



INSPIRE a digital Europe: Thinking out of the box *Sustainable management of natural resources and natural capital*

Mayenne's soil cartography within everyone's reach with geomayenne.fr !

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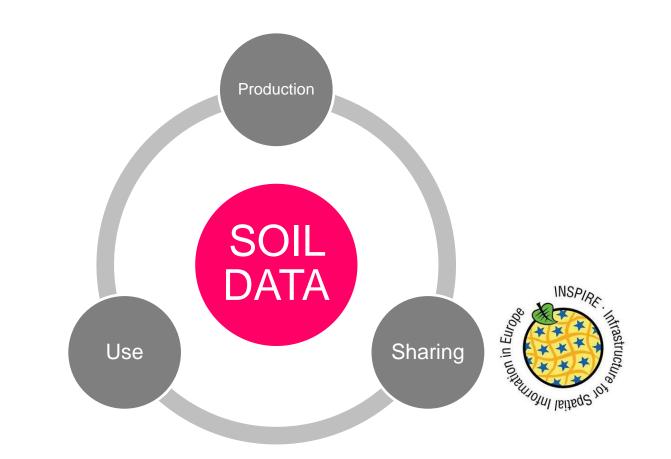
Departmental Council of Mayenne - France



Strasbourg - Wednesday, September 6, 2017



The effects of the INSPIRE Directive on the use of soil data in the department of Mayenne



Introduction 1. Background

2. Soil data sharing

3. Use of soil data Conclusion

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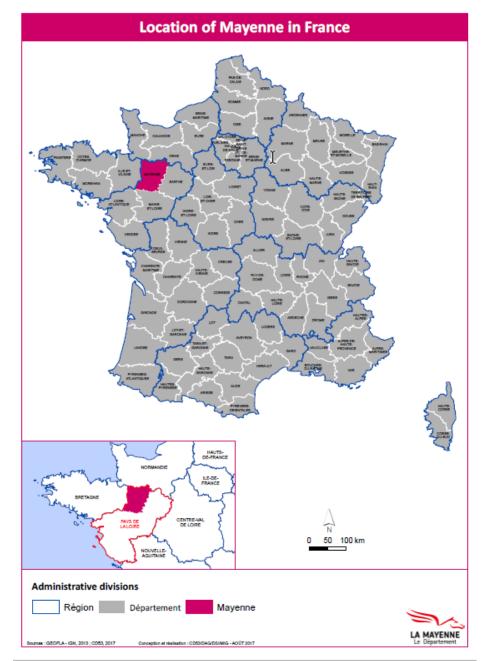
- 1. Background
- Soil data sharing
 Use of soil data
 Conclusion

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1. Background



Mayenne: a department in northwestern France and part of the region of Pays de la Loire



