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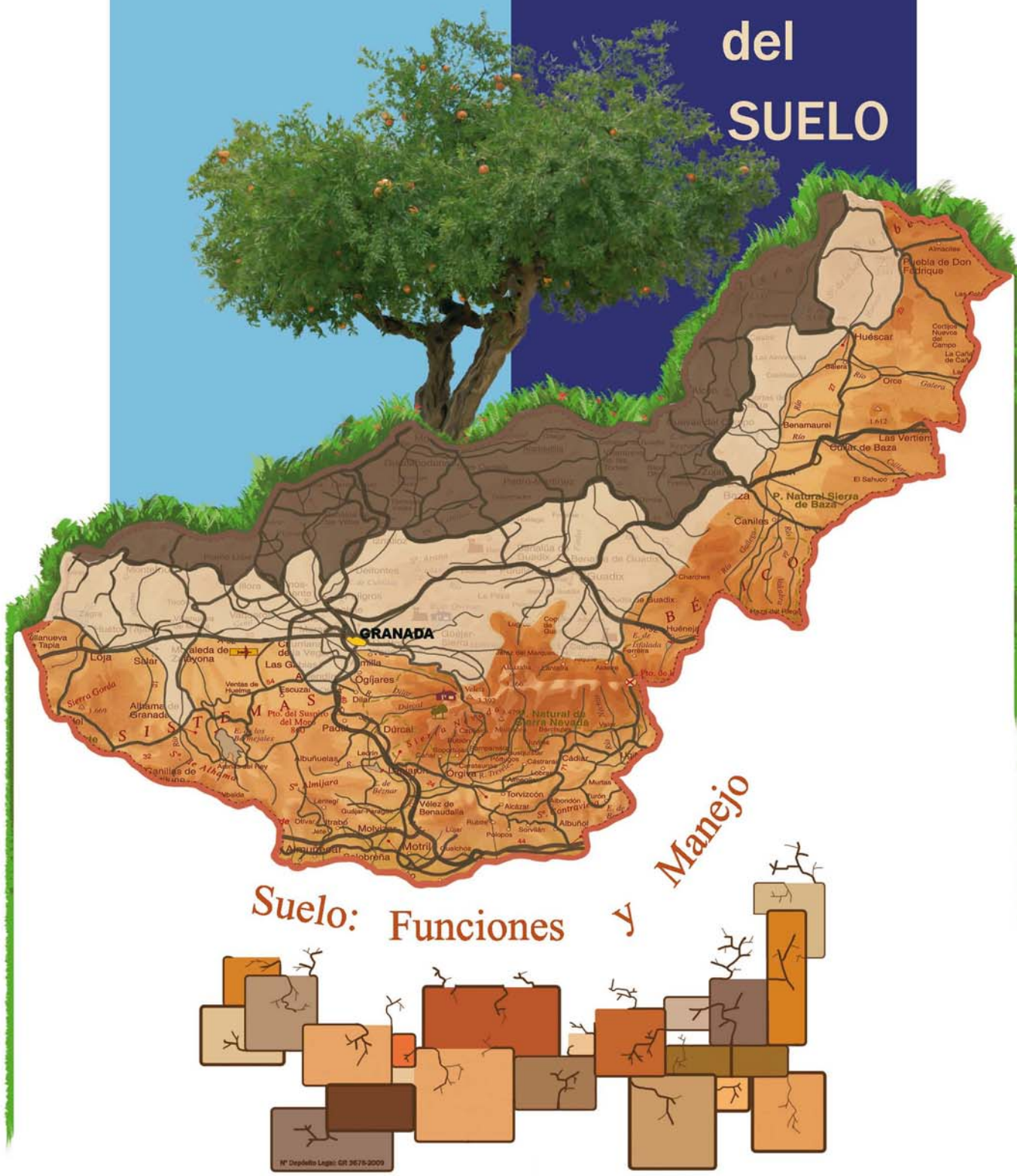
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Realizado por: Luis Villanueva Martínez

**Granada del 21 al 24 de septiembre de 2010**

**LIBRO DE ACTAS**

Editores: Copicentro Granada  
Granada 21 a 24 de septiembre de 2010  
ISBN: 978 84-15026-39-6  
Depósito Legal: Gr-3675-2010  
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## **SPinSMEDE: first presentation of a transnational training experience on soil protection [SPinSMEDE: primeira apresentação de uma experiência transnacional de ensino em protecção do solo]**

FIGUEIREDO, T. DE<sup>1</sup>, DE GRAAFF, J.<sup>2</sup>, EVELPIDOU, N.<sup>3</sup>, MARTÍNEZ-CASASNOVAS, J.A.<sup>4</sup>, MERINO, A.<sup>5</sup>

<sup>1</sup> Instituto Politécnico de Bragança (IPB/ESAB), CIMO – Mountain Research Centre, Campus de Santa Apolónia, 5301-855 Bragança, Portugal, tomasfig@ipb.pt.

