

SOIL CRC

Performance through collaboration



About this project

The two-year Visualising Australasia's Soils project, funded by the Soil CRC, will create a data federation and web portal to access shared public and private soil datasets.

Read more about the project at the [Soil CRC website](#).

Visualising Australasia's Soils Project Newsletter August 2019

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Short video explainer

At the request of grower groups, we have released a short video (less than 3 minutes) to explain the fundamentals of the Visualising Australasia's Soils project. It is intended for farmer groups to show their members, or other participants, such as catchment management authorities to show their communities and stakeholders. Please distribute it!

You can view the video on the Soil CRC YouTube Channel:

<https://www.youtube.com/watch?v=n1qnEtoSy5s>

While you are there, you can view the other two videos about this project:

https://www.youtube.com/channel/UCfUZcuR1BOWNYL_oljYClyw/videos



Soil data pilots

We have started the project by working with a few 'pilot groups' who are willing and able to expose some of their soil data in the federation and work with us to co-design the self-serve data input system, the data access control rules and the data visualisations.

- We met with **Southern Farming Systems** in April and explored the potential for soil data including soil moisture probe data, trial site soil data and standard soil paddock tests.
- In June we visited **Riverine Plains Inc** in Mulwala who have provisioned soil health monitoring data sampled on three occasions from seven sites for an initial test of the system. Other data such as soil moisture, and traditional paddock tests are being considered.

(Right: At Riverine Plains Inc. with Andrew Macleod, Jane McInnes, Cassandra Schefe and Peter Dahlhaus)



- A meeting with **North Central Catchment Management Authority** at Huntly in July also resulted in soil health monitoring data from more than a dozen sites being provisioned in the pilot data federation. These data are used for catchment health monitoring and evaluation.

(Right: At North Central CMA with Amie Sexton, Peter Dahlhaus, Andrew Macleod, Phil Dyson, Felicity Harrop, Nathan Robinson)



- In July we ventured further across the NSW border to meet with the **Holbrook Landcare Network**. We are exploring how to interoperably provision soil data from their tailor-made database to the federation. These data include a number of soil health monitoring sites.

(Right: At Holbrook Landcare Network with Amie Sexton, Dale Stringer, Andrew Macleod and Peter Dahlhaus)



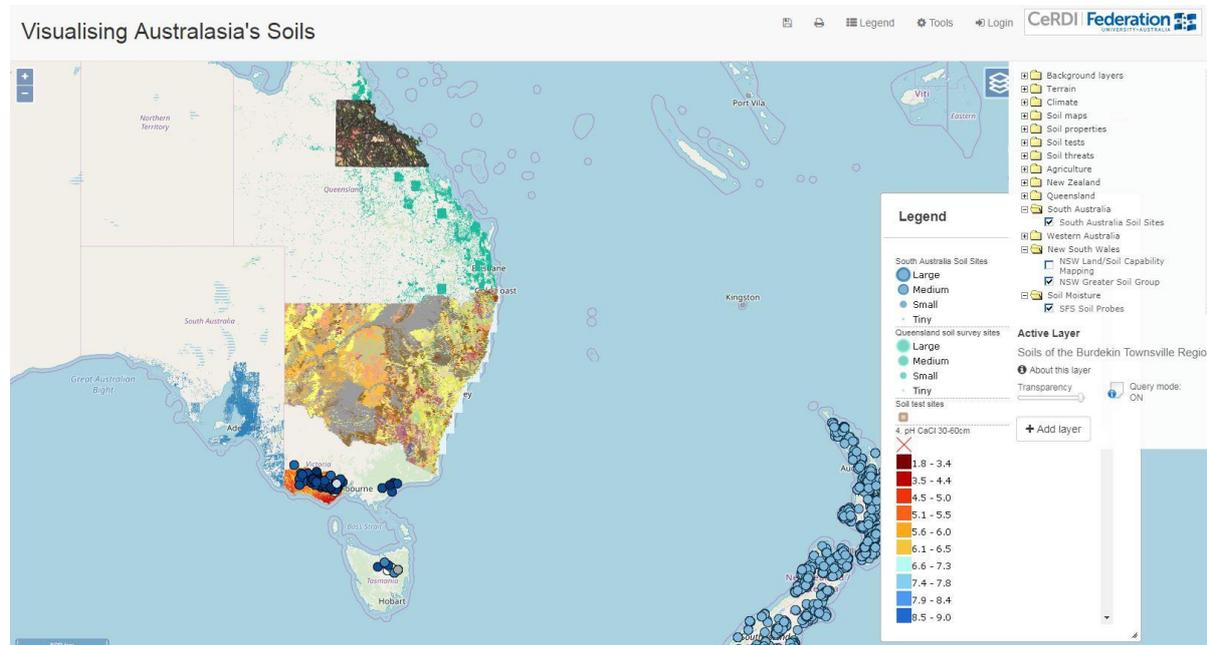
In each meeting we sought to understand:

- how the partner might wish to contribute to the project
- what they would like to get out of it and what value the project might provide for their members and stakeholders
- specifically what data they have to share with the federation and how that might work, and
- what success would look like from their point of view and how we should assess the impact of the project

So far, the meetings have confirmed that trends in soil properties and benchmarking their region are probably the most valued, especially by their members. Other values that the partners saw were in having access to an online system to securely store, organise and query their own data. Also recognised are the ability to use the federated data to identify research gaps, provide evidence for funding grants, create collaborative opportunities (especially funded collaborations) and report to investors and members.

Pilot soil data portal

An experimental site has been created to test the development of the soil data federation portal due to be launched at the end of this year. To date, we have been able to include data from New Zealand, Australian national data sets, all state governments (except the NT and ACT), universities and research institutions, farming groups, and catchment management authorities.



Above: An example of some of the soil data in the pilot portal

From these initial experiments, it has become quickly apparent that there are far too many soil data sets in some areas to show on a single map. Hence, we are experimenting with reporting tools to show what data might be available for a particular location, farm, or district. The visualisation tools will be co-developed with the project partners to suit their needs.

What's next

Visits are scheduled with **Burdekin Productivity Services** in Ayr and **Herbert Cane Productivity Services Ltd** in Ingham in early September. Then later in the month we are visiting **Mallee Sustainable Farming** in Mildura and **Birchip Cropping Group** in Birchip.

A visit to the **Wimmera Catchment Management Authority** in Horsham is scheduled for October and we're also hoping to visit the groups in Western Australia the same month. By the end of the year or early next year we should have visited each partner organization in the project.

As exemplars of the variety of data that can be interoperably federated in the project, we are also preparing and exposing a variety of legacy soil data from past student theses, including pedological data, soil mineralogical data, hydropedological data, geotechnical soils data and soil contaminant data. These data will stretch and test the system's capability in interoperability, especially the ability of computers to exchange similar forms of soil data without losing its meaning and context (this is known as semantic interoperability).

A manuscript is being prepared that will outline the philosophy and design of the soil data federation, based on the guidelines for findable, accessible, interoperable and reusable data (known as the FAIR data principles).

Project in a nutshell

Project Aim

Establish a soil research data federation, based on agreed data stewardship and governance frameworks, that allows Australasian soils data from all sources (private and public), to be discoverable to all Soil CRC participants through an intuitive-to-use internet portal.

Project Partners

Federation University Australia	Landmark
Manaaki Whenua Landcare Research	Liebe Group
University of Southern Queensland	MacKillop Farm Management Group
University of Tasmania	Mallee Sustainable Farming
Birchip Cropping Group	North Central Catchment Management Authority
Burdekin Productivity Services	Riverine Plains Inc.
Central West Farming Systems Inc.	Southern Farming Systems
Gillamii Centre	Western Australia No Till Farmers Association
Herbert Cane Productivity Services Ltd	Wimmera Catchment Management Authority
Holbrook Landcare Network	

Steering Committee

- Project Leader – A/Prof Peter Dahlhaus, FedUni
- Soil CRC Program Coordinator – Dr Richard Doyle, UTas
- Technical expert – Alistair Ritchie, MWLR
- Broadacre farming group – Dr David Minkey, WA No Till Farmers Association
- Cane grower group – Rob Milla, Burdekin Productivity Services
- Mixed farming group – Jane McInnes, Riverine Plains Inc.
- Government/agency – Warwick Dougherty, NSW DPI
- Global initiatives – Dr Peter Wilson, CSIRO.

Timeline

February 2019	Project start
December 2019	Publish the data stewardship and governance frameworks
December 2019	Launch the Visualising Australasia's Soils portal
November 2020	Deliver online educational materials
November 2020	Launch web-based tools for data management
April 2021	Final reports with all accompanying deliverables and outputs

Project details

<https://soilcra.com.au/projects-2/>

Project videos

<https://www.youtube.com/watch?v=n1qnEtoSy5s&t=106s>

<https://www.youtube.com/watch?v=p0tqV3bH1gU>

<https://www.youtube.com/watch?v=jbWGIABkSeg&t=77s>