1. Background

Mayenne: a rural territory, with 76% of land used for agriculture

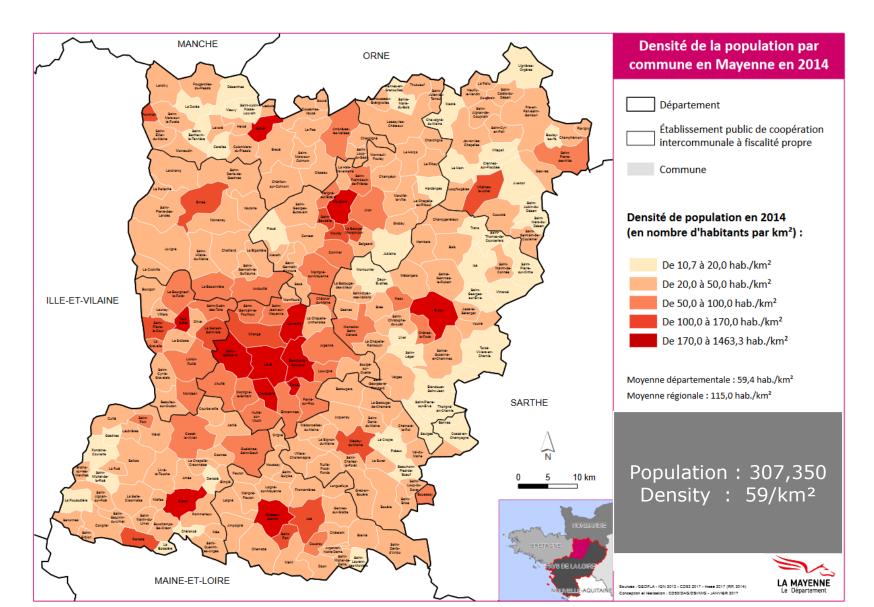


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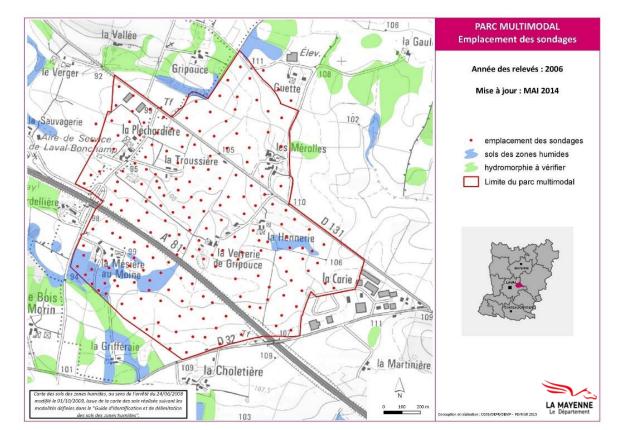
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1. Background

Soils : a key factor for both agriculture and environmental management

An ambitious soil survey program at 1:10,000 scale for all the communes of Mayenne !

- 1980 : launch of the soil mapping program by the Departmental Council of Mayenne
- 1987 : digitization of maps
- 2016 : full coverage achieved for all the communes of Mayenne (261 maps)



Intensive field observations : 1/ha

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1. Background

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Example of a soil map



PARC LOGISTIQUE MULTIMODAL LAVAL-MAYENNE

Carte des sols

LÉGENDE

Quatre symboles rendent compte du cortenu des unités de sols

d'horizons

r ranker

b : sol brun

a : sol peu différencié

c : sol brun calcique

I : sol brun lessivé

I'hydromorphie

0 : sain

4

250

Échelle : 1/10 000

f : sol brun faiblement lessivé

2 : taches au-delà de 50 cm 3 : nombreuses taches au-delà de 30 cm

Critères complémentaires

x : cailloux de quartz abondants

p : galets de quartz

y : cailloux de rhyolite

3) Une lettre minuscule pour la succession

4) Un chiffre pour la profondeur d'apparition de

1 : quelques taches au-delà de 70 cm

quelques taches dès la surface

6 : matrice de l'horizon de surface réduite

5 : nombreuses taches dès la surface

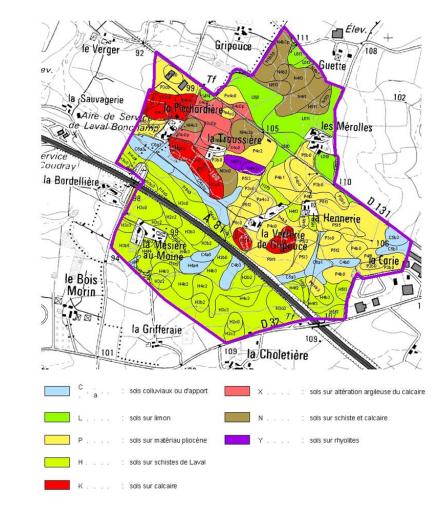
1) Une lettre majuscule pour la roche-mère	
C : Colluvions	

L : Limon

- P : Pliocène
- Pa: pliocène argileux Ps: pliocène sableux
- Pg: pliocène graveleux
- H : Schistes de Laval
- K : Calcaire
- X : Altération argileuse du calcaire
- N : Schiste et calcaire NI : altération argileuse
- Y : Rhyolite

2) Un chiffre pour la profondeur d'apparition de l'horizon d'altération

- 0 : affleurements
- 1 : horizon C apparaissant à moins de 20 cm
- 2 : horizon C apparaissant entre 20 et 40 cm 3 : horizon C apparaissant entre 40 et 60 cm
- a : norizon C apparaissant entre 40 et 60 cm
 4 : horizon C apparaissant entre 60 et 90 cm
- 5 : horizon C apparaissant entre 90 et 120 cm
- 6 : horizon C apparaissant à plus de 120 cm



Sources : IGN © - SCAN 2006 - CG53 2014 Direction de l'environnement et de la prévention des risques Direction eau, milieux et paysages - FEVRIER 2014



