Irish Soil Information System Data Services API

The core data from the Irish Soil Information System project is made available via a number of web services at http://soils.teagasc.ie as JSON data structures. These can be consumed in other web applications, or combined with other data. This document provides a summary of the contents of these services. In effect, making a qualified call to these services returns data in array form. The calls are implemented as web services, written in PHP, allowing the calls to be integrated in web apps.

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Full list of soil associations

`…/services/get_all_associations.php`

Example of data structure returned

[{"Association_Unit":"0300a","Association_Symbol":"300a","Association_Name":"Seafield","Red_Value":"255","Green_Value":"255","Blue_Value":"190"},{"Association_Unit":"0360a","Association_Symbol":"360a","Association_Name":"Burren","Red_Value":"255","Green_Value":"255","Blue_Value":"0"}, …]

Field	Description
Association_Unit	National soil series association formal code
Association_Symbol	National soil series association identifier code in cartographic display format
Association_Name	Textual name for the national soil series association
Red_Value	Red colour of RGB triplet, representing soil series colour
Green_Value	Green colour of RGB triplet, representing soil series colour
Blue_Value	Blue colour of RGB triplet, representing soil series colour

Full list of soil series

…/services//get_all_series.php

Example of data structure returned

[{"National_Series_Id":"0110AE","National_Series":"Allen","Red_Value":"112","Green_Value":"107", "Blue_Value":"102","Live":"LIVE"}, …]

Field	Description
National_Series_Id	National soil series identifier code
National_Series	National soil series textual name
Red_Value	Red colour of RGB triplet, representing soil series colour
Green_Value	Green colour of RGB triplet, representing soil series colour
Blue_Value	Blue colour of RGB triplet, representing soil series colour
Live	Whether soil type is in use in modern soil map (LIVE), or is a name from an older legacy soil map (DEAD)

Individual soil association - full details

…/services/get_associations.php?assoc_id=<association id>

Example call (note, use 'Association_Unit' as identifier)

…/services/get_associations.php?assoc_id=0600a

Example of data structure returned

{"Association_Unit":"0300a","Association_Symbol":"300a","Association_Name":"Seafield","Texture_Substrate_Type":"Sandy stoneless drift","SeriesArray":[{"Rank":1,"National_Series_Id":"0300SE","National_Series":"Seafield","Modern_Definition":"Sandy stoneless drift","Texture":"Sandy","Substrate_Type":"stoneless drift","Substrate_1":"drift","Substrate_2":"stoneless","Subgroup_Name":"Typical Rendzinas","GreatGroup_Name":"Rendzina","PhotoArray":[]},{"Rank":2,"National_Series_Id":"0900SN","National_Series":"Screen","Modern_Definition":"Sandy stoneless drift","Texture":"Sandy","Substrate_Type":"stoneless drift","Substrate_1":"drift","Substrate_2":"stoneless","Subgroup_Name":"Typical Brown Podzolics","GreatGroup_Name":"Brown Podzolic","PhotoArray":[]},{"Rank":3,"National_Series_Id":"0660BK","National_Series":"Ballyknockan","Modern_Definition":"Sandy stoneless drift","Texture":"Sandy","Substrate_Type":"stoneless drift","Substrate_1":"drift","Substrate_2":"stoneless","Subgroup_Name":"Humic Groundwater Gleys","GreatGroup_Name":"Groundwater Gley","PhotoArray":[]},{"Rank":4,"National_Series_Id":"0860GB","National_Series":"Glenbough Variant","Modern_Definition":"Sandy stoneless drift","Texture":"Sandy","Substrate_Type":"stoneless drift","Substrate_1":"drift","Substrate_2":"stoneless","Subgroup_Name":"HumoFerric Podzols","GreatGroup_Name":"Podzol","PhotoArray":["RPG54OS01_P1100121.JPG","RPG54OS01_P1100123.JPG"]}],"Red_Value":"255","Green_Value":"255","Blue_Value":"190"}

Field	Description
Association_Unit	National soil series association identifier formal code
Association_Symbol	National soil series association identifier code in cartographic display format
Association_Name	Textual name for the national soil series association
Texture_Substrate_Type	Texture of soil substrate type
SeriesArray	An embedded array of all the national soil series (soil types) that can occur within this association.

