NEWSLETTER

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ESSC EUROPEAN SOCIETY for SOIL CONSERVATION

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Cover photo: Examples of gullying through berms on waste dumps in the arid Goldfields region of Western Australia (photo from Rob Loch, Harlaxton, Queensland, Australia).

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Contents

This issue of the ESSC Newsletter presents the 15th of our 'Guest Editorials.' This is an opportunity for leading authorities in the soil science community to offer their perspectives on issues relating to soil conservation. This contribution is from Dr Bob Loch (Harlaxton, Queensland, Australia). Eventually, we envisage this collection of essays developing into an authoritative book.

Soil Conservation: Fixing Dysfunctional Systems

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Introduction

Soil conservation is a problem-solving activity. As such, it requires us to: (1) identify the problem, (2) develop a solution, and (3) devise ways to have that solution accepted and implemented. Three critical activities ……

Problem identification

This is critical. What PRECISELY is the problem? Is it the ONLY problem?

An example of this comes from the eastern Darling Downs in south-east Queensland, Australia; an extensive basaltic and sandstone upland area on the western slopes of the Great Dividing Range. The uplands drain to extensive heavy clay soil plains adjoining the Condamine River. Rainfall is summer-dominant, averaging ~650 mm/y, and the area covers ~1.8 million ha.

It is one of the oldest agricultural areas in Queensland. Following the arrival of European settlers, wheat was first grown about 1860, and agriculture has developed since then to the stage where this area contains some of the most intensively farmed counties (shires) in Australia. Initial land use was predominantly pastoral, with rapid agricultural expansion occurring after World War I, as tractors replaced horse-teams and enabled larger areas of cropping and more frequent tillage, typically located on pediment slopes with gradients up to 10%. The expansion of tillage resulted in extensive gully erosion in the period 1920-40, with reports that gully filling after every heavy rain was a routine procedure on much of the sloping cultivated land, and many fields were divided into strips and islands by gullies that could not be crossed by farm machinery (Plate 1).

Plate 1. Flow concentration to form a gully.

Following World War II, it was estimated that erosion had rendered some 16,000 ha of land unfit for cropping, with 40 % of all land affected by erosion to some degree (Skinner *et al.*, 1977). Government concerns led to the formation of a Soil Conservation Section within the Department of Agriculture and Stock, and gradual development of staff, techniques and research programmes (Plate 2). In 1973 severe erosion events led to the declaration of areas of soil erosion hazard on the Darling Downs (Plate 3). Within those areas, subsidies were available for soil conservation works, and in some instances farmers could be required to install works specified for their farm (Plate 4).

Up to, and at that time, soil conservation on sloping cultivated fields was perceived to rely almost entirely on the construction of graded banks and waterways. Soil conservation research was initiated in the mid 1970s, with studies covering simulated rain and overland flow experiments, instrumented field areas, and larger catchments. Importantly, simulated rainfall studies demonstrated that the slope lengths (or catchment areas) required to initiate rill erosion on tilled cracking clays were quite small (Loch and Donnollan, 1983), and much smaller than the slope lengths that could be practically fitted between graded banks. At the same time, the instrumented field areas demonstrated extremely large impacts of residue retention on both runoff and erosion rates (Freebairn and Wockner, 1986). This led to some questioning of the role of graded banks and other structures in achieving effective soil conservation. Were they having any effect at all?

It was concluded that the graded banks HAD played an important role in preventing the large concentrations of overland flow necessary for gully development. Therefore, the banks had been effective in controlling the erosion process perceived to be most crucial

Plate 2. Instrumented field area.

and rapid in rendering land unfit for agriculture – at that time. However, the banks had not controlled ALL erosion processes, and, as illustrated by the research data, there remained problems of rill erosion (in particular) that still needed to be addressed. (It was also noted that even with stubble retention, some reduction in slope length could be advantageous).