Conclusion

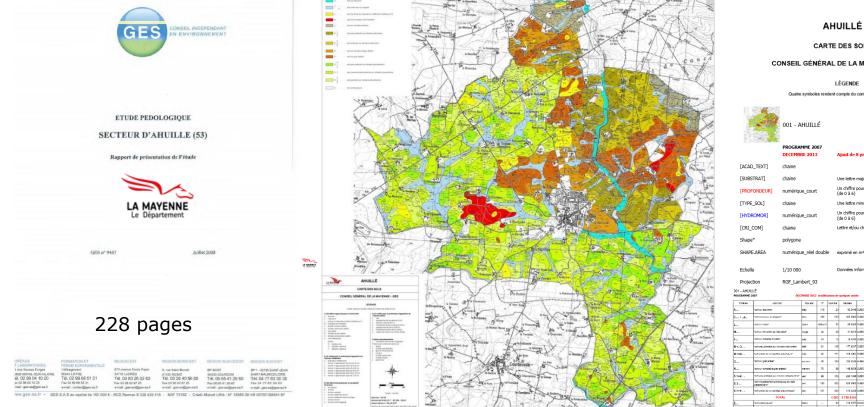
1. Background

Soil data sharing
 Use of soil data

2. Soil data sharing

From paper...

Printed documents (i.e. maps and reports) led to significant workload and costs





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2. Soil data sharing

... to digital files on geomay enne.fr

https://www.geomayenne.fr/portail/

All documents available online to all stakeholders (private, state agencies, communes, consultants, etc.) since 2015



Maps and reports in the map library

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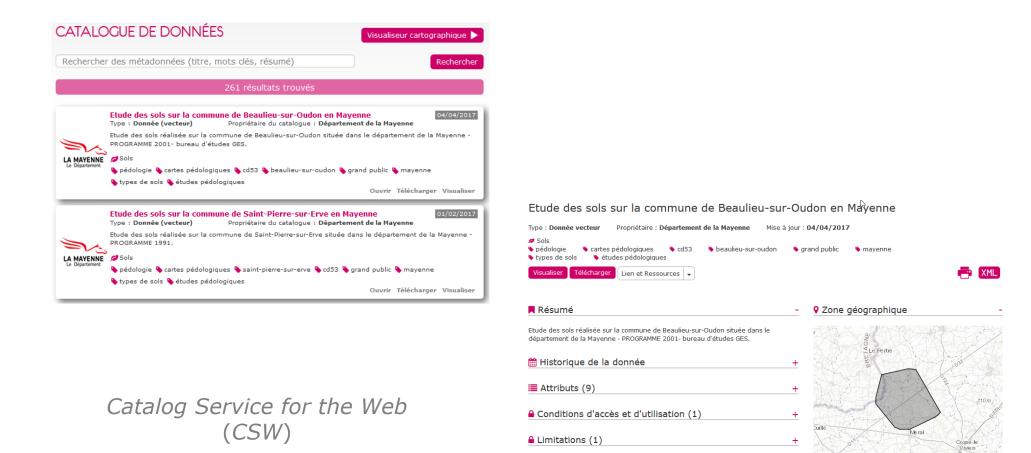
Spatial database of soil properties registered in the catalogue



2. Soil data sharing

... in accordance with the INSPIRE Directive

Discovery Services



Informations techniques

🥊 Qualité (1)

Contacts (1)

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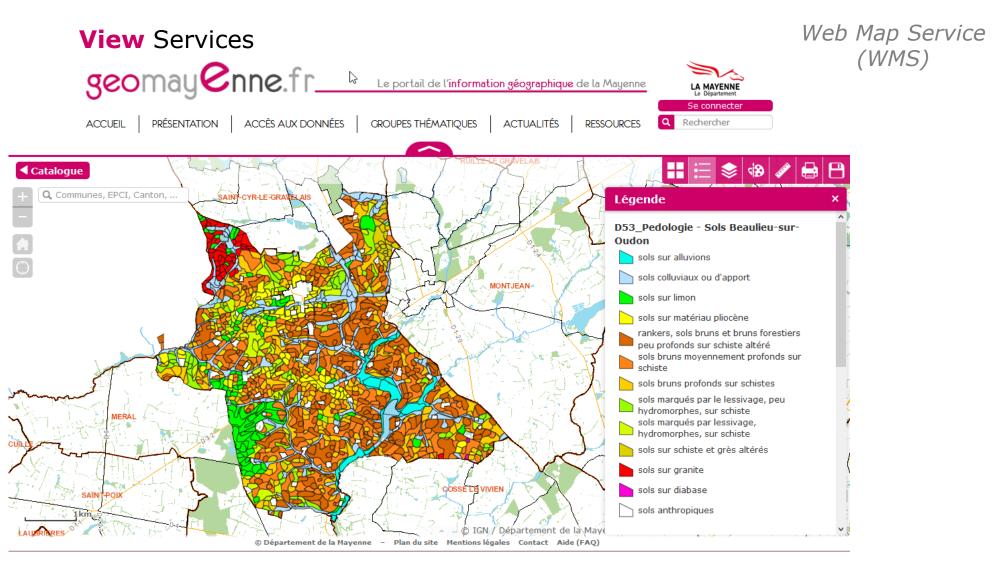