Rank	Order of associated soil series.
National_Series_Id	National soil series identifier code

National_Series	National soil series textual name
Modern_Definition	Textual description of the soil series definition
Texture	Soil texture class
Substrate_Type	Soil substrate type in full
Substrate_1	First element of soil substrate type
Substrate_2	Second element of soil substrate type
Subgroup_Name	Name of soil subgroup (taxonomic unit)
GreatGroup_Name	Name of soil great group (taxonomic unit)
PhotoArray	An embedded array of all the photograph names that are linked with this soil series.

<photo filename array>	Filename of

Red_Value	Red colour of RGB triplet, representing soil association colour
Green_Value	Green colour of RGB triplet, representing soil association colour
Blue_Value	Blue colour of RGB triplet, representing soil association colour

Individual soil series - full details

…/services/get_series.php?series_id=<series id>

Example call (note, use 'National_Series_Id' as identifier)

…/services/get_series.php?series_id=0300BD

Example of data structure returned

{"National_Series_Id":"0300BD","National_Series":"Ballydeloughy","Modern_Definition":"Loamy over limestone bedrock","Texture":"Loamy","Substrate_Type":"over limestone bedrock","Substrate_1":"bedrock","Substrate_2":"limestone","Subgroup_Name":"Typical Rendzinas","GreatGroup_Name":"Rendzina","Red_Value":"254","Green_Value":"244","Blue_Value":"0","PhotoArray":["RPR70BR01_P1100239.JPG","RPR70BR01_P1100243.JPG"],"Live":"LIVE","Modern_Correlative_Code":"0300BD","Modern_Correlative_Name":"Ballydeloughy","RepProfileCount":1}

Field	Description
National_Series_Id	National soil series identifier code
National_Series	National soil series textual name
Modern_Definition	Textual description of the soil series definition
Texture	Soil texture class
Substrate_Type	Soil substrate type in full
Substrate_1	First element of soil substrate type
Substrate_2	Second element of soil substrate type
Subgroup_Name	Name of soil subgroup (taxonomic unit)
GreatGroup_Name	Name of soil great group (taxonomic unit)
Red_Value	Red colour of RGB triplet, representing soil series colour
Green_Value	Green colour of RGB triplet, representing soil series colour
Blue_Value	Blue colour of RGB triplet, representing soil series colour
PhotoArray	An embedded array of all the photograph names that are linked with this soil series.
<photo filename array>	Filename of
Live	Whether soil type is in use in modern soil map (LIVE), or is a name from an older legacy soil map (DEAD)
Modern_Correlative_Code	Modern series code – used where an older legacy soil series name has been superceded by

	a new soil series.
RepProfileCount	The number (Integer) of soil representative profiles linked to this soil series.

Full soil series details plus representative site and horizon information

…/services/get_series_full.php?series_code=<series_id>

Example call (note, use 'National_Series_Id' as identifier)

