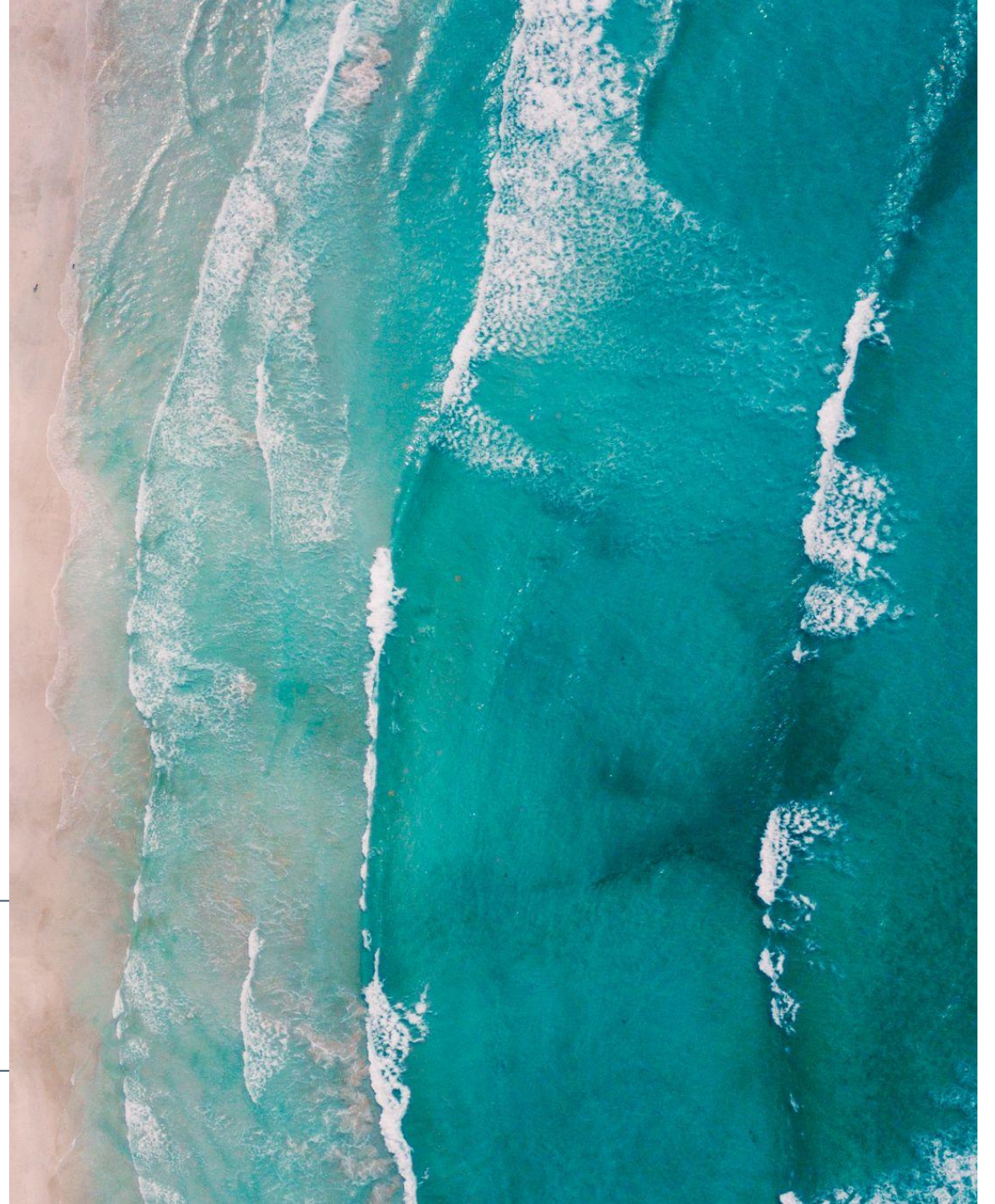
# Microbial Ocean Atlas

Integrates highly specialised genomic data with physical ocean data to make molecular microbial data accessible to researchers.