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2. Soil data sharing

... in accordance with the INSPIRE Directive







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1. Background

2. Soil data sharing

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Conclusion

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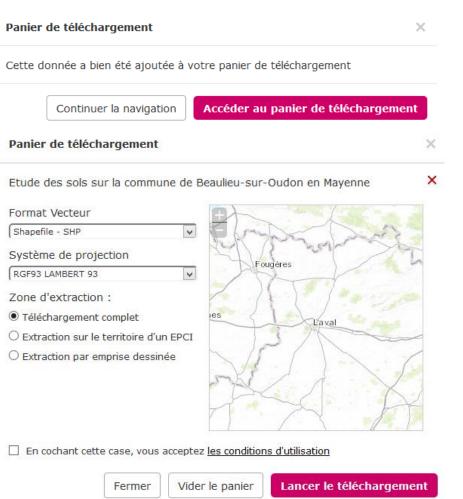
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2. Soil data sharing

... in accordance with the INSPIRE Directive

Download Services



Web Feature Service (WFS)



1. Background

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3. Use of soil data (1)

Increasing the use of soil data

Over time, the use of soil data has been diversified and intensified due to the strengthening of French environmental regulation.

<u>geomayenne.fr</u> enhances a better knowledge of Mayenne's soils properties to address the increasing environmental issues :

- drainage
- irrigation
- fertilization
- water quality
- application of organic effluents
- species choice for reforestation
- wetlands
- urban planning
- land development...



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3. Use of soil data (2)

For agriculture

Useful information for:

- The settlement of young farmers (e.g.: control of soil performance and potential, redrawing of plots, facilitating crop management sequence...)
- The control of agricultural practices and fertilization (e.g.: knowledge of ability to store nutrients, water-holding capacity, depth, etc.)

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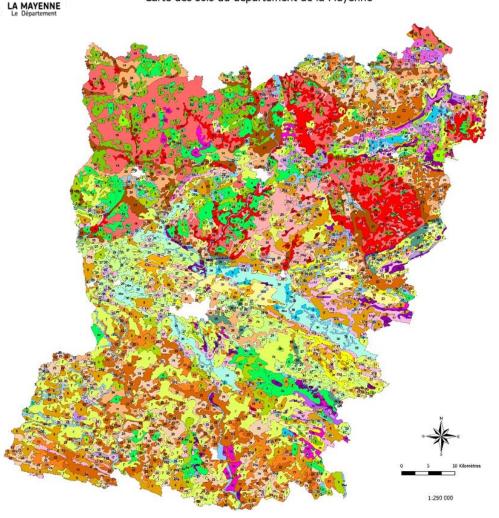
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Consell général de la Mayenne Direction de l'environnement et de la santé publique Direction eau, milieux et paysages