Although the retention of crop residues had been shown to be highly effective in controlling erosion, in the 1970s it was considered to be unworkable in practise. Fortunately, machinery development work through that period by the Soil Conservation Branch led to the trialling and subsequent commercialization of equipment able to till and plant through high levels of surface stubble (Ward and Norris, 1982; Thomas *et al.*, 2007). Consequently, the focus of soil conservation efforts in the 1980s was broadened to include encouragement of residue retention techniques.

With the ability to adopt minimum and no-till practises, farmers were then able to increase cropping frequency and to have greater flexibility in using soil water when it was available. Subsequently, reductions in the cost of herbicide have further reduced the use of tillage for weed control, further aiding retention of stubble. In general, adoption of residue

Plate 3. Rilling between graded banks.

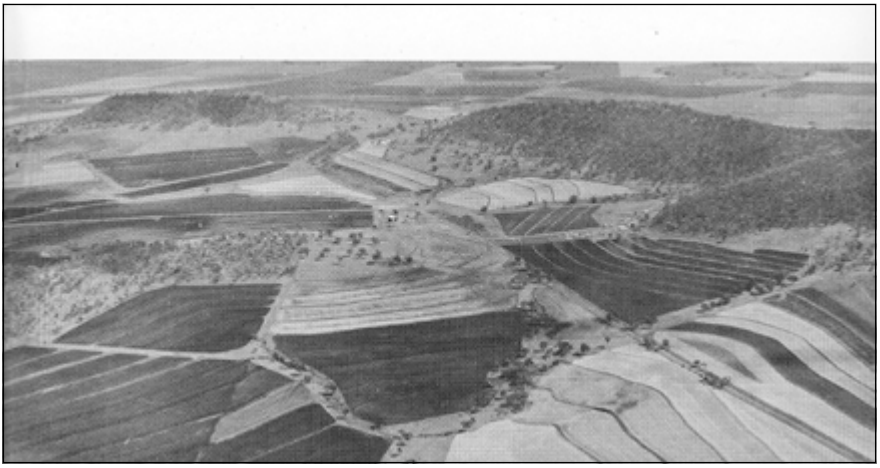

Plate 4. Eastern Downs cropping area with banks.

retention and reduced tillage has been mostly driven by the greater flexibility and profitability such systems offer to farmers in an environment where rainfall is highly variable (Freebairn *et al.,* 1987; Wylie, 1997a, b). Effectively, 'fixing' the Darling Downs' soil erosion problem required the development of a more functional and profitable farming system. Soil erosion is often the expression of a somewhat broader problem.

Developing an effective solution

Often, there may be a range of alternatives for controlling erosion. However, to be truly effective, the solution proposed must be appropriate to the enterprise in question, to the resources available and to local conditions. This strongly argues the case for site specific methodologies (as noted by Dr Roose in his recent Guest Editorial in ESSC Newsletter 2010/2, p. 3-11).

It could be suggested that soil conservation efforts worldwide carry some dysfunctional baggage from past history. There is persistent focus on large, highly visible, cross-slope interventions that seem to have enormous emotional appeal, irrespective of their effectiveness (or lack thereof).

This is illustrated by the construction of waste dumps by the mining industry in Australia (Plate 5). Historically, the outer batters of such landforms have been formed with a series of benches or berms intended to contain or slow run-off. Mining permits in several States have (at times) specified that such structures be installed, irrespective of material or climate, even though there are enormous differences between erosion issues for a waste dump constructed in an arid zone with little vegetation cover, compared to a similar landform under higher rainfall with heavy vegetation cover.

In arid zones, these cross-slope structures have often actively promoted the development of tunnel erosion and subsequent gullying, particularly where constructed over dispersive, tunnel-prone wastes (Vacher *et al.,* 2004). Even where the materials are not dispersive, overtopping, flow concentration and gullying are common (Loch *Et al.,* 2006). As the aim of waste dump rehabilitation is to form a sustainable structure that does not require maintenance, this widespread strategy has seldom met mine-site goals, and blind application of what seems to be considered a basic soil conservation methodology has wasted much money and time.

