Cranfield UNIVERSITY

Report Prepared for the Department for Environment, Food and Rural Affairs

Report of Activity for LandIS Support

Quarterly Progress Report
1st July – 30th September 2010

Report of Activity for LandIS Support
For the Department for Environment, Food and Rural Affairs

by
Caroline Keay, Timothy Farewell, Andrew Rayner and Stephen Hallett

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CHANGE HISTORY

Version	*Date*	*Summary of change*
1.0	14/10/2010	First Issue

Reference to this report should be made as follows:

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Progress with the LandIS Support Contract

Reporting Period: 1 July, 2010 – 30 September, 2010

Database Maintenance

No specific maintenance issues are reported in this period. The LandIS 'Virtual Server' continues to provide good service to the project. The service team in the Cranfield University IT computing group provides a high standard of maintenance care and support.

Usage

The Soil Site Reporter (http://www.landis.org.uk/reports/) continues to be used extensively with numbers steadily increasing. In the current period there have been 15 new companies and 99 new users registered. Of these, this includes 3 new Universities and 58 new student registrations.

The following figures illustrate the level of response and use of the reporter to-date (figure 1):

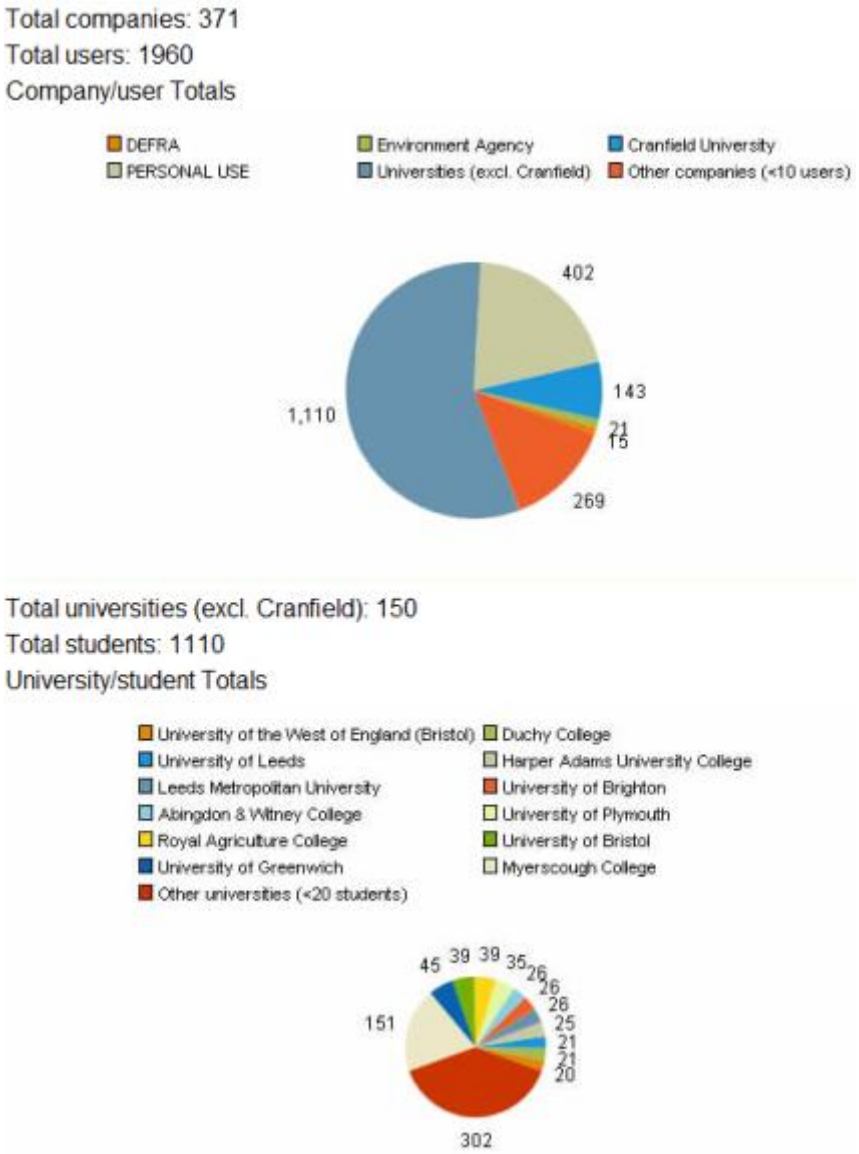


Figure 1 Summary of Soil Site Reporter uptake by user group

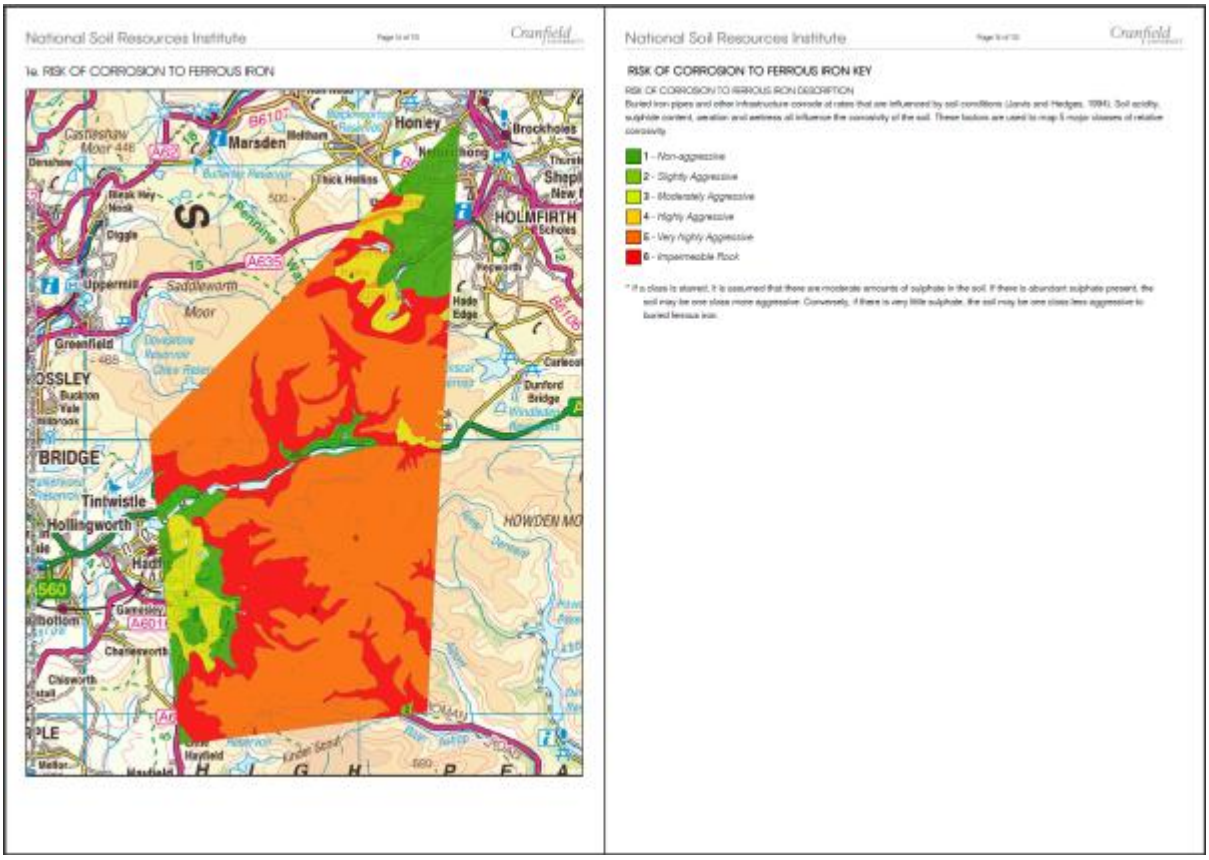
Soils Site Reporter (v2)

A full prototype of the second version of the Soils Site Reporter has now been completed. This is currently an internal tool, whereby customised reports can be generated on demand when a request is received from clients.

This version differs from the first version of the site reporter by adding the following site selection functionality:

- user specified, irregular areas of interest (can be drawn on screen);
- capability to upload user shapefiles.

The PDF report the new tool produces is also slightly different to the first version of the soils site reports, in that it allows for variable 'areas of interest' to be defined by the users. Maps are now on facing pages to their legends, allowing a full page for the map. An example of one of the interpreted maps is displayed below. Information on this service will shortly be added to the www.landis.org.uk website.