Simplified soil map of Mayenne

Carte des sols du département de la Mayenne



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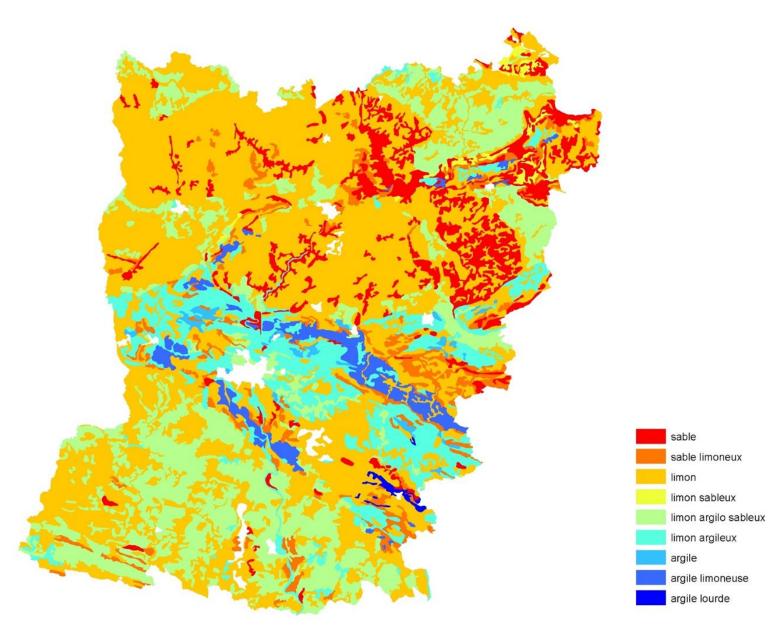