<sup>2</sup> Wageningen University, Land Degradation & Development Group, P.O. Box 47, 6700 AA Wageningen, The Netherlands.

<sup>3</sup> Faculty of Geology and Geoenvironment, University of Athens, Panepistimiopolis, 157 84, Athens, Greece.

<sup>4</sup> Department of Environment and Soil Science, University of Lleida, Spain.

<sup>5</sup> Department of Soil Science and Agricultural Chemistry, Unit of Sustainable Forest Management, University of Santiago de Compostela, E- 27002, Lugo, Spain.

### **Abstract**

SPinSMEDE, acronym of Soil Protection in Sloping Mediterranean Agri-Environments, an Erasmus Intensive Programme, funded by the EC Lifelong Learning Programme, was designed and implemented following the policy context of the Thematic Strategy for Soil Protection in Europe. This document announced expectable demand for technical competences to meet increased requirements on the issue, most needed to cope with the specific soil degradation problems of Mediterranean hill-slopes. SPinSMEDE took place during three years (2008-2010), in three different places (Portugal, Greece and Spain), involving students and lecturers from five Universities. The presentation aims at reporting, at a preliminary stage of data exploration, this transnational training experience on soil protection. The design, implementation and evaluation phases are described, outlining the main background elements, methodological approaches and outcomes of each phase. Namely, context-driven justification of the project, a description of the partnership and programme contents are included in the design phase. Programme implementation is addressed in terms of students profile, activities performed, assessment requirements, support material provided, and project deliverables. After describing the programme evaluation procedures developed and applied, the discussion focuses on SPinSMEDE success, drawbacks, and problems arose and ways adopted to cope with them. Final remarks state main lessons learned and and programme follow-up activities envisaged.

### **Key words**

Soil Protection, Erasmus Intensive Programme, Transnational training.

## **1. Introduction**

Soil degradation affects the Mediterranean basin under different forms as salinization, pollution, structural degradation and erosion (CEC 2006). Soil erosion by water is first in rank s far as sloping areas are concerned (Boardman & Poesen 2006). Corresponding to a very large surface of Mediterranean land, these are especially sensitive areas, where soils are a qualitatively scarce resource (Ibanez et al. 1996). They are ground for cropping systems, crops and products traditional of the Mediterranean (vineyards, olives). To a large extent, the long-term cultivated and highly eroded slopes ask for alternative land use models and management options that allow recovery of already much degraded environments (Jones et al. 2005). To cope with threats to soil resource, soil protection initiatives are, therefore, needed.

The thematic strategy for soil protection in Europe clearly transfers the topic from science to policy (CEC 2006). This strategy is expected to become a policy driver tool, encouraging the definition of specifically oriented rationale in view soil protection measures design and implementation. Actually, expertise acquired in the last couple of decades throughout Europe, as part of the European strong research efforts in the topic, shows the high level of specialization necessary to tackle with soil protection issues. The still growing research-borne information should contribute to real world problem solving, and Mediterranean sloping areas are certainly important test-subjects for such challenge. Technical staff specifically qualified to deal with the design and implementation of soil protection measures is required in this context. Competences have to be provided to students / trainees either as an integral part of higher education programmes, or as life-long learning training packages. This is why and what for SPinSMEDE was designed, planned and organized.

SPinSMEDE is the acronym of Soil Protection in Sloping Mediterranean Agri-Environments, an Erasmus Intensive Programme, and part of the European Union Lifelong Learning Programme. SPinSMEDE took place during three years (2008-2010), in three different places (Portugal, Greece and Spain), involving students and lecturers from five European Universities.

## **2. Objectives**

The paper aims at reporting on this transnational training experience on soil protection, in a preliminary attempt to data exploration. It is worthy to further stress that: (i) the provisional nature assumed for this paper stems on SPinSMEDE late formal closure, actually ongoing, which did not allow in-depth data analyzes; (ii) most of the paper content closely follows documents specifically prepared for the proposal and as project deliverables, issued either in SPinSMEDE's webpage or in published or dissemination material.

## **3. The project**

Erasmus Intensive Programmes (IP) are short-term specifically oriented programmes in which a partnership of European Universities is formed to lecture on (a set of) subject(s), involving professors and students from the partnership members, awarding to well-succeeded students a mutually recognize number of ECTS credits.