Full metadata for LandIS products made available to the general public via the GeoNetwork software tool

A complete set of metadata entries for the LandIS soils datasets have now been created. These have been established in the LandIS Oracle database in a form whereby they can be easily extracted by a metadata server. A new open source software tool 'GeoNetwork' has been installed on a dedicated metadata server. The GeoNetwork tool will become available for public consultation, and is fully compliant with the technical requirements of the INSPIRE

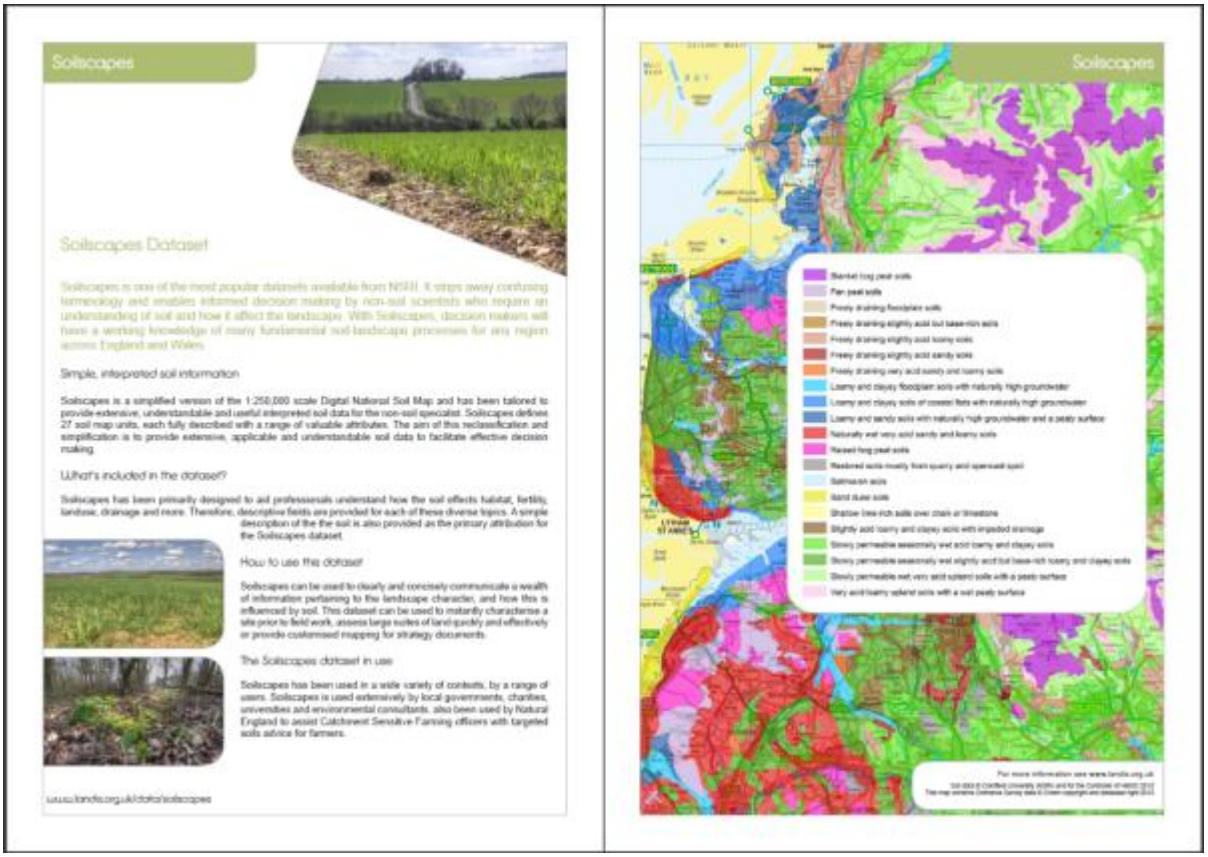
Directive for publicising metadata. GeoNetwork is fast becoming one of the key 'de facto' standards for metadata and is widely used across the EU Member States. The metadata has been created in full compliance with the INSPIRE directive as defined at http://www.inspire-geoportal.eu/. The LandIS metadata portal has now been created and will be published at http://www.landis.org.uk/geonetwork. Some technical issues, being resolved, mean this is not yet completely operational.

