Indigenous Knowledge & Digital Infrastructure Futures

ATLAS OF **LIVING**
AUSTRALIA
sharing biodiversity knowledge

NCRIS
National Research
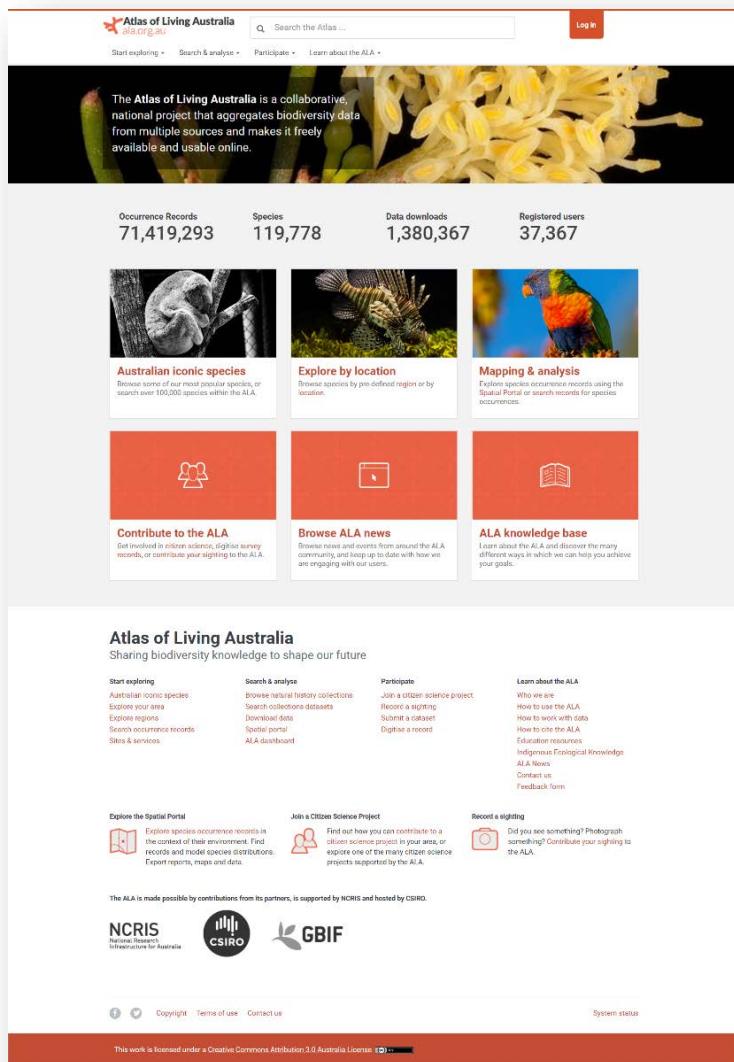Infrastructure for Australia
An Australian Government Initiative

www.ala.org.au

The ALA acknowledges Australia's Traditional Owners and pays respect to the past and present Elders of the nation's Aboriginal and Torres Strait Islander communities. We honour and celebrate the spiritual, cultural and customary connections of Traditional Owners to country and the biodiversity that forms part of that country.

What is the ALA?

Australia's aggregation & access e-platform for biodiversity data

- One of several facilities funded by the Australian Government for **national research infrastructure**

- **Hosted** by [CSIRO] Australian node of

GBIF
Global Biodiversity
Information Facility

- **Enables**
  - more **effective & efficient** scientific research
  - expanded research **opportunities & application**
  - informing **policy** & management
  - **community** participation & connection
  - **education** resource

ALA – *sharing biodiversity knowledge*

➤ AUD $55 million investment

over 10 years

NCRIS
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A leading-edge collaborative e-infrastructure integral to advancing biodiversity knowledge

Partners – founding & beyond

Australian museum
qm queensland museum www.qm.qld.gov.au
MUSEUM VICTORIA
ABRS
CSIRO

WESTERN AUSTRALIAN museum
Tasmanian Museum & Art Gallery
MUSEUM AND ART GALLERY
Northern Territory Government

CHAEC
Council of Heads of Australian Entomological Collections
CHAFC
CHAH
Council of Heads of Australian Herbaria
CAMD COUNCIL OF AUSTRALASIAN MUSEUM DIRECTORS