The project was designed and submitted to the spring 2007 call for Erasmus Intensive Programme proposals opened by the National Agency for Life-Long Learning Programme. The project was the result of three background conditions:

- (i) A top-down initiative by the Rectorate of the Instituto Politécnico de Bragança, within an institutional strategy of internationalization;
- (ii) The, at the time recently established and promising, policy context of the Thematic Strategy for Soil Protection in Europe, that rose expectations on the demand for technical competences to meet increased requirements in the issue, most needed to cope with the specific soil degradation problems of Mediterranean hill-slopes
- (iii) Existing professional relations between researchers from different European Universities developing similar or complementary research topics, all standing on not equally ripened previous positive contacts or work experiences

SPinSMEDE aimed at providing basic tools to assess soil degradation and design soil protection initiatives in Mediterranean sloping areas. This IP was targeted at post-graduate students from life / earth sciences and agricultural / forest / environmental engineering, in view of their capacity in such specific issue, therefore improving their current job market opportunities. SPinSMEDE was built-up as a more than 80h "hands on" programme (60h classes plus 15h tutorials plus a one day excursion), comprising application exercises (computer, field and laboratory work) and field trips. After the two-week lecture period, additional remotely assisted 80h work enabled students to present a written memory. Successful fulfilment of evaluation requirements awarded 6 ECTS.

SPinSMEDE comprised 8 modules, forming its two parts and the opening lectures (Table 1). It is important to stress the input in the programme of socio-economic approaches to and the European policies for soil protection, because it is by far recognized how critical these topics are for the success of soil protection schemes (Hudson 1991, Morgan 2005). Moreover, GIS as working tool is already a must as far as methodological approaches to soil degradation mapping is concerned but, innovatively, the tool is used in soil protection design.

Table 1. Structure, contents and specific aims of SPinSMEDE Erasmus Intensive Programme

Module	Title	Description and aims
<b><u>Overview lectures</u></b> <b>10% time, given by host university invited experts</b>		
Module 1	Overview lectures	providing an overview on Mediterranean geography, climate, geology, soils and vegetation
<b><u>Part I – Background subjects</u></b> <b>40% time, providing concepts and tools on soil protection</b>		
Module 2	Soil degradation	background on soil erosion processes and factors and on methodologies for assessing and mapping soil erosion (using GIS tools)
Module 3	Soil protection measures: technical criteria	background on technical criteria for soil protection measures design and implementation
Module 4	Soil protection implementation: socioeconomic approaches	background on socio-economic design criteria and on European policies for soil and water conservation
<b><u>Part II – Case studies</u></b> <b>50% time, providing opportunities for discussion about examples of soil degradation and soil protection in Mediterranean hill-slopes</b>		
Module 5	Olive groves	discussion and practical exercises on erosion, soil conservation practices and sustainability in olive groves in sloping land
Module 6	Vineyards	Discussion and practical exercises on the new terraces in the Spanish wine regions of Priorat and Pénèdes
Module 7	Forest and soil conservation	presentation, discussion and practical exercises on forest management practices affecting erosion rates and nutrient balance
Module 8	Other case studies	Presentation and discussion on miscellaneous case study agri-environments (winter crops, centre-pivot irrigated areas, shrubs, recently afforested areas)

Students' pre-requisites related either to communication language or to the post-graduation level and target group selected. As all the lectures were given in English, the language of written material provided, students had to meet minimum proficiency requirements to attend SPinSMEDE. Also, before programme start, students were expected to be able to handle with life/earth science, agricultural/forest/environmental engineering graduation level basic concepts of environmental sciences related to land resources (soil, water, vegetation). Students successfully accomplishing the programme are expected to assemble the necessary competences to be considered base level specifically trained technical staff to deal with soil protection matters, oriented to Mediterranean sloping areas.

Students and professors were selected from the partnership member institutions: Instituto Politécnico de Bragança (Portugal, co-ordinator), Wageningen University and Research Centre (The Netherlands), National and Kapodistrian University of Athens (Greece), University of Lleida (Spain) and University of Santiago de Compostela (Spain). As stated above, previous professional contacts between researchers of these universities made possible building-up the partnership with no constraints. However, the partnership composition was actually the result of a clearly defined concept for this IP that helped setting the required specialization fields. Experts were then invited to contribute to SPinSMEDE, ensuring their home Universities formal involvement.

The IP was funded through the EU Life-Long Learning Programme, for one year, and two renewals were approved so as to arrive at three SPinSMEDE editions (2008, 2009, and 2010). Funds cover students and lecturers mobility grants, as well as organizational expenses.