Bottom line: develop YOUR solution, don't simply adopt something that worked somewhere else!

Acceptance, adoption, application

Regulation

Soil erosion causes concern for a wide range of human activities, not just agriculture. In some cases, such as construction sites or mine sites, there may be regulation requiring that erosion be controlled. Commonly, the regulation may be prescriptive, specifying what is to be done. Australian examples of these include the requirement for farmers to construct graded banks in areas of erosion hazard (as happened on the Darling Downs), specification of the construction of berms and rock drains on mine-site waste dumps, and requirement for construction sites to have erosion and sediment control plans based upon various management handbooks.

Such approaches are seldom successful. Often the prescribed actions are actually ill-

advised, and may lag 10-30 years behind leading practise. Because of their broad application, they commonly fail to recognise variations in soils, climate, or other local issues, and therefore lack the necessary site specificity. As well, the person required to implement erosion control measures has little commitment to the process and therefore, the quality and effectiveness of such works are poor. Where erosion control is regulated, it is considerably more effective to specify outcomes to be achieved rather than works to be installed.

Plate 5. Examples of gullying through berms on waste dumps in the arid zone (~220 mm/y rainfall).

Adoption

Within agricultural organizations, there is extensive theory and practical knowledge dealing with the factors that lead to adoption of changed agricultural practises. I do not pretend to be an expert on that area, but in my experience there are two obvious considerations:

- Farmers will generally not adopt a practise simply because it is perceived to be environmentally 'good' by some external social commentator. They have a living to make!
- Farmers and other land users are usually strongly motivated to adopt practises that are appropriate to their resources, that save them time and/or money, and that give them a better outcome.

Often, the challenge for the soil conservationist is not knowing WHAT to do, rather it is knowing HOW to implement it. And in that case, input from the local landholders is essential.

Conclusions

Soil conservation is a problem-solving activity that, in some cases, shows limited linkages to soil erosion research. Detailed understanding of erosion processes and their interactions with soils and landscapes is critical, but effective soil conservation typically needs to consider wider issues than simply erosion. Broad principles can apply (nothing works as well as cover!), but tailoring those principles to specific situations will determine the success or failure of a soil conservation programme. If a proposed solution does not clearly benefit the land user and/or is inappropriate to the resources available, then even enforcement is unlikely to achieve success. For that matter, enforcement of actions rather than specification of required outcomes is generally an ineffective strategy. Generally, soil erosion is a symptom of a dysfunctional landscape, and erosion control is best considered within the framework of improving ecosystem function.

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Plate 1. Rob Marris MP discussing soil conservation research with Dr Ranjan Bhattacharya in the UK Parliament (House of Commons) in 2007.

The pressing need for soil conservation is all too often ignored by politicians. For example, the UK 'Department for the Environment, Food, and Rural Affairs' (DEFRA) lists 5,436 research projects completed or underway. Of those, 112 (2.1 %) are on 'Soil Protection.' All have been completed, and none are underway. In contrast, there are 254 (4.7 %) projects on 'Water Quality,' of which 36 are underway; and 861 (15.8 %) on 'Animal Health,' of which 140 are underway (DEFRA website, October 2010). For two connected reasons, this ignorance must end.

The first is the need to markedly increase world food supplies, as the population grows and as people in emerging economies change their diets; in particular, increased meat and dairy consumption. In 2007, the World Bank estimated that *"to meet projected demand, cereal production will have to increase by nearly 50% and meat production by 85% from 2000 to 2030"* (World Bank, p. 8, 2007). In this connection, the UK is heading towards potential difficulties, because the proportion of UK-consumed food which is grown in the UK has fallen again in recent years. The UK is doing little to increase its own food production, which has dropped markedly since the Common Agricultural Policy (CAP) of the European Union (EU) was fundamentally reformed. The major reforms were the compulsory EU-wide introduction in

1992 of production quotas and payments for land 'set-aside,' which was aimed at cutting agricultural output (EC Council Regulation 1765/1992). The subsequent 2003 reform was the EU agreement to decrease agricultural subsidies by replacing most existing crop and livestock payments from 1 January 2005 with the new 'Single Payment Scheme' (EC Council Regulation 1782/2003).