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Soil texture



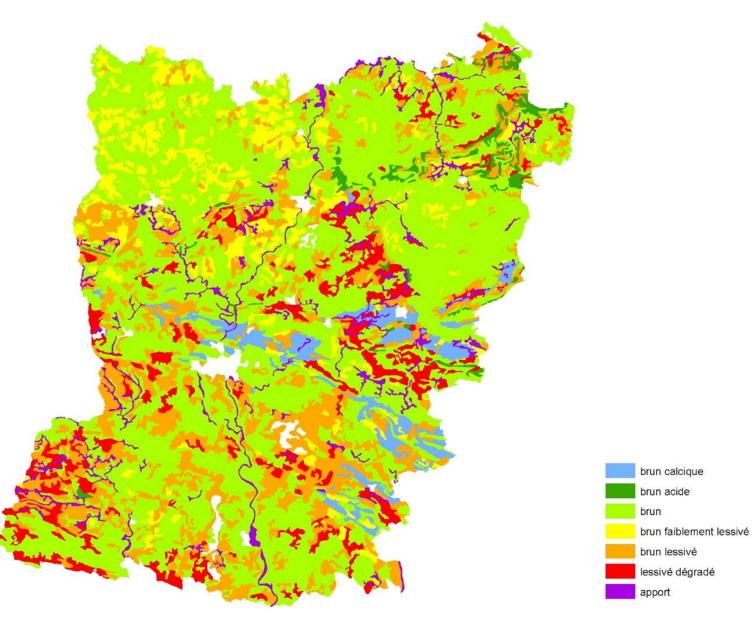


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Soil types



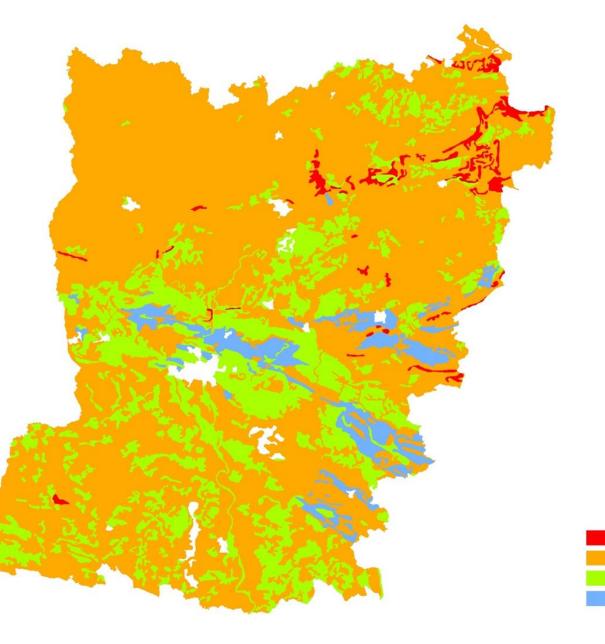


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Soil pH



inférieur à 5

compris entre 5 et 6

compris entre 6 et 7 supérieur à 7

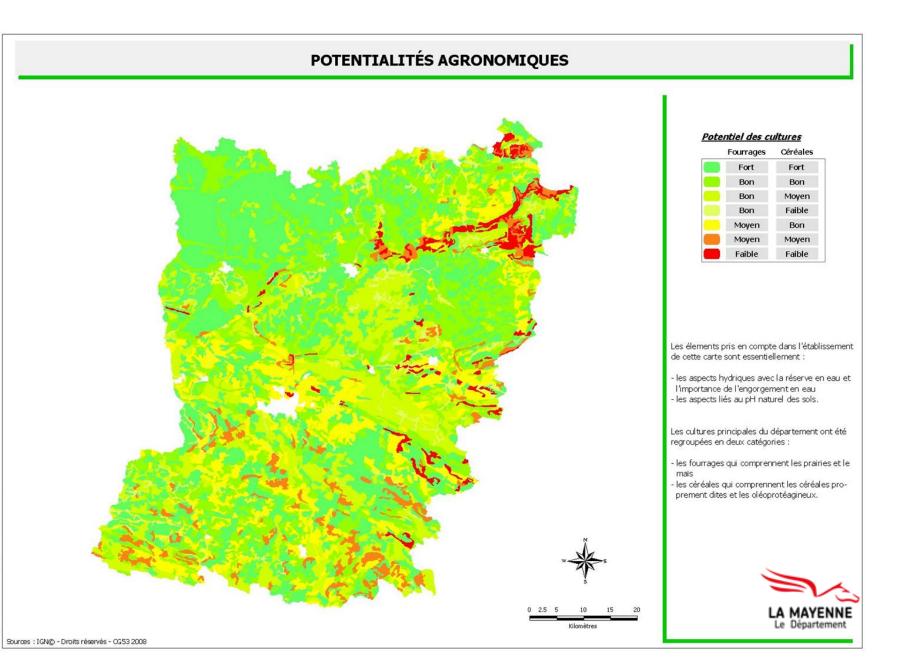


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Agricultural potential





1. Background

Soil data sharing
 Use of soil data

Conclusion

3. Use of soil data (3)

For the management of effluent application

Useful information for:

- Meeting regulatory requirements for effluent application in agriculture
- Protecting water resources from pollutant transfer

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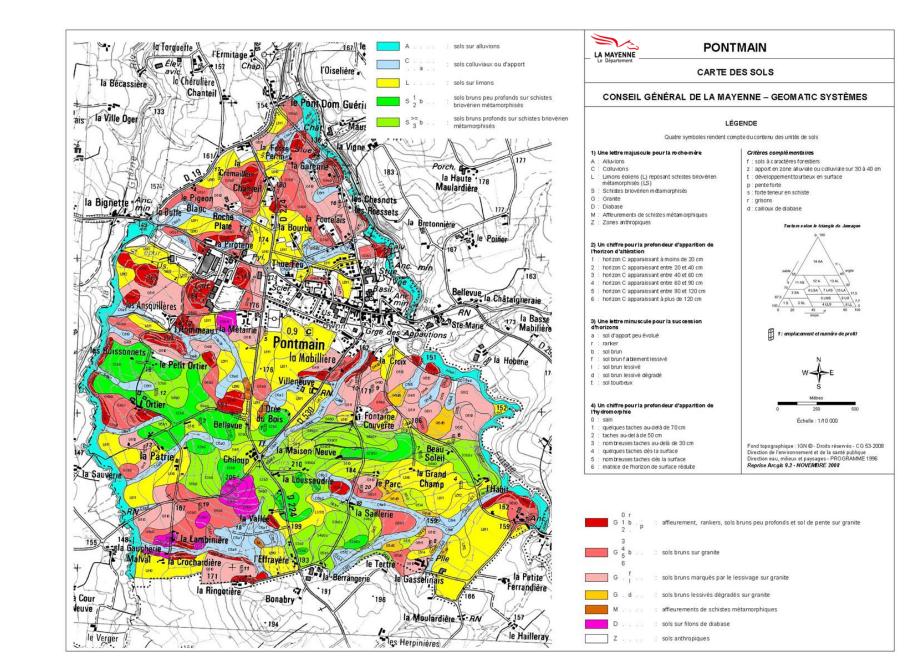


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Soil map





1. Background

2. Soil data sharing

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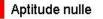
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Effluent management

PONTMAIN Aptitude des sols à l'épandage d'effluents

Seul le critère sol est utilisé pour l'établissement de cette carte. Les aspects règlementaires (R.S.D., I.C., Directive nitrate, etc...) doivent être pris en compte pour connaître les possibilités réelles d'épandage.



