National Soil Monitoring Program Information - FAQ

General

What is the National Soil Monitoring Program (NSMP)?

The NSMP is Australia's first nationally coordinated soil monitoring program. Funded by the Natural Heritage Trust, it is a collaborative project between CSIRO and the Department of Agriculture, Fisheries and Forestry (DAFF). The aim of the project is to collect and analyse soils from approximately 3000 sites across Australia to increase our understanding of soil health and trends with relation to climate, land use and land management practices. The program will monitor agreed sites every 5 years over a total of 20 years with the potential to add additional new sites to the network. The first sampling phase spans four years from 2024 to 2028.

Why is the NSMP important?

Soil is a non-renewable resource and our most valuable natural asset. Australian soil is particularly vulnerable to degradation because it is deeply weathered, old and often nutrient poor. The NSMP was established to help understand changes in soil and will provide the information required to identify trends in soil condition over time and so that this natural asset remains agriculturally and environmentally productive for current and future generations. Preserving and supporting healthy soil through effective soil management is critical for climate smart, productive and sustainable agricultural.

Is there a cost to landholders involved?

As a landholder there is no dollar cost to be involved in the NSMP. Permission will be sought to:

- access a site or sites on your land;

- collect soil samples for analysis;
- collate information on land management practices; and
- make the results publicly accessible, via the Australian National Soil Information System (ANSIS).

Should landholders continue to participate in the NSMP in the future, a new authorisation form will be required for a sampling team to revisit and ask additional information.

Project Information

Why this site?

A soil monitoring network has been established across Australia to identify sampling sites that represent a broad range of soils, landscapes, climate and land uses. The sampling design used national soil, climate and vegetation datasets to identify site locations. Through this process, a monitoring site suitable for soil collection has been identified at this location.

What is in it for landholders?

Landholders will be provided with a report that will include results on the data collected at the site including a comprehensive soil chemical, physical and biological assessment. The data and information generated will support landholders in making evidence-based decisions to improve the health of the soil and provide insight into the longer-term impact on soil resources, with consideration to climate and land management practices. Participating landholders will receive reports across the timespan providing long term data to inform decision making.

Participating landholders will actively contribute to a national, enduring knowledge base on soil data which will have multiple ongoing benefits. Subsequent monitoring will facilitate knowledge of the soil health and trends of soils of both the landholder's own site and other sites across Australia. The information gained will assist researchers in identifying key opportunities for soil improvement. These opportunities could further be realised by landholders to enable sustainable soils on their land, inform land management practices and to have a greater understanding of soils and soil health through a climate smart lens.

What do landholders need to do to participate?

To participate landholders will be asked to sign an authorisation form providing field teams access to the property to undertake soil sampling, evaluate site characterisations and to better understand the land management practices and history of the site.

Who will be coming on site?

CSIRO has engaged Partner Organisations to undertake soil sampling and field research on their behalf. Relevant Partner Organisation information will be provided to landholders as part of the initial engagement activities.

What is involved?

The soil sampling and field research at each site will generally be conducted by two people to obtain:

- information on land management history (by asking a few relevant questions);
- information on land and soil characteristics (by observation); and
- soil samples from a number of sites across a 25 x 25 m site plot (these will be sent to a laboratory for analysis).

The two person minimum is for Health, Safety and Environment (HSE) purposes. At some sites additional people may attend for training or project overview, quality assurance and quality control purposes.

What about biosecurity?

Field staff will adhere to relevant national, state and industry-specific biosecurity regulations. Additionally, if landholders have specific biosecurity requirements, field staff will make appropriate arrangements to ensure the required protocols are followed. At all times the field team will communicate with landholders to ensure these requirements are understood and address any questions prior to entering a site. We encourage landholders to raise any biosecurity requirements or concerns with the with field team prior to their site visit.

How long will soil sampling take?