This service designed also offers the user the ability to search the data in LandIS for particular information (such as pH, peat or carbon). Keywords have been defined for all datasets selected from the General Multilingual Environmental Thesaurus (GEMET), which gives standard definitions of each keyword and provides multilingual translations into the 29 official European languages (though sadly not yet including Welsh).

Data Product Documentation

Promotional literature has been created for the suite of Soilscapes datasets, to allow users to gain a better understanding of the types of information that is available to them through the LandIS datasets. These information sheets include descriptions of the datasets, their uses and applications and illustrative photographs and maps. Informal metadata is also included in these documents, while INSPIRE compliant ISO19115/19139 metadata is available through the geonetwork website.

These promotional brochures will be available for download as pdfs in the near future on www.landis.org.uk. Literature for approximately 20 more datasets is also under development, and these will also be placed online when they are complete.



Example LandIS promotional brochure for Soilscapes

LandIS Data Improvements

An appraisal of soil attribute data not currently included in LandIS was carried out by Dr Robert Jones and Dr Jacqueline Hannam:

1. Soil physical attributes for about 300 national soil series identified, described and documented during detailed 1:63,000, 1:50,000, 1:25,000 and 1:10,000 scale soil surveys (1948-1985) are currently not in digital form and therefore not in LandIS. These data are identified as needed to complete the soil attribute database for the 700 national soil series. The scope of capturing these data digitally was examined.
2. Hard copy representative soil profile descriptions, and associated analytical data, have been extracted from the physical soil archive, examined and the scope of their digital data capture appraised.
3. Initiation of correlation of Soil Series (dominant series of the National Associations) to World Reference Base (2006) soil reference groups using the representative profile information. The WRB classification is recognised as the European and International reference classification for soil communication.

LandIS PERSONNEL/TIME

Time put down to the LandIS project for the period Oct 2008 to Sep 2010 with budgeted days over the duration of the complete LandIS contract in brackets:

Caroline Keay	155	(174) days
Stephen Hallett	58	(84) days
Timothy Farewell [2]	194	(150) days
Andrew Rayner	156	(150) days

Mark Kibblewhite [1]	7	(6) days
Ian Truckell [2]	5	(0) days
Michelle Clarke [2]	6	(0) days
Bob Jones[3]	14	(0) days
Jacqueline Hannam[3]	10	(0) days

[1] Mark Kibblewhite is standing in for Dick Thompson's original role in the project and prior to recruitment of a succeeding NSRI Director.
[2] Some of the provision originally assigned to Stephen Hallett and Caroline Keay has been diverted to Timothy Farewell and other NSRI staff to help with the creation of the improved LandIS documentation.
[3] Dr Robert Jone's and Dr Jacqueline Hannam's expertise were drawn upon to investigate improvements to the soil data held in LandIS.

Defra Data Lease budget used between 1st October 2007 and 30th September 2010

£13,450 has been spent from the total project budget of £18,000 allocated for Defra projects. New data leases this quarter have been highlighted in the tables below as "***NEW***".

COMPLETE LIST OF DATA LEASES FUNDED BY DEFRA VIA THE LANDIS FUND (OCT 2008 – SEP 2010)

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Data Lease funded by DEFRA via the LandIS fund						
ADAS	The project will use NSRI soils data (top soil texture and water content, and associated HOST class) for the dominant soil series within each 1km cell as input to the national PSYCHIC model of diffuse phosphorus losses from agricultural land.	To evaluate present day (2004) and future (2015) total phosphorus loadings on all lakes in England and Wales, from all point and diffuse sources. Project officer: Russell Todd (Defra CSF). DEFRA PROJECT CODE:	01/12/2007	31/03/2008	£375.00	£ 28,000.00
Forestry Commission	NSI data points - DEFRA contract SP0521.	Forestry Commission research project EH66600E 'Carbon dynamics in forests'.	11/10/2007	10/10/2008	£200.00	£ 24,000.00
BBSRC	County-level soil property data defining, for the 3 most common soil types present: maximum organic carbon content(%); minimum soil organic carbon content (%); clay content (%); pH; bulk density (g/cm3); total soil porosity (% volume); water content at field capacity (1/3 bar tension) as a % of total water content at wilting point (15 bar tension) as a % of total porosity, of the topsoil layer; together with soil texture class and Hydrology Of Soil Types (HOST) grouping.	For use solely as input data to any version of the UK-DNDC model for the purpose of deriving emission factors for the UK N20 inventory as required by the Department of the Environment, Food and Rural Affairs (Defra). DEFRA project code: CC0266. 2008 - same project but code changed to AC0101.	01/12/2007	31/03/2009	£200.00	£24,000.00
Forestry Commission	NATMAP vector and SOILSCAPES for England and Wales	To map those areas where soil associations vulnerable to erosion can be found.	14/04/2008	13/04/2013	£375.00	£95,350.00
Ministry of Defence	NATMAP 250k data for England and Wales with legend. association and pH data.	Within the MOD HQ Land Forces.	02/06/2008	01/06/2009	£375.00	£130,190.00
Rothamsted Research	NATMAP vector, SOILSERIES hydrology, HORIZON hydraulics, HORIZON fundamentals.	DEFRA project: LK0986. Improving water use efficiently and drought tolerance in UK winter wheats.	25/06/2008	24/06/2008	£375.00	£18,4190.00

