

Title	2019/2020 Bushfire and Water Quality Project: Impact of temperatures on soil leachability
Abstract	This soil burn and leachate data set was prepared to assess the impact of fire on soil leachability and potential ecological risks. Soils representative of major geological types, unaffected by fires, were collected from nine locations along the east coast of NSW: consisting of three sedimentary soil types: Cumberland State Forest, Lake Parramatta and Hat Head, two metamorphic soil types: Port Macquarie and Yarriabini National Park, three igneous soil types: Bellmore Falls (Budderoo), Robertson National Park and Middle Brother National Park, and one coastal plains organic soil: Crescent Head/Bellmore Swamp. The soils were characterised for metal and nutrient (N, P) levels and analysed using X-ray diffractometry (XRD) to determine their mineralogical composition. The soils were then subjected to a simulated fire impact experiment, where they were treated at temperatures of 200 °C (low-moderate severity), 500 °C (high severity), and 850 °C (extreme severity) for 30 minutes, along with an untreated control (unburnt). After cooling, the soils were leached using a modified version of the Toxicity Characteristic Leaching Procedure (TCLP) as outlined in the USEPA SW-846 Test Method 1311 in freshwater. Dissolved metals, total nutrients, and dissolved nutrients were sampled and analysed in the leachates. This data fed into a leachate assessment and a preliminary aquatic ecological risk assessment, with a report to be released soon. The data presented in this spreadsheet is: • initial characterisation data set for each soil including metals, nutrients organic matter and moisture content. • XRD data for the soils in unburnt, 200 °C and 850 °C treatments. • Leachate data for total nutrients, dissolved nutrients and dissolved metals.
Resource locator	
Data Quality Statement	Name: Data Quality Statement Protocol: WWW:DOWNLOAD-1.0-http--download Description: Data quality statement for 2019/2020 Bushfire and Water Quality Project: Impact of temperatures on soil leachability Function: download
Impact of temperatures on soil leachability	Name: Impact of temperatures on soil leachability Protocol: WWW:DOWNLOAD-1.0-http--download Description: This dataset was experimentally compiled in the laboratory to provide insights into the effects of temperatures associated with different fire severities on the leachability of metals and nutrients from soils across NSW. The findings are detailed in a report (to be uploaded soon) designed to inform decision-making processes within the Preparedness, Prevention, Respond and Recovery (PPRR) cycle for natural hazards. The data includes: Sheet 1: Characterisation of collected soils, including total metal and nutrient concentrations, total organic carbon content, and moisture content (Sheet 1). Sheet 2: XRD analysis data for untreated soils and soils treated at 200°C and 850°C. Sheet 3: Leachable concentrations of dissolved and total nutrients, and dissolved metals for each soil and treatment following the leachate experiment. Function: download
Unique resource identifier	
Code	db039e40-aca9-4fb8-88d4-06a65708ebd3
Presentation form	Document digital
Edition	1
Dataset language	English

Metadata standard	
Name	ISO 19115
Edition	2016
Dataset URI	https://datasets.seed.nsw.gov.au/dataset/db039e40-aca9-4fb8-88d4-06a65708ebd3
Purpose	Assessment of fire severity on soils and potential risk to waterways
Status	Completed
Spatial representation type	None
Spatial reference system	
Code identifying the spatial reference system	4283
Topic category	

Keyword set	
keyword value	HAZARDS-Fire SOIL-Chemistry MARINE-Estuaries WATER-Quality
Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16
Geographic location	
West bounding longitude	149.26
East bounding longitude	154
North bounding latitude	-37.7
South bounding latitude	-28
NSW Place Name	NSW East Coast
Vertical extent information	
Minimum value	-100
Maximum value	2228
Coordinate reference system	
Authority code	urn:ogc:def:cs:EPSG::
Code identifying the coordinate reference system	5711
Temporal extent	
Begin position	2023-01-01
End position	N/A
Dataset reference date	
Resource maintenance	
Maintenance and update frequency	Not planned
Contact info	
Contact position	Data Broker
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Responsible party role	pointOfContact

Limitations on public access	
Responsible party	
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