Data types
- specimens
- occurrence
- images, sounds
- literature
- sequences
- more ……
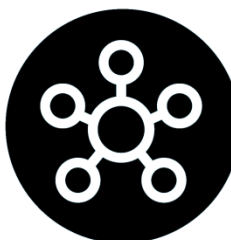
National Research infrastructure

NCRIS
National Research
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TERN
Terrestrial Ecosystem Research Network

ands
AUSTRALIAN NATIONAL DATA SERVICE

IMOS
Integrated Marine Observing System

nectar

- 73.9 million records
- 5,238 data sets
- 477 spatial layers
- 12.3 billion records downloaded from 1.4 million events
- 1,500 Google Scholar returns

Open data, open source, open access, open services, open infrastructure

System
- data capture & aggregation
- data management
- data discovery
- data visualisation
- data analysis & reporting

ALA – *open infrastructure* - *"Powered by ALA"*

ATLAS OF LIVING AUSTRALIA

International Instances
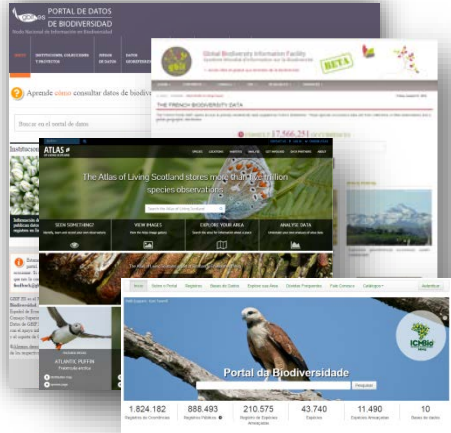
ALA Portal
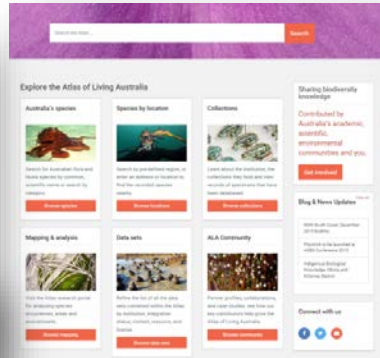
Domain Instances (Aus)

Hubs

One infrastructure - many systems

Suite of Apps

Web Services

METADATA: ownership, location, collection method, permissions, quality control, data sensitivity

DATA: collections, field observations, images, literature, molecular data, expert knowledge

ATLAS OF LIVING AUSTRALIA
sharing biodiversity knowledge

Web Services
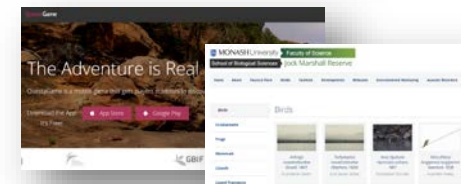
click on images to go through in situ

Context – *information supply chain*

COLLECT	AGGREGATE	ANALYSE	APPLY

DATA — Data-Science Interface — **SCIENCE** — Science-Policy Interface — **POLICY**

Surveys, Collections, Citizen Science RS, sensors	APIs – standards	Information Aggregators / Platforms (e.g. ALA)	APIs – standards	Assessments, Indicators VLs, Models	APIs – standards	SoE, CBD Aichi, Environmental Accounts	Impact – social, environmental, economic
List/inventory, classify, vocab				Research systematics, ecological, conservation, ag, health climate change		Investment Intervention	

Context – *information supply chain*

ATLAS OF LIVING AUSTRALIA

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DATA | Data-Science Interface | **SCIENCE** | Science-Policy Interface | **IMPACT**

Surveys, Collections, Citizen Science RS, sensors		Assessments, Indicators VLs, Models	SoE, CBD Aichi, Environmental Accounts
List/inventory, classify, vocab	Information Aggregators / Platforms (e.g. ALA)	Research systematics, ecological, conservation, ag, health climate change	Investment Intervention
Indigenous knowledge / language systems	Information platforms (two-way / private)	Indigenous led/ directed research /methods	Healthy country, people, culture Economic participation, Knowledge transfer
		Research ethnobotany, biocultural, health, ecological….	