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Data Lease funded by DEFRA via the LandIS fund						
Royal Veterinary College	Soilscapes- Wales Yr 2 & Yr 3 - Soilscapes England	To be used in a study of risk factors of disease introduction in a population of cattle herds and sheep flocks in Wales. DEFRA code:SE4002/CTA0301. (Single User licence)	01/05/2008	30/04/2009	£375.00	£2,4000.00
University of Nottingham	NATMAPvector and HORIZONhydraulics. 6/6/07 - additional data supplied - NATMAP vector + topsoil texture data - River Kent - Kendal, Cumbria - 528km2.	DEFRA project code: FD2016/CSA6616 - partnered with EA - Flood Risk Management Research Consortium - Hawkcombe Stream Somerset.	01/06/2008	31/05/2009	£200.00	£2,700.00
University of Durham	1) NATMAP vector, SOILSERIES hydrology, HORIZON fundamentals. 3/12/08 - amended to include: NATMAP legend, associations,SOILSERIES info, NSIsite and topsoil 1&2 (10 catchments in England and Wales). 2) NATMAP vector, legend, associations, SOILSERIES info, hydrology, HORIZON fundamentals, NSI site, topsoil 1 &2, profile, texture (Entire UK).	1) Within DEFRA project WQ0105CSA7393 as previously. 2) Within DEFRA project WQ0105CSA7393.	04/06/2008	01/01/2010	£200.00	£123,700.00
University of Nottingham	NATMAP vector & HORIZON hydraulics + topsoil data for OS area 300300SW by 310310 NW	DEFRA project: Flood Risk Management Research Consortium - code FD2016/CSA6616	28/08/2008	30/11/2009	£375.00	£400.00
DEFRA	All NSI data. All SOILSERIES and HORIZON data. 8/2/08 - Incorporating data licenced under ref:LC0013/007 NATMAP vector, NATMAP soilscapes, NATMAP legend, NATMAP associations	Within DEFRA.	01/12/2008	30/11/2008	£200.00	£130,190.00

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Data Lease funded by DEFRA via the LandIS fund						
Welsh Assembly Government	1. Wetness class: map showing soil associations in which more than 65% of the association area comprises soils having wetness class IV, V or VI. 2. Maps (with associated shape files) of shallow, stony, coarse, fine textured and peat soils. We would supply hard copy maps (A4 or A3 as agreed) and shape files that NE and WAG GI units could map and model in relation to climate and slope criteria (as requested). 3. Map showing complete extent of Less Favoured Areas defined using new criterion compared with current extent.	Determining Less Favoured Areas in England and Wales. Consortium licence in conjunction with Natural England ref: LC0013/008	01/12/2008	30/11/2010	£3,000.00	£123,700.00
Natural England	as above	determining Less Favoured Areas in England and Wales. Consortium licence in conjunction with The Welsh Assembly Government ref: LC0200/001	01/12/2008	30/11/2010	£0.00	£0.00
University of Lancaster	NATMAP vector, legend, associations, SOILSERIES info, hydrology, HORIZON fundamentals, NSI site, topsoil 1 & 2, profile, texture (Entire UK).	Within DEFRA project WQ0129: Delivery of Phosphorus and Faecal Indicator Organisms from Agricultural Sources to Watercourses.	15/12/2008	31/07/2013	£375.00	£123,700.00
NERC / CEH	1km resolution soil carbon database for England and Wales, giving the soil series in each 1km square together with particle size, bulk density and carbon content for layers 0-30cm and 30-100cm	To be used by CEH (Edinburgh) for DEFRA Project on Preparation of Annual Greenhouse Gas Inventory for LUCF in the UK	01/06/2008	31/05/2010	£200	£50,000
Forestry Commission	NSI data points - DEFRA contract SP0521.	Forestry Commission research project EH66600E ' Carbon dynamics in forests'.	11/10/2008	10/10/2009	£200	£97,000

