

# Governance for Australia's national soil data resource

Roles, responsibilities and opportunities.....

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#### National soil data - vision

- •A cooperative national approach gov, research, industry, private
- •Ongoing collection, collation, monitoring and reporting
- •Best available soil data across Australia
- •Standards based data delivery
- •Easily discoverable and accessible data
- •Useable and useful information for ALL





## The national soil information infrastructure

We have a loose collaborative national model – ACLEP, NCST, ASSSI...

Soil field survey and data standards

- ASRIS and the Australian National Soil Archive
- State and Territory information systems
- Lots of portals and data sets
- Off-line data research, private, industry......

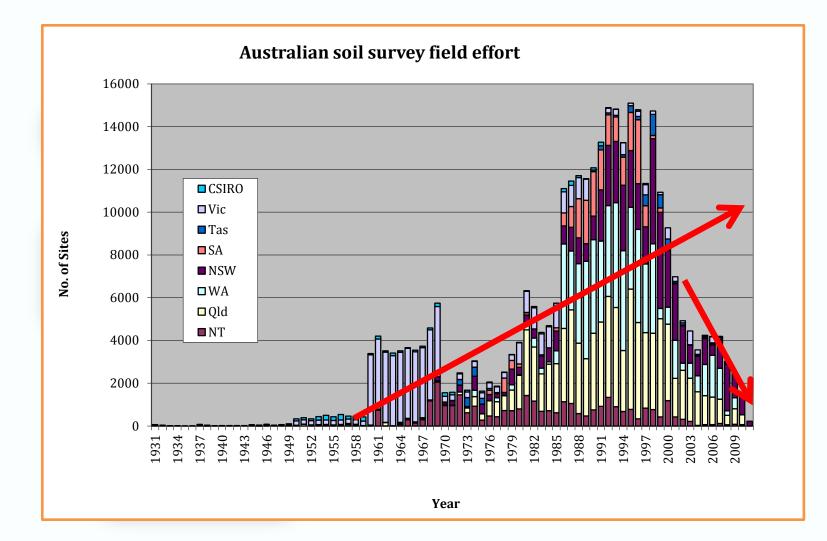








#### National cooperative approach – boom and bust?

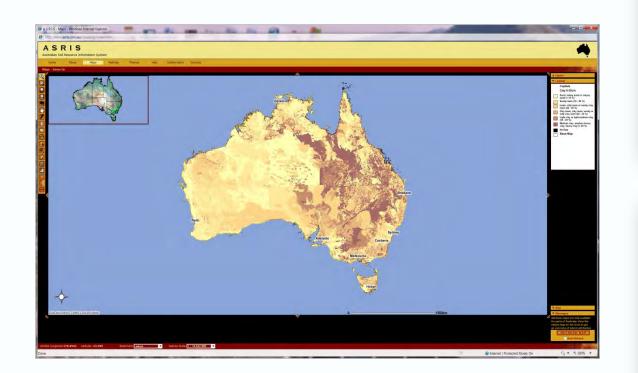


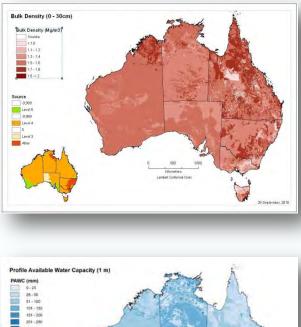


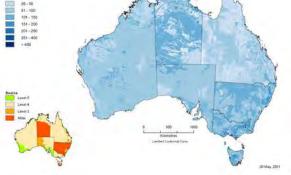


#### **ASRIS national soil data products**





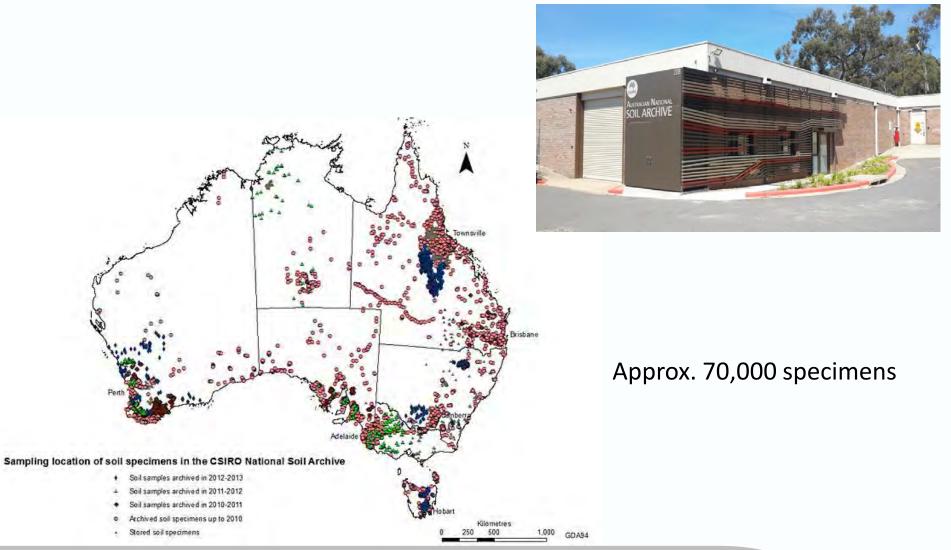






#### www.asris.csiro.au

#### **CSIRO National Soil Archive**





#### Soil & Landscape **TERN Soil and Landscape Facility** Facility TFRN Facility TERN Soil and Landscape Grid of Australia What is the Facility? The <u>Soil and Landscape Grid of Australia Facility</u> will produce a comprehensive fine-resolution grid of soil attributes and important land surface parameters. The grid will be consistent with the developing <u>Global Soils Map</u> and with the <u>Australian</u> TERN Soil Data Portal TERN soil and landscare data can be The facility, led by CSIRO will establish interactions with a broad range of collaborators from government, state dep In storing, yee by Carolic watalation immediates wind a basis range or consociators in an government, save separaments disversities to develop the soil landscare good infrastructure for Australia. The arms are to produce a coherent set of the statial resolution soil property maps with estimates of uncertainty that, integrated with modeling, might help provide statial resolutions to the prover solutions to current concerns over bod, water and energy securities, climate change of land degradation. The facelity will develop this soils infrastructure by collating existing and historical soils data; terms of the solution of the so elopments in new soil measurement (through proximal and remote soil sensing), digital soil mapping, (geo) atistics and improvements in information and communication technology brough the Australian Soil Resource ac mation System themes page Esculty Decementation Australian Collaborative Coming soon Facility Enduries Mr. Mike Grundy Facility Director CSIRO Land and Wate Phone: +61 7 3833 