APIs – standards

decision to share

APIs – standards

decision on application

APIs – standards

meeting aspirations

Impact – social, environmental, economic

Indigenous Ecological Knowledge

Vision

- *Improved social and ecological sustainability through enabling two-way biodiversity knowledge*
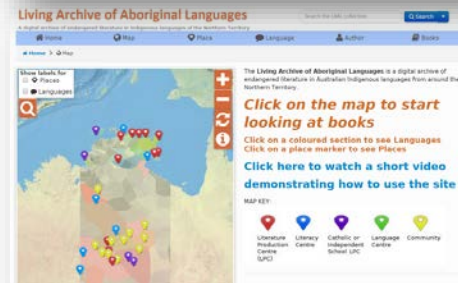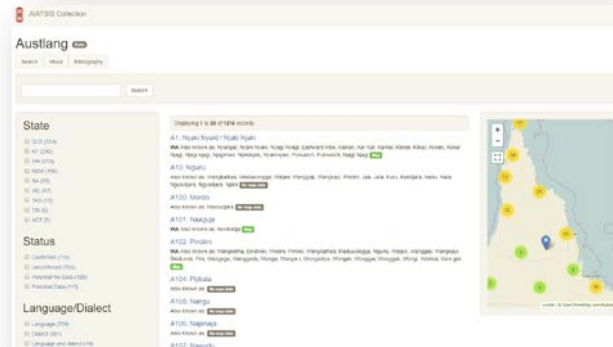
Goals

- *respect and recognise* the **value and ownership** of Indigenous Ecological Knowledge (IEK) and give **prominence** to it alongside western science biodiversity knowledge

- *support and invigorate* IEK and its ongoing **application and revitalisation** in biodiversity conservation, environmental management and socio-cultural, land rights and economic goals

- *support* Indigenous people to **realise their goals** in Indigenous knowledge maintenance, management and application

- *empower* **two-way participation** in biodiversity information collection, management and access

- *support* **intergenerational** transmission of IEK

- *ensure* **ethical practice** through informed consent, equitable sharing of benefits arising from access to IEK, and other established principles of engagement
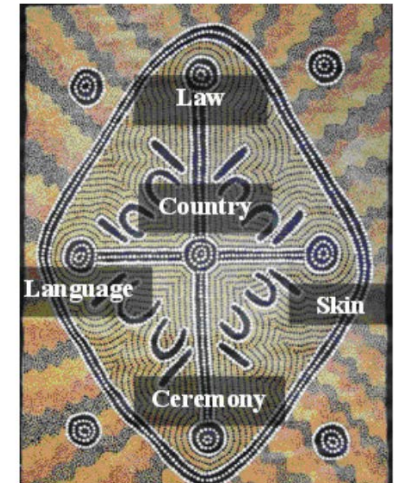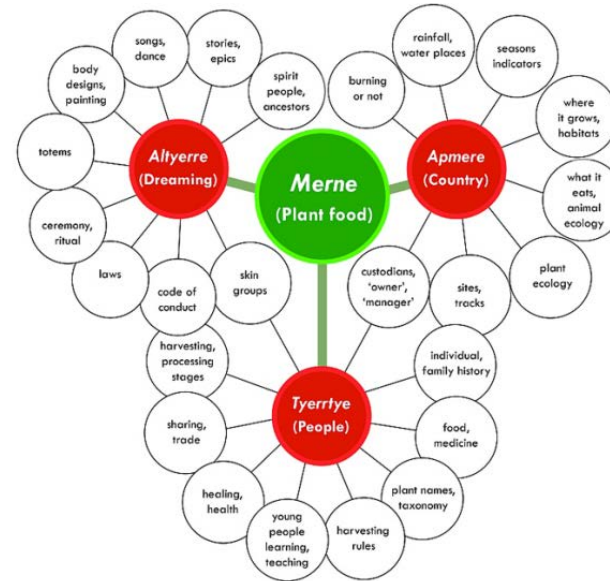
Seasonal