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Data Lease funded by DEFRA via the LandIS fund						
University of Stirling	NATMAP vector, NSI topsoil, SOILSERIES hydrology, SOILSERIES pesticides.	Defra project: FC1177 "Development of a risk evaluation system for the establishment of Gyrodactylus salaris in English and Welsh river systems." Data to be used by David Morris.	23/02/2009	22/02/2010	£375	£112,000
Forestry Commission	NATMAP vector - Breckland Forest area	Data to identify heathland areas and for use in forestry planning	25/02/2009	21/02/2014	£375	£3,000
NERC / CEH	NATMAP1000 1 km digital raster version of the National Soil Map for England and Wales, (Ref: DD7017V/033, ID210)	to update critical loads maps for DEFRA/NERC contract EPG1/3/185: National Critical Loads Mapping Programme - Phase IV (CEH project - CPEA 19	17/09/2007	16/09/2010	£200	£14,128
Peak Districk National Park Authority	NATMAP, SOILSERIES hydrology, agronomy, pesticides, info, HORIZON fundamentals, hydraulics.	DEFRA research project SP0572 - Ecosystem Services of Peat. 2-5 users.	23/03/2009	22/03/2010	£375	£5,801
BBSRC	County-level soil property data defining, for the 3 most common soil types present:maximum organic carbon content(%); minimum soil organic carbon content (%); clay content (%); pH; bulk density (g/cm3); total soil porosity (% volume); water content at field capacity (1/3 bar tension) as a % of total water content at wilting point (15 bar tension) as a % of total porosity, of the topsoil layer; together with soil texture class and Hydrology Of Soil Types (HOST) grouping.	For use solely as input data to any version of the UK-DNDC model for the purpose of deriving emission factors for the UK N20 inventory as required by the Department of the Environment, Food and Rural Affairs (Defra). Ref: DEFRA project code: CC0266. 2008 - same project but code changed to AC0101. 2009 - DEFRA AC0112: Inventories of ammonia and greenhouse gases from UK agriculture	01/04/2009	31/03/2010	£200	£66,029

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Data Lease funded by DEFRA via the LandIS fund						
DEFRA	Soilscapes data.	DEFRA project ref: IF0128. The potential impact of Climate change on diseases influencing the UK strawberry industry.	19/05/2009	30/04/2011	£375	£24,078
DEFRA	NATMAP 1km, with Attributes and HOST.	Extending the evidence base on the ecological impact of fine sediment and developing a framework for targeting mitigation of agricultural sediment loss. DEFRA project code: WQ0128	01/07/2009	31/03/2012	£375	£28,000
DEFRA	1km NATMAP with Attributes.	Characterisation of soil structural degradation under grassland and development of measures to ameliorate its impact on biodiversity and other soil functions.DEFRA project code: BD5001.	01/07/2009	31/12/2013	£375	£23,000
Royal Veterinary College	Soilscapes- Wales Yr 2 & Yr 3 - Soilscapes England	To be used in a study of risk factors of disease introduction in a population of cattle herds and sheep flocks in Wales.DEFRA code:SE4002/CTA0301. (Single User licence)	01/05/2009	30/04/2010	£375	£19,263
BGS	NATMAP vector, HORIZON fundamentals - texture & carbon for topsoils for England and Wales.	DEFRA project SP0571 'UKCIP08 Scenarios & climate change pressures/threats to soils in England and Wales.	13/07/2009	12/07/2010	£375	£52,835
DEFRA	NATMAP vector, soilscapes, legend, associations. SOILSERIES info, hydrology, pesticides, agronomy.	DEFRA project: IF0143 Modelling the spatial and temporal management of land-use to optimise biodiversity.	01/12/2008	30/11/2011	£375	£81,278