Le Département

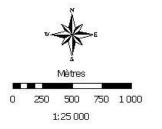
Aptitude médiocre

Épandage possible en période de déficit hydrique et en automne sur prairie après drainage

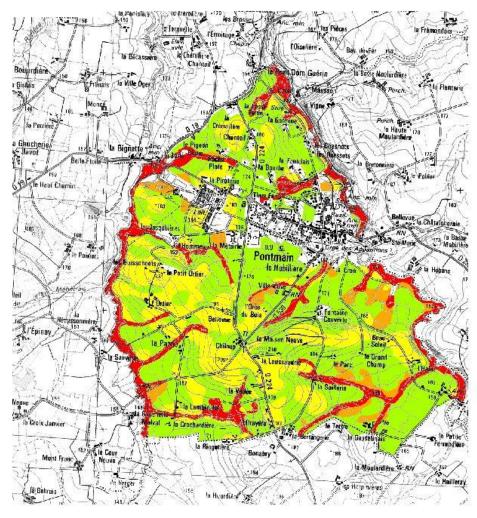
Aptitude moyenne Épandage possible sur prairie et en

période de déficit hydrique sur culture

Bonne aptitude



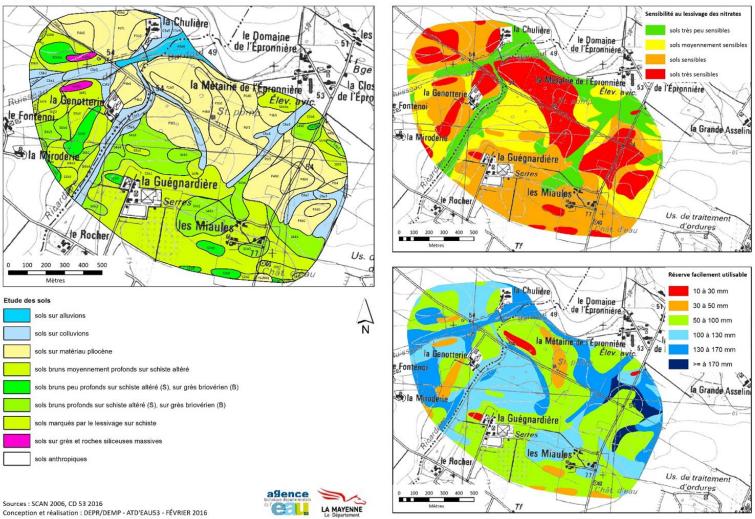
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Drinking water source area

Captage de l'Épronnière - SIAEP de LIVRÉ-LA-TOUCHE



Sensitivity to nitrate leaching

Readily available water capacity

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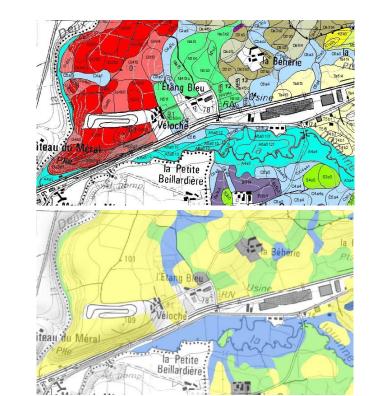


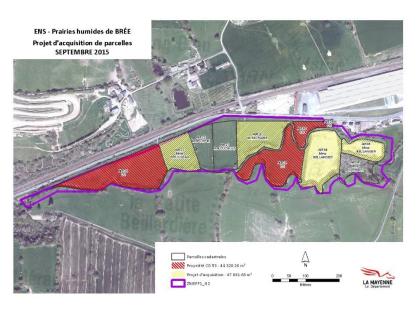
3. Use of soil data (4)

For land development

Useful information for:

- Choosing reference parcels for land classification (e.g.: high-speed rail project, road construction,...)
- Locating and adapting compensatory measures.