5630 https://data.csim.au/dap/search?tn=Natura Ca ( https://data.csiro.au/c = NA + 3 44 × File Edit View Favorites Tools Help O McAres / -TERN Soil and Landscape Portal Favorites 🛛 🍘 🗷 Suggested Sites 🔹 📕 Cars 🔹 🗼 farm 🕶 🧎 Guitar stuff 🕶 🍘 Movie Guide - yourMovie. aro.au/dap/search?tn=N. 4 · 🔂 - 🖃 🛲 · Page · Safety · Tools · 🔞 · Map Contents ogin Using /Nexus Data Access Porta DSM Kapinite Ilite Smectite NSG Australian Soil Classification NSG Bulk Density NSG Clay **Browse Results** REFINE RESULTS NSG PAWC Showing results for: 7 Natural Resource Management 1 SRTM Derived MrvBF Found: 13 result= Display: 10|25|50 results Sort by: Relevance | Recent | Tit indicates that access to data within this collection is restricted SRTM Derived Aspect SRTM Grid Cell Area (3" resolution) derived from 3" SRTM DEM-S SRTM Derived Partial Contributing A The SRTM grid cell area dataset has values of cell area in square metres. The grid cell area product was derived from the Smoothed Digital Elevation Model (DEM-S; ANZCW0703014016), which was derived ... more SRTM Derived Plan Curvature Multi-resolution Valley Bottom Flatness (MrVBF, 3\* resolution) SRTM Derived Profile Curvature and resolution values pottom relations (www.a. resolution) the Nuth-resolution values (ottom Rateus (IntVVI) dataset is a topographic index signed to identify areas of deposited material at a range of scales based on the servations that valley bottoms a... mare sil.a TRN Facility HoS Inford GUILIOY - National Elevation and Terrain Ostasets - Publish SRTM Derived Relief 300m Radius SRTM Derived Relief 1000m Radii Median of Percent Slope over 300 m (3" resolution) derived from 1" SRTM DEM-S SRTM Derived Slope long measures the inclination of the land surface from the horizontal. Percent slong ents this inclination as the ratio of change in height to distance. The focal ent slope can be ... more SRTN Derived Slope Median 300m Slope Relief (3" resolution) derived from 1" SRTM DEM-S SRTM Derived Slope Relief Classific slope relief landform pattern classification based on Speight (2009). The slope relief product was derived from the 300 m focal median percent slope product, and the Sm SRTM Derived Topographic Position igital Elevation Model ... more SRTM Derived Topographic Wetnes ofile Curvature (3" resolution) derived from 1" SRTM DEM-S ofile curvature is the rate of change of potential gradient down a flow line and presents the changes in flow velocity down a slope. It is significant for flow acc SRTM Hillshade eposition ra... more eposition ra... more eposition discond GRUNDY - Nabr Plan Curvature (3" resolution) derived from 1" SRTM DEM-S Plan (or contour) curvature is the rate of change of aspect (orthogonal to the slope) and nice or divergence. It is significant for water m 13 (3) Internet | Protected Mode: On E . \$ 100% .