**Led by - IMOS**

**Partners**

Bioplatforms Australia



# Mobility Australia

A comprehensive human population mobility data asset for Australia.

Led by - CSIRO

## Partners

QUT

University of Melbourne

AURIN







# National Transfusion Dataset

The first integrated national database of blood usage in Australia

Led by - Monash University

## Partners

Ambulance Victoria  
Blood Synergy  
Myeloma and Related Diseases Registry  
Lymphoma and Related Diseases Registry  
Flinders Medical Centre  
Alfred Health

Australian and New Zealand  
Intensive Care Society  
Pre-hospital Emergency Care  
Australia and New Zealand  
Aplastic Anaemia and Other Bone  
Marrow Failure Syndromes Registry

# Open EcoAcoustics

Continental-scale ecological monitoring and research

Led by - QUT

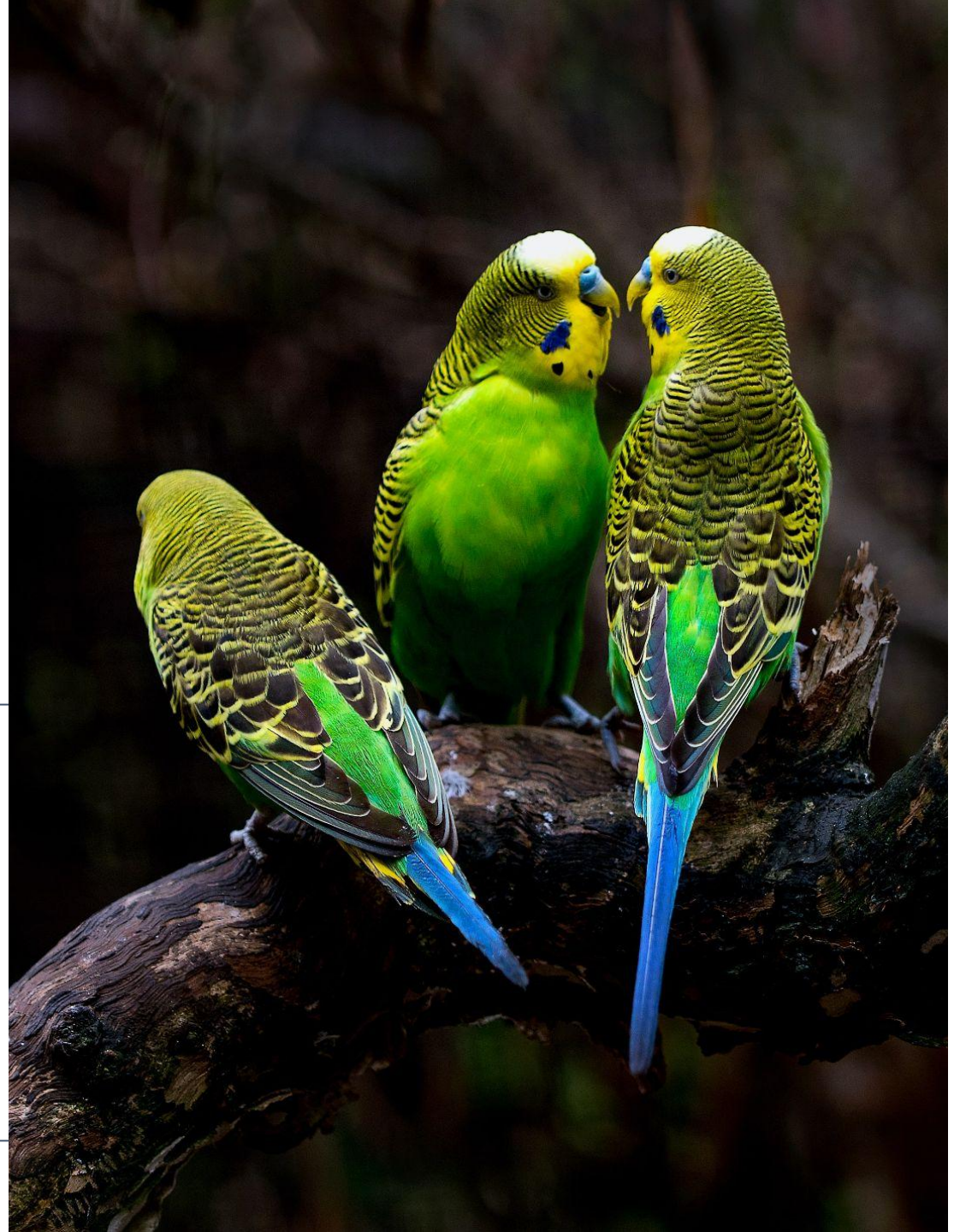
## Partners

Atlas of Living Australia  
TERN

EcoCommons Australia  
BirdLife Australia

James Cook University  
The University of Queensland  
Bush Heritage Australia

NSW Department of Primary Industries  
Charles Sturt University  
University of New England  
Museums Victoria  
University Of Melbourne  
Queensland Parks and Wildlife  
Service and Partnerships  
Australian Wildlife Conservancy





# OzBarley

A genotype-to-phenotype data asset for Australian barley.

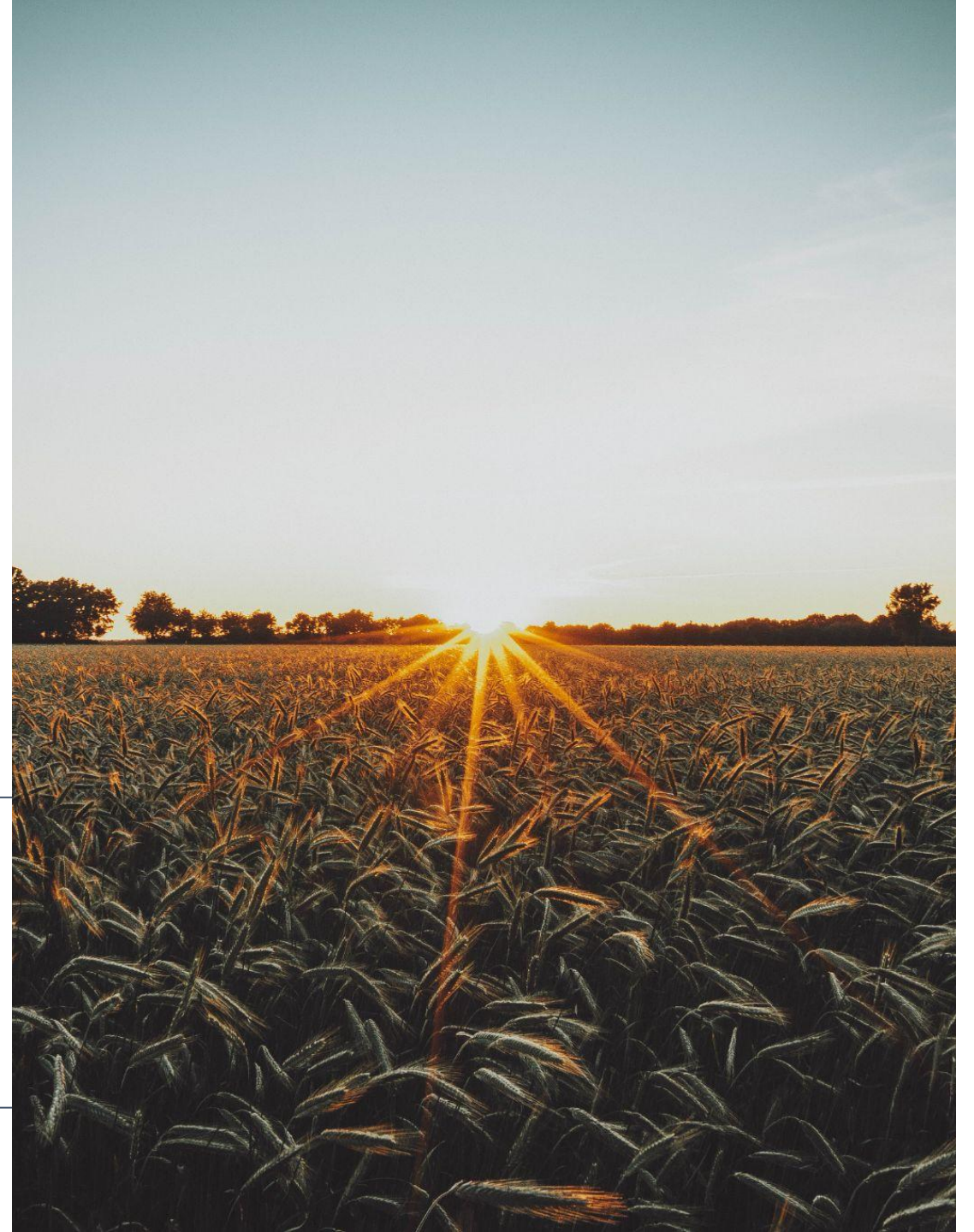
**Led by** - Australian Plant Phenomics Facility (APPF)