…/services/get_series_full.php?series_code=0300BD

Example of data structure returned

{"ReferenceNum":"RPR70BR01","County":null,"Elevation":null,"SubGroup":300,"SubGroupName":"Typical Rendzinas","SeriesCode":"0300BD","SeriesName":"Ballydeloughy","Definition":"Loamy over limestone bedrock","WRB":"Rendzic Epileptic Phaeozem (Calcaric)","Texture1":"Coarse loamy","Texture2":null,"SlopeDegree":0,"SlopeDegreeDesc":null,"SlopePosition":"Crest","SlopeForm":"Complex","SlopeAspect":"None","Landuse":"Grassland unimproved","HumanTechnologies":"Clearing","Weather":"Overcast","SubstrateType":"Bedrock","SubstrateSubgroup":"Limestone","RockOutCrops":"V 0-2 %","RockOutCropsText":"Very few","RockOutCropsPercent":"0-2 %","SurfaceStone":"F 2-5 %","SurfaceStoneText":"Few","SurfaceStonePercent":"2-5 %","Red_Value":"254","Green_Value":"244","Blue_Value":"0","Horizons":[{"Depth":0,"DepthTo":20,"HorizonNum":1,"Matrix":"75YR33","Mottle_1":"None","MottleAbundanceText1":null,"MottleAbundancePercent1":null,"MottleAbundance1":null,"MottleSharpnessText1":null,"MottleSharpnessPercent1":null,"MottleSharpness1":null,"MottleSizeText1":null,"MottleSizePercent1":null,"MottleSize1":null,"MottleContrast1":null,"Mottle2":null,"MottleAbundanceText2":null,"MottleAbundancePercent2":null,"MottleAbundance2":null,"MottleSharpnessText2":null,"MottleSharpnessPercent2":null,"MottleSharpness2":null,"MottleSizeText2":null,"MottleSizePercent2":null,"MottleSize2":null,"MottleContrast2":null,"StoneAbundance_Text":"Common","StoneAbundance_Percent":"5-15 %","StoneAbundance":"C 5-15 %","StoneSize_Text":"2-6 mm","StoneSize_Description":"Fine gravels","StoneSize":"F 2-6 mm","StoneShape_Text":"Sub angular","StoneType_Text":"Sandstone","Humose":1,"Roots":1,"RootSize_Description":"Fine","RootSize_Text":"0.5-2 mm","RootSize":"F 0.5-2 mm","RootAbundance_Text":"Many","RootAbundance_NumPer100":"> 200","RootAbundance":"M > 200","CaCO3_Percent":"0-2%","CaCO3_Text":"Audible but not visible","Texture":"Coarse loamy","Plasticity_Text":"Non-plastic","Plasticity_Description":"No wire is formable","Stickiness_Text":"Non-sticky","Stickiness_Description":"No soil material adheres to thumb and finger after release of pressure","StructureGrade_Text":"Moderate","StructureType_Text":"Sub-angular blocky","StructureStrength_Text":null,"StructureStrength_Description":null,"StructureSize_Text":"Fine to medium","StructureSize_Percent":"5-20mm","StructureSize":"FM 5-20mm","BoundaryDistinct_Text":"Clear","BoundaryDistinct_Percent":"2-5 cm","BoundaryDistinct":"C 2-5 cm","BoundaryShape_Text":"Smooth","BoundaryShape_Description":"Nearly plane surface","PackingDensity_Text":"Medium","PackingDensity_Percent":"1.40 - 1.60 t m-3","PackingDensity":"M 1.40 - 1.60 t m-3","Total_Carbon":4.9699997901917,"OrganicCarbon":4.3800001144409,"LossOnIgnition":null,"Tot

al_Nitrogen":0.5120000243187,"pH_H2O":6.3000001907349,"CEC":19.081409454346,"Exchangeable_Na":0.082000002264977,"Exchangeable_K":0.3858670592308,"Exchangeable_Mg":0.8916506767729,"Exchangeable_Ca":19.610746383667,"BaseSaturation":100,"Sand":51,"Silt":25,"Clay":24,"TextureClass":"Sandy Clay Loam"}, …]}

Field	Description
ReferenceNum	National soil series representative profile code (unique code for profile)
County	County in which profile was observed
Elevation	General altitude of profile location
SubGroup	Code for the soil subgroup (taxonomic unit)
SubGroupName	Name of soil subgroup (taxonomic unit)
SeriesCode	National soil series identifier code
SeriesName	National soil series textual name
Definition	Description of soils at the profile site
WRB	Expression of profile soil in FAO World Reference Base (Qualified where possible)
Texture1	First soil texture class
Texture2	Second soil texture class
SlopeDegree	General slope of the land at the profile site (%)
SlopeDegreeDesc	Description of general slope of the land at the profile site
SlopePosition	General description of the profile site in the landscape as a slope position
SlopeForm	General description of the profile site in the landscape as a slope form
SlopeAspect	General description of the profile site in the landscape as a slope aspect
Landuse	Prevailing landuse at the profile site
HumanTechnologies	General human technologies evident at the profile site
Weather	Prevailing weather at the profile site at time of observation (weather can affect some of the field observations)
SubstrateType	Type of the soil substrate type
SubstrateSubgroup	Subgroup of the soil substrate
RockOutCrops	Codified occurrence of rock outcrops
RockOutCropsText	Textual description of occurrence of rock outcrops
RockOutCropsPercent	Proportion of rock outcrops as a percent
SurfaceStone	Codified occurrence of surface stones
SurfaceStoneText	Textual description of occurrence of surface stones
SurfaceStonePercent	Proportion of surface stones as a percent
Red_Value	Green colour of RGB triplet, representing soil

	series colour
Green_Value	Blue colour of RGB triplet, representing soil series colour
Blue_Value	An embedded array of all the photograph names that are linked with this soil series.
Horizons	An embedded array of all the soil horizon data for the profile site