- •TERN Soil Facility website and data visualisation portal
- •Fine resolution estimates of functional soil properties
- SRTM DEM and terrain derivative data products
- CSIRO Data Access Portal
- •Online, openly accessible data services

#### Mobile soil data

•*SoilMapp* - CSIRO's first app, launched Jan 2013

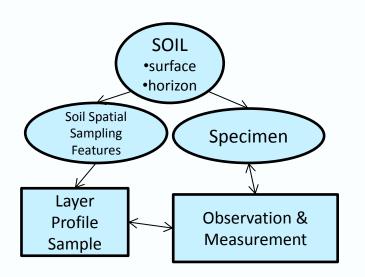
- •Dynamic online connection to CSIRO managed soil data bases – ASRIS and APSoil. Potential for crowd sourcing
- •Best available, location specific soil data from states/territories assists planning and management decisions
- •National impact ~700 downloads per month from government, research, private industry, general public
- International potential, Landcare
  Research NZ, GlobalSoilMap, Global Soil
  Partnership etc.







### National and international interoperability















### **Towards the future?**

Distributed soil data collection and management

Greater adoption of national and international soil standards

Development and implementation of data exchange standards

Better access and integration of soil data

User development of client applications



Soil data bank – Access to standard soil data from thousands of providers anywhere, anytime through your own application



#### So, what if..... Farmer Joe wants to improve his yields **PRIVATE SECTOR** GOVERNMENT Using integrated He makes well informed decisions farm management **AG INDUSTRY** He sends a query to get the software best available soil data He records the management inputs and yield outcomes and assesses RESEARCH the improved profitability some new son sampling, and high tech digital soil mapping With continuous data improvement, **THEN.....** to the available soil data bank they all lived happily ever after



#### Can cooperation only get us so far.....

When times get tough,

The tough get dispersed.....

Cooperative Federalism has limits.....(capacity, skills, resources, willingness?)

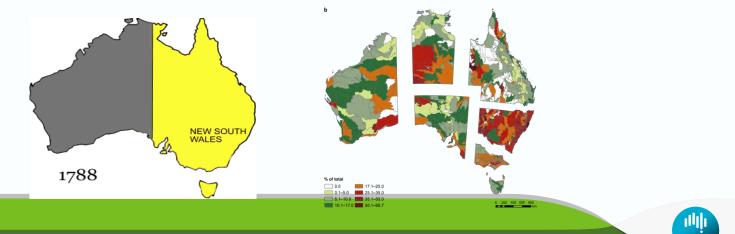
Priorities, attitudes, resources ALL need to be shared..... Who will help me bake the bread?





### Why is data governance important?

- the sustainable use and management of the world's resources is dependent on environmental information systems and on processes which connect systems and improve data access and use
- there are significant hurdles in achieving this with environmental information
- the necessary underlying change has to be in processes, people and institutional settings – the governance arrangements



#### **Governance issues and opportunities**

"Establishing national data governance is the most important first step required to improve the accessibility and use of Australian soil data and information". (ACLEP2012)

- Options for improving governance
  - do nothing
  - strengthen existing cooperative arrangements
  - formalise an inter-governmental agreement
  - implement a nationally agreed, mandated program
- Recommendations
  - Identify an authoritative mechanism
  - National soil information standards
  - Implement agreed roles and responsibilities
  - National data collection, collation and dissemination







#### A.S.A.P. in the National Soil RD&E Strategy

The Australian Soil Assessment Program (ASAP) would be delivered through seven integrated Streams of activity which would provide –

- 1. Coordination and user engagement
- 2. Soil data collection, survey and assessment
- 3. Monitoring and forecasting
- 4. Information systems
- 5. Support facilities including laboratories and soil archives
- 6. Research and development, and
- 7. International engagement.



#### **Foundational requirements**

**ACTION 1** – Australian governments establish an enduring national mandate for the management of Australia's soil information. (6-12 months)

**ACTION 2** – Establish a national institutional mechanism to deliver the Australian Soil Assessment Program. (6-12 months)

ACTION 3 – Support and strengthen the National Committee on Soil and Terrain and the Australian Collaborative Land Evaluation Program to facilitate interim planning and prioritisation of activities, including engagement with stakeholders. (Immediate and ongoing)

#### Establish the GOVERNANCE arrangements



## Improving access and use of Australia's soil data and information assets

- •Mandated cooperation and coordination
- •Links between government, research, industry and private sectors
- •Open access and licensing
- •Data collection, collation, standards and tools
- •New data feeds and continual infrastructure improvement
- •Support development of new applications and use

#### **Outcome = sustainable management of Australian soils**