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Data Lease funded by DEFRA via the LandIS fund						
DEFRA	NATMAP vector and Soilscapes data	Defra and the Environment Agency - National ecosystem assessment project.	09/03/2009	28/02/2011	£375	£56,938
ADAS	Natmap vector, Natmap 1000, Soilseries hydrology, HORIZON fundamentals, HORIZON hydraulics tables.	Establishing the Hampshire Avon Demonstration Test Catchment (DTC) platform.Defra project code:	01/12/2009	31/03/2014	£375	£33,191
ADAS	NSI Site & Topsoil	Restoration of herbaceous hedgerow flora Defra project code: BD5301	01/12/2009	30/06/2010	£375	£31,930
ADAS	NATMAP vector	DEFRA project code: PS2239 - Arable pesticide exposure pathways	01/01/2010	31/03/2010	£375	£75,350
Environment Agency *NEW*	NATMAP vector - East Midlands Region. Large multi-user licence.	The East Midlands Environmental Evidence Base. Defra project code: NES 2	01/04/2010	31/03/2011	£375	£14,253
NERC/CEH *NEW*	1km resolution soil carbon database for England and Wales, giving the soil series in each 1km square together with particle size, bulk density and carbon content for layers 0-30cm and 30-100cm	To be used by CEH (Edinburgh) for DEFRA Project on Preparation of Annual Greenhouse Gas Inventory for LUCF in the UK	01/06/2010	31/05/2011	£200	£86,165
ADAS *NEW*	NATMAP vector, NATMAP 1000 with Fundamentals and Series as the supporting tables.	Assessing the impact of minor PPP usage. Defra funded project - code PS2238. Sponsoring officer: Julie Howarth - HSE.	01/06/2010	31/05/2011	£200	£128,215
University of East Anglia *NEW*	NATMAP vector Wensum catchment. Large multi-user licence.	Defra project ref: WQQ212 - River Wensum Demonstration Test Catchment Research project working with Cranfield - I.	12/07/2010	31/03/2014	£375	£397

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Data Lease funded by DEFRA via the LandIS fund						
		Holman, The Environment Agency,Entec UK Ltd - P. Davison.				
				TOTAL (Defra)	£13,450	£1,965,971

NEW DATA LEASES FROM JULY 2010 – SEPTEMBER 2010

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Bona Fide Research						
Environment Agency	Phosphorus data from NSI for England and Wales to correlate with P concentrations in rivers.	DEFRA project (ECSFDI).	01/04/2010	31/03/2013	£200	£24,864
University of Durham	NATMAP vector with NATMAP legend and NATMAP assoc. NATMAP 1000, SOILSERIES Info, pesticides, hydrology, agronomy, HORIZON fundamentals, hydraulics, NSI site profile, topsoil83, topsoil 95, textures features.	DEFRA project WQ0210: Establishment of a Demonstration Test Catchment on the Eden. Large multi-user licence.	06/04/2010	05/04/2014	£375	£64,372
University of Exeter	NATMAP vector + detailed 1:25,000 scale soil map of The Lizard Cormwall	2 research projects - NERC & ESF Funded Single user licence.	17/05/2010	16/05/2011	£375	£3,000
University of York	SOILSERIESinfo NSIsite NSIfeatures NSIprofile NSItopsoil NSItextures	For use in a programme of work involving PhD and masters students investigating the risks of soil contaminants to wildlife.	13/09/2010	12/09/2015	£375	£33,918
University of Reading	NATMAPvector for England and Wales Examining NVC Community Type Change with climate change. Consortium Licence with Pete Smith (Aberdeen)	For use on Defra Priority Habitats, Protected Sites and Climate Change: DEFRA CR0439	01/10/2010	01/10/2011	£975	£75,000
University of Aberdeen	NATMAPvector for England and Wales Examining NVC Community Type Change with climate change. Consortium Licence with Geoff Griffiths (Reading)	For use on Defra Priority Habitats, Protected Sites and Climate Change: DEFRA CR0439	01/10/2010	01/10/2011	£0	£0

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
University of Lancaster	NSI topsoil data, (including that modified by Pat Bellamy), Ecosse Soil Carbon Dataset. Also outline of England and Wales.	Soil carbon management in UK - PhD research by D. Dennis Konadu	01/10/2010	01/10/2013	£375	£12,432
				TOTAL (Crown and Bona fide Research)	**£2,675**	**£213,586**

https://dspace.org/

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2010-10-14T00:00:00Z

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