## Partners

Bioplatforms Australia (BPA)

Collaborating organisations:  
Australian Grain Technologies  
Intergrain

Secobra Recherches  
University of Adelaide  
CSIRO  
Federation University  
James Hutton Institute (UK)





# Restricted Access Species Data Pathways

A nationally consistent approach to restricted access species data.

Led by - Atlas of Living Australia

## Partners

### CSIRO

NSW Department of  
Climate Change, Energy,  
the Environment and  
Water

NT Department of  
Environment and  
Natural Resources

ACT Environment,  
Planning and Sustainable  
Development Directorate

WA Department of Biodiversity,  
Conservation and Attractions

SA Department of  
Environment and Water

Victorian Department of  
Environment, Land, Water  
and Planning

Department of Natural  
Resources and Environment  
Tasmania

Council of Heads of  
Australasian Herbaria

QLD Department of  
Environment and Science

Australian Government  
Department of Climate Change,  
Energy, the Environment and  
Water

EcoCommons Australia

Pawsey Supercomputing Centre

The Western Australian  
Biodiversity Science Institute

Council of Heads of Australian  
Faunal Collections



# Secure eResearch Platform Project

A secure eResearch platform for researchers to share and store their data in a secure, scalable and sensitive approach.

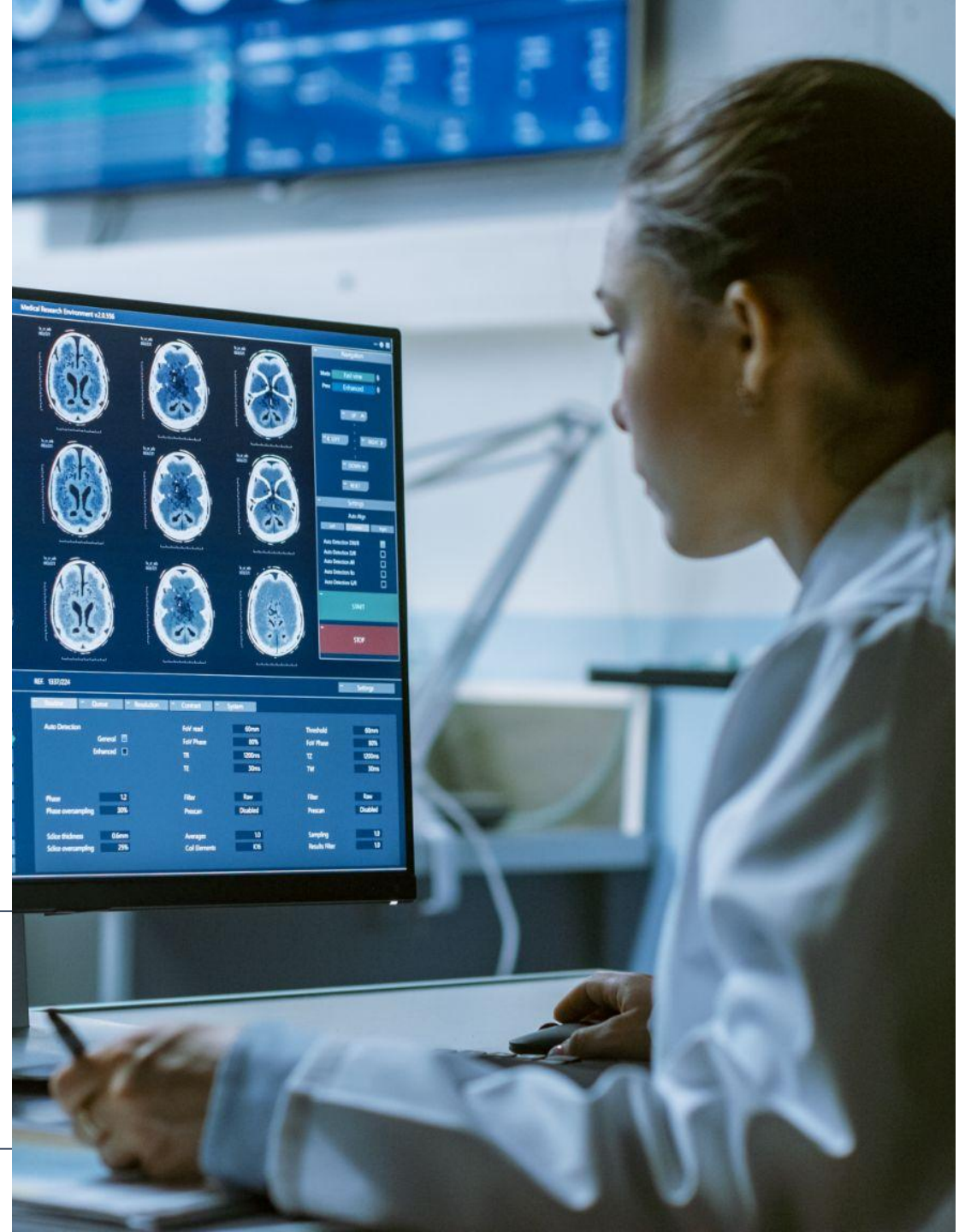
Visit [SeRP](#) and [KeyPoint](#)

Led by - Monash University

## Partners

Curtin University  
Queensland Cyber  
Infrastructure Foundation

Sax Institute  
Swansea University  
UNSW





# Time-Layered Cultural Map of Australia 2.0

A set of tools for HASS researchers for mapping Australian history and culture.

Led by - University of Newcastle

## Partners

Australian National University  
Edith Cowan University  
University of New England  
University of Melbourne

University of Sydney  
Western Sydney University  
Australian National  
Placenames Survey