The time required to complete a site assessment and undertake associated sampling will be dependent on the complexity and location of the site. Under normal circumstances a field team would be on site for half a day. Complex sites (e.g. harder ground or difficult to access) may take longer or possibly need multiple visits to complete sampling. The survey team will discuss and agree the specifics for each site visit, and the planned approach with landholders/managers as part of the engagement process prior to going to the site.

For participating sites, over the 20-year monitoring period, the intent is to revisit sites approximately every 5 years.

Do landholders need to be present?

Participation in the site sampling is a landholder or their authorised representative's decision. They do not need to be present during the soil sampling itself, though their participation is more than welcome with interactions providing the opportunity for onsite engagement and co-learning. Prior to sampling field teams will discuss any site-specific information such as preferred access routes and any buried services (water, power, telecommunications lines etc).

What does a site look like?

Sites will generally consist of a 25 x 25 m plot GPS referenced to a < 1m accuracy. Soil cores will be extracted within the plot and approximately 20% of sites will have a 1 X 1 X 1m soil pit dug in one corner. All soil core holes and pits will be backfilled at the end of a site visit. Sites will not have any physical above-ground markers left once the sampling is complete.

Approximately 20 kg of soil will be collected and removed from the site for laboratory analysis.

How much disturbance will occur at a site?

Up to 15 soil cores will be extracted from the site to a depth of 1m. Approximately 20% of sites will either have a soil pit dug (approximately 1mx1mx1m) or core taken for soil physical properties assessment. The soil pit and core holes will be backfilled before teams leave the site. One or two field vehicles will be required to drive and park adjacent, or where otherwise advised, to the site for sampling activities.

What type of laboratory tests will be done on the soil?

The samples will be tested for a range of physical, chemical and biological properties and may also undergo spectroscopic analysis. Soil spectroscopy involves measuring the reflected light of the soil, providing information about various soil characteristics for example organic carbon content. A list of Laboratory analysis methods is available at the NSMP website (currently under construction).

How were the specific lab analysis methods chosen?

Lab analysis methods are chosen in consultation with subject matter experts to meet program and budgetary requirements at a national scale. A list of analysis methods will be available on the website.

What are the implications of changes to land use and land management practices?

The program is intended to monitor soil health and trend over 20 years. Within this period decisions on land use and land management practices are completely at the discretion of the landholder. Should changes be made it would be helpful if this is recorded by landholders, so changes are captured and more easily referenced during future sampling activities.

What happens to the soil after it has been analysed?

The soil samples will be archived in one of the National Soil Archives where they will be available for future analysis if needed. For most samples this will be the Australian CSIRO National Soil Archive.

What kind of insurances are applicable?

The Project has public liability insurance.

Where can more information be found about the Project?

More information on the NSMP can be found at National Soil Monitoring Program- CSIRO and on the National Soil Monitoring Program- DAFF . A separate dedicated NSMP webpage is also currently under development.

NSMP Authorisation for Sampling & Data Collection Form

What is the *Authorisation for Sampling and Data Collection Form* and why is it needed?

To protect individuals in the context of privacy CSIRO's ethics and privacy require that consent is obtained from project participants for properties to be accessed, samples taken, surveys conducted and the sharing of the

project data. The Authorisation form is the document that provides consent for CSIRO to conduct the field sampling work as well as providing assurance and privacy protection for the landholder.

What are landholders agreeing to by signing the authorisation form?

By signing the authorisation form, landholders agree to CSIRO and respective partners to:

- access the property;
- collect soil samples and data from specified site(s) [generally a 25m x 25m area];
- gather temporal land management information related to the site(s);
- make data from the analysis of the soils collected at the site(s) publicly accessible; and
- for the soil samples to be retained and managed in the CSIRO Australian National Soil Archive.

Does the authorisation form create any proprietary rights over the site?

No.

What happens if the property changes hands during the Project?

If the site has been sampled, then the same principles for "What if a landowner wants to withdraw?" apply. If the site has not been sampled, then consent to access the property and a new authorisation form must be completed and signed by the new owners.