Depth	Upper depth (cm) of soil horizon described
DepthTo	Lower depth (cm) of soil horizon described
HorizonNum	Numerical (Integer) number of horizon (topmost being '1')
Matrix	Munsell colour code of matrix
Mottle_1	Munsell colour code of first mottle
MottleAbundanceText1	Textual description of abundance of first mottling
MottleAbundancePercent1	Proportion of abundance of first mottling (%)
MottleAbundance1	Codified abundance of first mottling
MottleSharpnessText1	Textual description of sharpness of first mottling
MottleSharpnessPercent1	Proportion of sharpness of first mottling (%)
MottleSharpness1	Codified sharpness of first mottling
MottleSizeText1	Textual description of size of first mottling
MottleSizePercent1	Proportion of size of first mottling (%)
MottleSize1	Codified size of first mottling
MottleContrast1	Codified contrast of first mottling
Mottle2	Munsell colour code of second mottle
MottleAbundanceText2	Textual description of abundance of second mottling
MottleAbundancePercent2	Proportion of abundance of second mottling (%)
MottleAbundance2	Codified abundance of second mottling
MottleSharpnessText2	Textual description of sharpness of second mottling
MottleSharpnessPercent2	Proportion of sharpness of second mottling (%)
MottleSharpness2	Codified sharpness of second mottling
MottleSizeText2	Textual description of size of second mottling
MottleSizePercent2	Proportion of size of second mottling (%)
MottleSize2	Codified size of second mottling
MottleContrast2	Codified contrast of second mottling
StoneAbundance_Text	Textual description of abundance of stones
StoneAbundance_Percent	Proportion of abundance of stones (%)
StoneAbundance	Codified abundance of stones
StoneSize_Text	Textual description of size of stones
StoneSize_Description	Proportion of size of stones (%)
StoneSize	Codified size of stones
StoneShape_Text	Textual description of shape of stones
StoneType_Text	Textual description of type of stones
Humose	Statement of humose nature of horizon (1=yes;

	0=no)
Roots	Statement of presence of roots at horizon (1=yes; 0=no)
RootSize_Description	Textual description of root size at horizon
RootSize_Text	Codified description of root size at horizon
RootSize	Codified description of root size at horizon
RootAbundance_Text	Textual description of root abundance at horizon
RootAbundance_NumPer100	Codified description of root abundance at horizon
RootAbundance	Codified description of root abundance at horizon
CaCO3_Percent	Proportion of carbonates at horizon (%)
CaCO3_Text	Textual description of carbonates at horizon
Texture	Textual description of texture at horizon
Plasticity_Text	Codified description of soil plasticity at horizon
Plasticity_Description	Textual description of soil plasticity at horizon
Stickiness_Text	Codified description of soil stickiness at horizon
Stickiness_Description	Textual description of soil stickiness at horizon
StructureGrade_Text	Codified description of soil structure grade at horizon
StructureType_Text	Textual description of soil structure grade at horizon
StructureStrength_Text	Codified description of soil structure strength at horizon
StructureStrength_Description	Textual description of soil structure strength at horizon
StructureSize_Text	Codified description of soil structure size at horizon
StructureSize_Percent	Proportion of soil structure sizes at horizon
StructureSize	Textual description of soil structure sizes at horizon
BoundaryDistinct_Text	Codified description of soil horizon boundary distinctness
BoundaryDistinct_Percent	Proportion of soil horizon boundary distinctness
BoundaryDistinct	Textual description of soil horizon boundary distinctness
BoundaryShape_Text	Codified description of soil horizon boundary shape
BoundaryShape_Description	Proportion of soil horizon boundary shape
PackingDensity_Text	Textual description of soil packing density
PackingDensity_Percent	Codified description of soil packing density
PackingDensity	Full textual description of soil packing density
Total_Carbon	Total carbon in soil horizon
OrganicCarbon	Fraction of organic carbon in soil horizon
LossOnIgnition	Loss on Ignition for horizon sample
Total_Nitrogen	Total Nitrogen for horizon sample
pH_H2O	Ph (in water) for horizon sample
CEC	Cation Exchange Capacity for horizon sample

Exchangeable_Na	Exchangeable Sodium for horizon sample
Exchangeable_K	Exchangeable Potassium for horizon sample
Exchangeable_Mg	Exchangeable Magnesium for horizon sample
Exchangeable_Ca	Exchangeable Calcium for horizon sample
BaseSaturation	Base saturation for horizon sample
Sand	Sand textural proportion for horizon sample
Silt	Silt textural proportion for horizon sample
Clay	Clay textural proportion for horizon sample
TextureClass	Texture class description for horizon