Worldview

Language

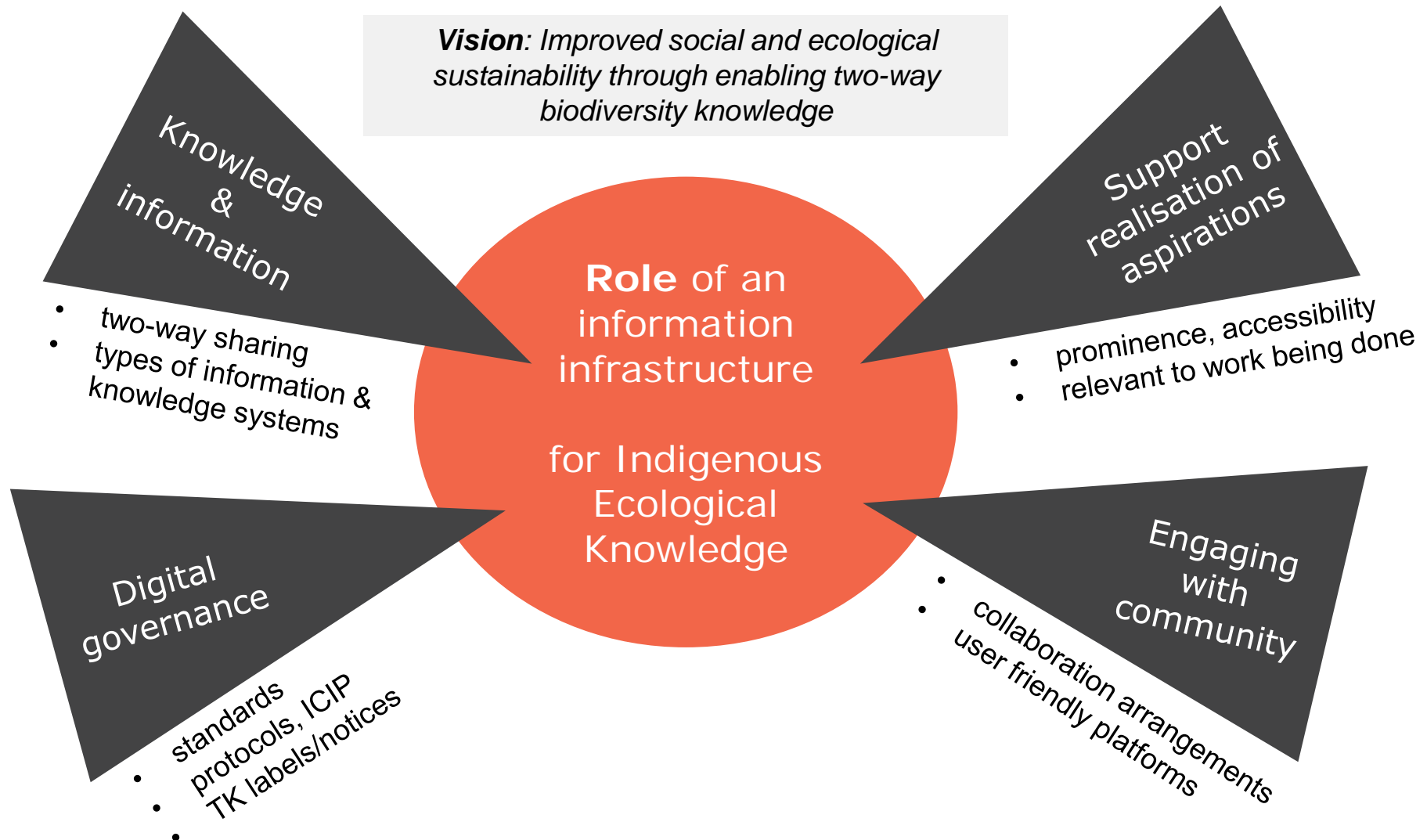# ALA IEK program – *relevance*

ATLAS OF **LIVING** **AUSTRALIA**

Vision: *Improved social and ecological sustainability through enabling two-way biodiversity knowledge*

Role of an information infrastructure

for Indigenous Ecological Knowledge

Knowledge & information
- two-way sharing
- types of information & knowledge systems

Support realisation of aspirations
- prominence, accessibility
- relevant to work being done

Digital governance
- standards
- protocols, ICIP
- TK labels/notices

Engaging with community
- collaboration arrangements
- user friendly platforms

Context – *IEK program activities*

Indigenous ecological knowledge

decision to share

decision on application

meeting aspirations

Information platforms (two-way/private)

- Yugul Mangi two-way project
- Kamilaroi language names
- Tracks App - CLC

- Olkola: decision & risk matrix
- Traditional Knowledge Labels
- ICIP principles/protocols

Prototype information platforms:
- Seasonal calendar
- Profiles - cross-cultural collections

TK Outreach (TK O)