#### **4. Programme implementation and deliverables**

SPinSMEDE took place for the first time in spring 2008, at Instituto Politécnico de Bragança, the coordinating institution. Considering the results of this experience, the partnership decided to extend it and the two allowed successive renewals were asked for and approved. The partnership decided also to shift programme location every year from one partner to another. This was seen as an opportunity to strengthen the partnership through better institutional acquaintance and increase students interest to the programme. It should be stressed that, in what concerns the number of students, funding requirements impose a maximum of 10 from host and a minimum of 10 from the group of non-host institutions. These conditions may be unfulfilled exceptionally, as it was the case of the first year in Bragança, due to students' withdrawals during the programme. On the other hand, a severe selection procedure had to be performed in certain cases as in the USC for second edition.

The total number of accepted students was 48, with 43 effective attendants in 3 years (Figure 1). Distribution of students according to home university is fairly regular in global terms. However, changes were important from one edition to the other (Figure 2). This is explained by the attractiveness of programme location (the most demanded and attended edition took place in Athens).

It is worthy to stress that the international character of the programme was even enhanced by to the contribution of WUR students, following international programmes in this Dutch University (Figure 3). However and as expected, the major part of students attending SPinSMEDE was from partner countries.

**Total number of students in 3 years: 43**

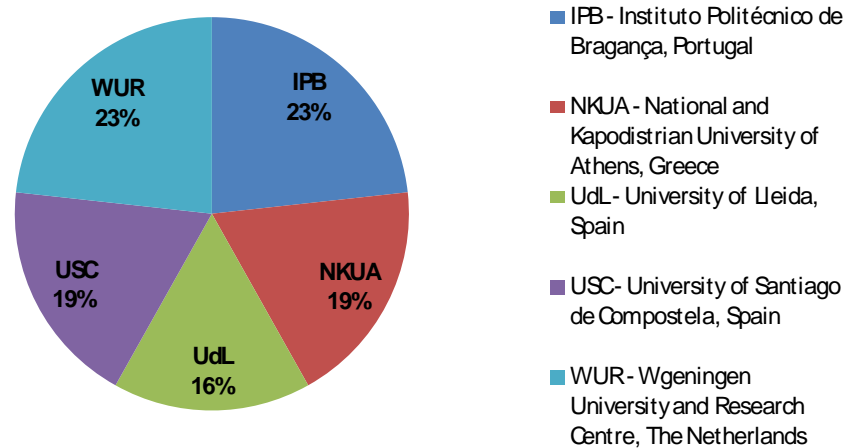


Figure 1. Students attending SPinSMEDE: global contributions from partners

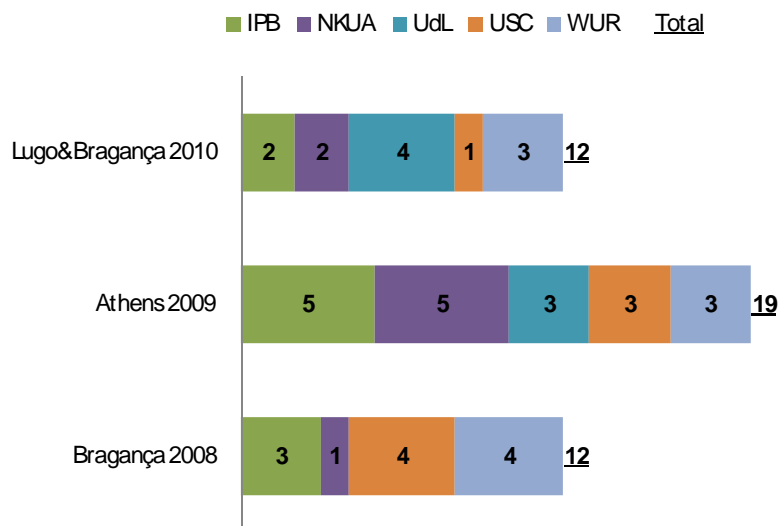


Figure 2. Students attending SPinSMEDE: distribution by home university and edition

As part of programme implementation, a webpage and an e-learning platform were prepared for and used by students in the several editions of SPinSMEDE. In the former case (intensive.ipb.pt), it served also as students' application platform. In the latter (virtual.ipb.pt), among other useful tools available, it served as a repositium of support material provided to students (presentations, syllabus, and exercises).

Efforts were made to outcome SPinSMEDE major deliverable in time: the textbook (Evelpidou & Figueiredo, 2009). This was published by IPB in December 2009, assembling contributions of lecturers during the 2008 and mainly 2009 editions, most of which developed from support material uploaded in the e-learning platform. The book was offered to contributors and SPinSMEDE former students. It was offered to students at programme start

and adopted in regular classes of SPinSMEDE 2010 edition. A second and revised edition is envisaged for 2010, oriented to new and wider target groups.

