

## Creating an Australian Virtual Soil Archive using ANZSoilML data exchange standards.

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The Australian National Soil RD&E Strategy report (Rayment 2013) noted that soil archives are important for developing, testing and calibrating measurement methods; providing type specimens and detecting changes in soil attributes and condition over time. The report documented 16 Australian archives of varying size which house over 350,000 specimens and recognised that collaborative use of physical infrastructure could increase outcomes, efficiency and resource use. It recommended that a dispersed national soil archive should be developed, together with agreed protocols and procedures (including specimen and data sharing).

We describe a user needs analysis for an Australian National Virtual Soil Archive that aimed to identify the existing use of archives, how useful a coordinated, distributed virtual archive may be and what functionality a virtual archive web portal should provide.

The Virtual Soil Archive project built on advances in ANZSoilML web based data exchange standards made through previous investments in the Australian Soil Resource Information System and the Soil and Landscape Grid of Australia (Terrestrial Ecosystems Research Network TERN) that revolutionise the way consistent soil data is made discoverable, accessible and useable.

A demonstration portal allows access to standardised data services from multiple sources and provides functionality for displaying and querying sites and data associated with specimens, as well as capacity to download data and request access to specimens from multiple soil archives.

Impediments to effective and efficient use of soil archives include a lack of knowledge that archives or particular specimens exist, and institutional barriers to using specimens. Making data from all Australian soil archives discoverable and accessible, such as through an online portal, would assist the promotion of archives and their collections. Benefits would arise from better access to a wider selection of specimens, cost savings from reduced requirements for field sampling, and improved analytical methods and modelling.