Currently the UK is 60 % self-sufficient in all foods. Although falling, this is about average by the standards of the last *circa* 150 years. The approximate self-sufficiency levels were: pre-1750 100 %, 1750-1830s 90-100 %, 1870s 60 %, 1914 40%, 1930s 30-40 %, 1950s 40-50 %, 1960s 58 %, 1970s 63 %, 1980s 75 %, 2000s 60 % (DEFRA, 2008). A rise in world food shortages is evidenced by increasing agri-commodity prices. In their joint Outlook study on agricultural production, published in 2008, the OECD and the FAO had estimated that *"once they have fallen from their current peaks, however, prices will remain at higher average levels over the medium term than in the past decade. But … prices will resume their decline in real terms, though possibly not by quite as much as in the past"* (OECD-FAO, p. 11, 2008).

By the time their 2010 Outlook study was published, the OECD and the FAO had revised their estimates, instead saying that: *"average crop prices over the next 10 years for the commodities covered in this Outlook are projected to be above the levels of the decade prior to the 2007/08 peaks, in both nominal and real terms (adjusted for inflation). Average wheat and coarse grain prices are projected to be nearly 15-40% higher in real terms relative to 1997-2006, while for vegetable oils, real prices are expected to be more than 40% higher. World sugar prices to 2019 will also be above the average of the previous decade, but well below the 29-year highs experienced at the end of 2009"* (OECD-FAO, p. 1, 2010). When launching the 2010 report, OECD Secretary-General Mr. Angel Gurría said: *"this medium term outlook suggests that most agricultural prices will be higher in real terms in the coming decade than they were during the past decade"* (OECD-FAO, speech, 15/06/10).

At the time, the 2008 OECD-FAO prognosis seemed complacent, because of the second, and more important, factor affecting agri-production: climate change, the effects of which are already upon us. As the UK Government's Adaptation Sub-Committee stated in September 2010: *"agricultural output will be affected by extreme weather events; however technological advances may help to offset some of the adverse impacts. Global food prices could substantially increase in response to yield reductions in the main cereal-exporting regions of the world which could have implications for the UK. The 2010 heat-wave and associated drought in Russia has caused grain output to fall by one-third, leading the country to enforce a ban on grain exports. As a result, global wheat prices have risen by 70% causing concern in countries across the Middle East, North Africa and Europe who import wheat from Russia"* (UK Parliament, p. 19, 2010).

Almost all the indications are that these effects will worsen further for at least the next 100 years, and probably for much longer, particularly given the weak action at international level to combat greenhouse gas (GHG) emissions. Even with successful action to cut emissions greatly, because of inertia and time-lag effects, adverse climate change will continue for decades. The 'Intergovernmental Panel on Climate Change' (IPCC) has forecast that, even if the concentrations of all GHGs and aerosols had been kept constant at their levels in 2000, by 2100 global surface warming would mean a mean temperatures 1.2ºC higher than in 1900 (IPCC, Figure 3.2, 2007). The effects will include increased global soil erosion, caused by enhanced winter rainfall, drier summers, stronger winds, higher waves (caused by the

stronger winds) and rising sea-levels (caused both by thermal expansion and melting of terrestrial ice sheets), coupled with more intensive agriculture. As the World Bank (2009) commented: *"without further investment, climate change could reduce yields by as much as 20% in developing countries"* (World Bank, p. 13, 2009). This much is already clear to the readership of ESSC Newsletters. What may be less clear is what action, if any, is being taken by politicians to address these difficulties.