How do you know the person who signs the authorisation form is authorised to do so if they are not the landholder?

The field teams responsible for the sampling will connect with the landholders and confirm the relationship between the site and property owner prior to coming to site. If the landholder has a property manager with delegated responsibility, then this will be reflected in the authorisation form where the individual signs that they are duly authorised to do so.

The authorisation form provides additional assurance on top of any verbal conversations as a binding document.

What is the process for site access where a site falls on a property which has a lessee, sharefarmer or is on land which has a shared ownership/occupation arrangement?

Should there be multiple parties with oversight of the property then CSIRO will lead a consultative, case-by-case assessment of the feasibility of that site with the relevant parties. As a minimum agreement from the landowner will be required, via the authorisation form and written acknowledgement will be sought from other parties to capture their confirmation of the Project work.

What happens to the data collected?

The project will collect two types of data 1) personal information 2) project data. These two categories will be managed differently:

- Management of personal information will be in accordance with the *Privacy Act 1988 (Cth)* and will only be made available to the soil monitoring project team (CSIRO and field team partner) during the project. Once a site survey has been completed the field team will destroy any copies of the authorisation form

they hold. CSIRO will keep records in secure electronic storage for the purposes of contacting landholders for future monitoring activities.

- The project data collected will be publicly available via the Australian National Soil Information System (ANSIS). This includes the disclosure of:
  - Longitude and latitude of the site location/s;
  - Observed, measured, predicted and derived properties of soil samples taken from the site/s;
  - Land use and land management practices;
  - Photographs of site including soil profile, soil samples and site landscape;
  - Observed landform attributes; and
  - Physical soil samples collected will be stored in an Australian Soil Archive.

What if a landowner wants to withdraw?

Consent to participate may be withdrawn at any time upon written request of the landholder or their authorised representative. The personal information held would then be deleted and any soil samples which have been collected or stored in Soil Archives will be able to be removed and disposed of. Soil data can be deleted up until it has entered the national dataset. Once soil data has been made publicly available it cannot be retracted.

What happens if a landholder does not want to be involved?

If a landholder does not wish to be involved in the NSMP no further actions are required. The site will not be part of the National Soil Monitoring Network and any privacy information (e.g. name and address details) can be deleted from the contacts list. This will not impact landholders from opting to participate in the NSMP in future or other projects.

What happens next?

After the soil samples have been analysed and archived, data will be made publicly accessible, and a report will be provided to landholders with analysis results specific to their site. The report will contain information on the soil data results.

The intent of the NSMP is to re-monitor the same sites every 5 years to gain further understanding of soil changes over time. This will be subject to future funding and landholder's consent. It is intended that after each future re-monitoring survey that the landholder would be provided with a new report of the analysis from those visits.

General

Where can I get more information?

More information is available on the NSMP website National Soil Monitoring Program , DAFF Website National Soil Monitoring Program - DAFF or you can email us at nsmp@csiro.au.

What is the CSIRO Australian National Soil Archive?

CSIRO maintains the Australian National Soil Archive that provides facilities and protocols for conserving the long-term, scientific value of soil specimens and associated soil data. Archived soil material and data is searchable and publicly accessible with protocols in place outlining standards and processes for sample submission and use. With permission, users can access a large amount of existing soil data or re-analyse soil specimens for their own needs. You can find out more about the National Soil Archive on the CSIRO website (Australian National Soil Archive - CSIRO).

What is ANSIS?

ANSIS is the Australian National Soil Information System. It provides access to soil data and information from multiple data sources. Data obtained from the NSMP Project will be saved in a database accessible to end users via ANSIS. You can find out more on the Australian National Soil Information System website (ansis.net).

The National Soil Monitoring Program has been supported by funding through the Australian Government Natural Heritage Trust (Department of Agriculture, Fisheries and Forestry) in collaboration with CSIRO.

Australian Government

Department of Agriculture, Fisheries and Forestry