ATLAS OF **LIVING** AUSTRALIA
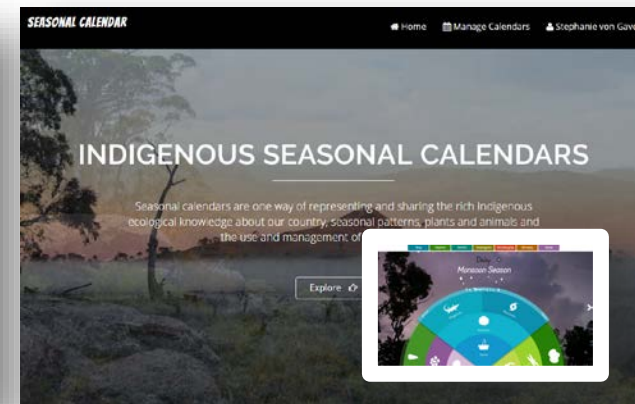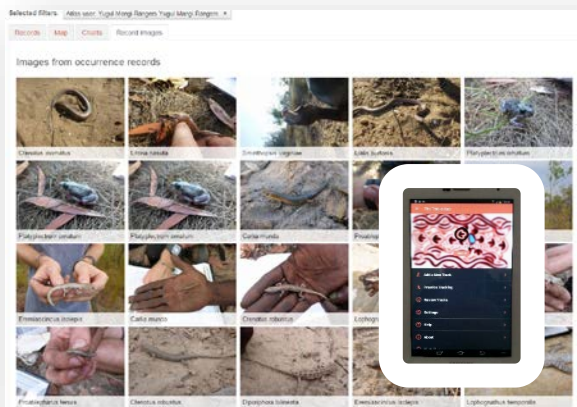
Recognition of ownership

Respect for Indigenous Knowledge

Greater **control** of access & usage

Embedding protection in the digital circulation of information

Keeping **localised** context

Community driven processes

Limitations of formal IP system

Tracking **provenance**

Commercialisation of cultural assets

This project will **embed** Indigenous Cultural and Intellectual Property principles and protocols in a digital platform
supporting the recognition & visibility of Indigenous ecological knowledge through the co-development of knowledge labels
ensuring more equitable and culturally respectful terms for the sharing of IEK

Consultation & Collaboration
Scope and focus of the project, and ongoing collaboration and co-creation

Integration of TK labels
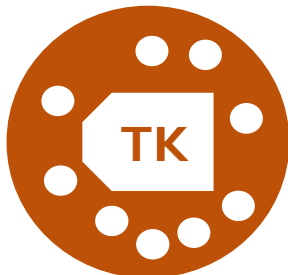Integrating into e-infrastructure and metadata standards, including search function

New TK labels & TK Notice
Environmental and ecological specific labels, including identifying notice

Tools
co-curation of labels via GitHub, workshops, educational materials, training

Adapt to local context
Local community adaption of labels

Broader application
Contributing to national & international dialogue on rights and responsibilities for IEK recognition

TK Label proposal – *next steps*

- Seek **feedback** & input into research plan

- Seek expressions of interest from Indigenous groups / individuals and refine proposal

- Further discussion with other potential research & industry **collaborators**

- Build consortium of **investors**

Atlas of Living Australia
ala.org.au
sharing biodiversity knowledge

LOCAL contexts

CSIRO

?   ?   ?
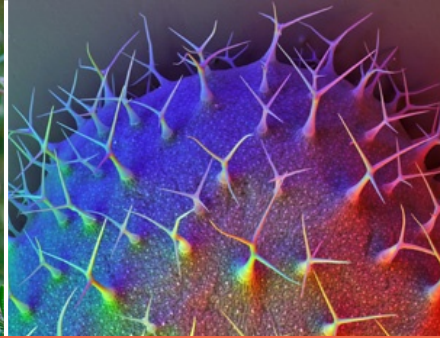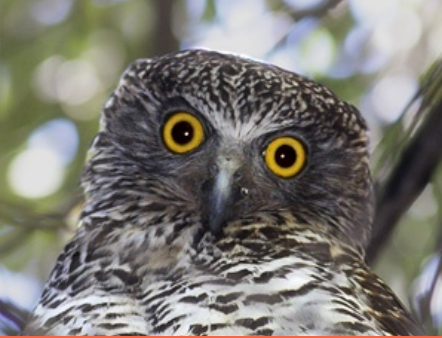
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More Information

http://www.ala.org.au/ala-and-indigenous-ecological-knowledge-iek/