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3. Use of soil data (5)

For the identification of wetlands areas Useful information for:

- Identification of wetlands within the framework of the French Water Framework Law of 2006
- Zoning in urban planning for the local governments
- Environmental assessment for spatial planning or land management

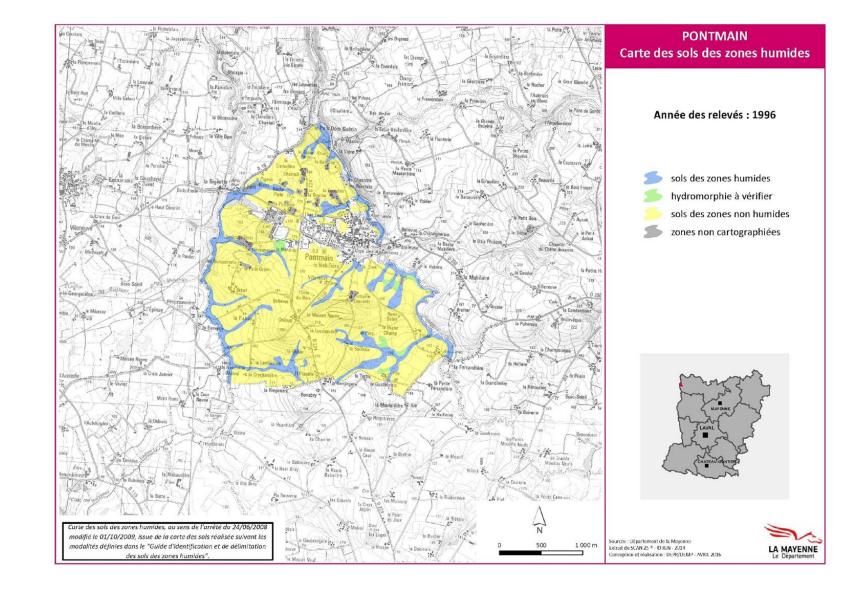


Identifier les zones humides et les prendre en compte dans les documents d'urbanisme

Classification de l'hydromorphie des cartes pédologiques du Conseil Général	Correspondance avec l'arrêté du 24 juin 2008 modifié
0 - pas de traces d'hydromorphie 1 - traces d'hydromorphie peu intense 2 - traces d'hydromorphie d'intensité moyenne 3 - traces d'hydromorphie d'intensité moyenne à forte	Zone non humide
4 - traces d'hydromorphie de forte intensité	Secteur à expertiser
5 - hydromorphie marquée dès la surface mais la réduction n'affecte pas 50% de la matrice 6 - hydromorphie marquée dès la surface et la réduction affecte plus de 50% de la matrice	Zone humide



Wetland soils



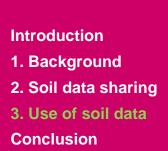
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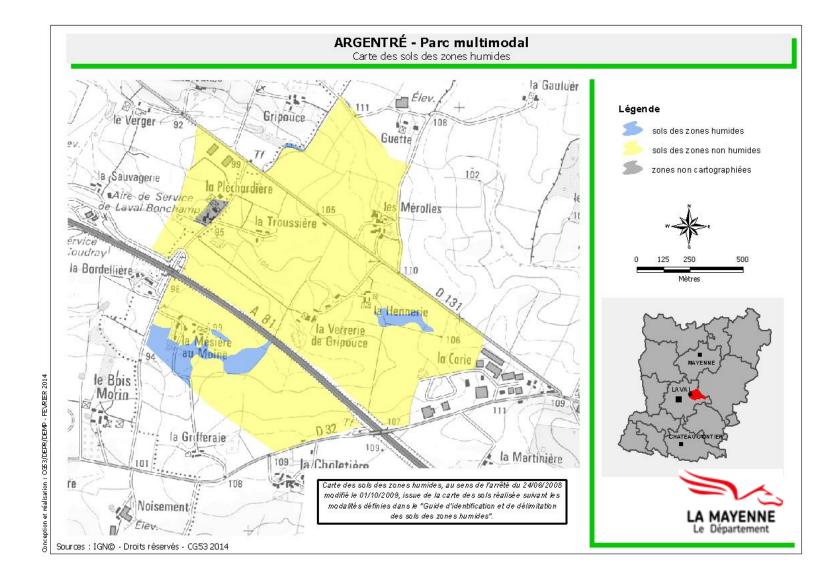


Wetland soils



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1. Background

Soil data sharing
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Conclusion

Soil is an essential element of sustainable development, considering all the services it renders to us:

- food or energy production
- regulation
- storage of water or carbon
- water purification
- reservoir of biodiversity

Soil data also provides important information to address increasing environmental issues.

Soil misuse leads to unavoidable disorders and costs for the coming generations.

Public dissemination of soil data therefore makes sense to promote the **environmental protection** !

However, the use and interpretation of soil data may require technical expertise for complex analysis.



https://www.geomayenne.fr/portail/



Thank you for your attention...

Any question ?

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