# Veterinary and Animal Research Data Commons

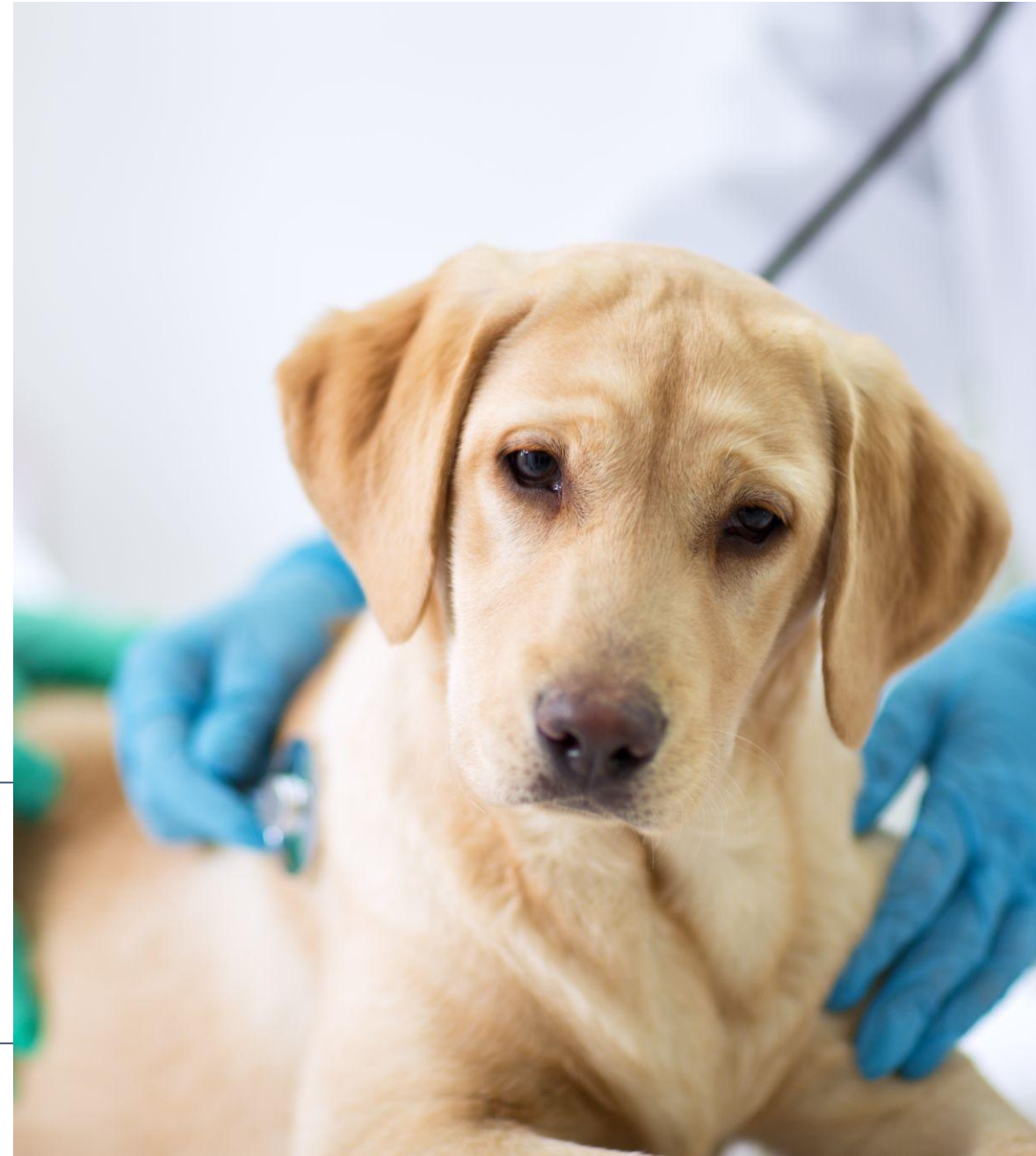
Streamlined access to research data, tools and opportunities for Australian veterinary and animal science researchers

Led by - University of Sydney

## Partners

The University of Melbourne  
The University of Queensland  
The University of Adelaide

Charles Sturt University  
Murdoch University  
James Cook University





# Australian Poisoning Surveillance Initiative Databank

Streamlining data requests for national poisons centre data and providing a vital public health research asset.

Led by - University of Sydney

## Partners

NSW Poisons Information Centre  
Victorian Poisons Information Centre  
Queensland Poisons Information Centre

Western Australian Poisons  
Information Centre  
NSW Ministry of Health