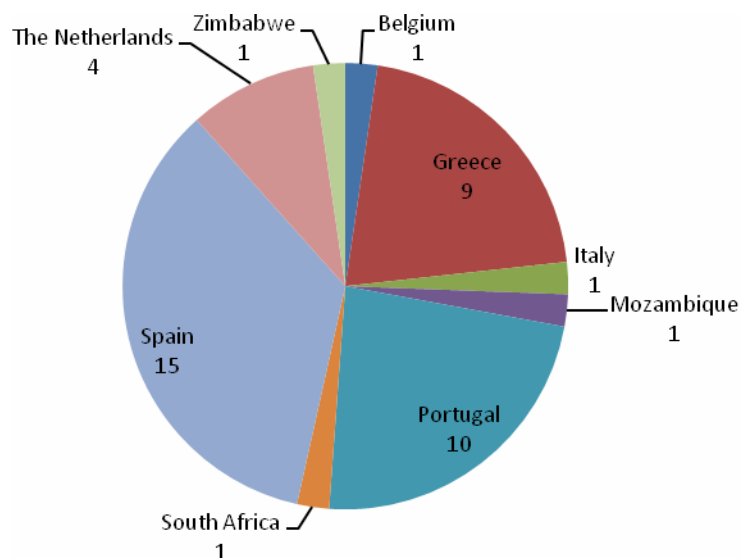


Figure 3. Students attending SPinSMEDE: global distribution by nationality

## 5. Concluding remarks

As stressed above, this is a first presentation of a learning experience on soil protection. The subjective perceptions of all involved in this experience are by far positive. However, very objective elements can be readily gathered to support such positive perceptions, which are:

- Purposes stated in the project were accomplished under the organizational and academic viewpoints
- Activities were performed according to predicted
- A textbook as a major project deliverable was published
- Drawbacks identified along the 3 years of SPinSMEDE were tentatively approached and in most cases corrected

In-depth analysis of results and ripening of lessons learned with this experience are still needed. Moreover, as a core element of programme quality assessment, a follow-up of students' competences as applied in real world context, is a necessary dimension to be considered in forthcoming approaches, for the sake of soil protection in Europe, in sloping Mediterranean agri-environments.

## 6. Acknowledgements

Authors wish acknowledge all colleagues that gave their contributions to SPinSMEDE along the last 3 years, either lecturing classes or providing support material to students, or even assisting the IP in organizational, managerial and financial issues. Funding of SPinSMEDE Erasmus Intensive Programme by the EU Lifelong Learning Programme and through the Portuguese National Agency is much acknowledged.



## 7. References

BOARDMAN, J., POESEN, J. (eds), 2006. Soil Erosion in Europe. Wiley. 400pp. Chichester.

CEC (COMMISSION OF THE EUROPEAN COMMUNITIES), 2006. Thematic Strategy for Soil Protection. CEC COM(2006)231. 12pp. Brussels.

[http://ec.europa.eu/environment/soil/pdf/com\\_2006\\_0231\\_en.pdf](http://ec.europa.eu/environment/soil/pdf/com_2006_0231_en.pdf)

EVELPIDOU, N., FIGUEIREDO, T. de (eds), 2009. Soil Protection in Sloping Mediterranean Agri-Environments: Lectures and exercises. Instituto Politécnico de Bragança. xvi+300pp. Bragança.

HUDSON, N., 1991. Study of the Reasons for Success Or Failure of Soil Conservation Projects. FAO Soils Bulletin N° 64. 65pp. Rome.

IBANEZ, J.J., BENITO, G., GARCÍA-ALVAREZ, A., SALDANA, A., 1996. Mediterranean soils and landscapes: an overview. Em: Rubio, J., Clavo, A. (eds): Soil Degradation and Desertification in Mediterranean Environments. 7-36. Geofoma. Logrono, Spain.

JONES, A., MONTANARELLA, L., JONES, R. (eds), 2005. Soil Atlas of Europe. European Soil Bureau Network, European Commission. Office for Official Publications of the European Communities. 128pp. Luxembourg (EUR 21676 EN)

[http://eussoils.jrc.ec.europa.eu/projects/Soil\\_Atlas/Pages/86.html](http://eussoils.jrc.ec.europa.eu/projects/Soil_Atlas/Pages/86.html)

MORGAN, R., 2007. Soil Erosion and Conservation. Blackwell. 314pp. Oxford.