In 2008 the UK Parliament passed the 'Climate Change Act.' The initial drafts of the Act said nothing whatsoever about adapting to climate change; they solely focused on GHG emissions, and of course, it is quite literally vital that these be massively cut. As a Member of Parliament (MP) in the UK, I battled alone for almost three years to get the draft Act widened, to include the other side of the climate change coin: adaptation. After many speeches in the House of Commons (the lower, democratically-elected House of the UK Parliament) and many meetings with Government Ministers, there was grudging acceptance of the need to include adaptation in the Act, and it eventually was (UK Parliament Climate Change Act, 2008). Worryingly, thus far *"the UK is the only country to have established a legal framework for adaptation … (and) within Europe is one of only three countries to have established a formal monitoring and review system for adaptation"* (UK Parliament Adaptation Sub-Committee Report, p. 34).

The result is that the UK's 'Committee on Climate Change' (CCC), established under the Act, must by law have an 'Adaptation Sub-Committee' (ASC) which must report to Parliament at least every five years on what actions are being taken to adapt to climate change. The ASC describes its role as having *"a statutory obligation to provide independent advice on adaptation and an assessment of the Government's progress towards implementing the National Adaptation Programme (NAP), which is to be laid before Parliament after the publication of the first Climate Change Risk Assessment (CCRA) in 2012"*(ASC Report, p. 21).

The ASC report makes several references to flooding, land management and biodiversity. Its brief references to 'erosion' focus on coastal cliffs, not on soil erosion; let alone soil conservation. There is a brief reference to *"planting trees more suited to future climate"* (ASC, p. 27), but nothing on the role of forestry in soil conservation. In its section on *"Policy to enable delivery"* the Report refers to *"managing natural resources"* and simply says: *"the Government should consider including incentives to drive forward water efficiency"* in the Water White Paper. The White Paper comments on how the current delivery arrangements for biodiversity could be strengthened to cope with climate change in the natural environment (ASC Report, p. 56).

It now remains to be seen what action the UK Government will take. Given the pressure on public finances, the omens are poor. I fear that soil conservation will continue to be overlooked by policy-makers, because most politicians fail to recognize it as an immediate issue.

There are few grounds for optimism. Those of us who were present at the 'UN Habitat Conference' in Vancouver in 1976 can vividly remember its emphasis on the availability of safe water. In the decades since Vancouver, water supplies for irrigation and for household consumption have all too often been neglected, over-extracted and polluted. A recent study found that: *"nearly 80 % of the world's population is exposed to high levels of threat to water security"* and that "some of the highest threat levels in the world are in the United States and Europe" (Vörösmarty *et al*., 2010).

Unless the world acts, we will see the same degradation continuing to happen to soil; and unless the world acts soon, food crises (precipitated by inadequate water despoiled soil and climate change) will pose a serious threat to the welfare and security of the world population.

Footnotes

Editor's note: A White Paper is a statement of government policy which remains open for public discussion, debate and amendment.

European Council, Regulation 1765/1992, Article 1(1) *"establishes a system of compensatory payments for producers of arable crops."*

European Council, Regulation 1782/2003, Article 33(1) *"Farmers shall have access to the single payment scheme."*

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Editor's note

Rob Marris (Plate 1) was the Member of Parliament (MP) representing the constituency of Wolverhampton South-West in the UK Parliament in Westminster (London, UK) from 2001-2010 (electorate of *circa* 64,000 citizens). The Newsletter of the ESSC is 'non-political,' at least in the political partisan sense. However, it is fair to state that Rob was a recognized champion of important environmental causes in the UK Parliament. Rob's commitment to environmental issues and concerns is recognized and acclaimed by politicians of all political persuasions, both in the UK and beyond. Rob continues his work and commitment to the political discussion and debate of environmental issues and concerns.

The Newsletter and supporting Ph.D. research

Editor's note:

At the ESSC Council meeting in Lleida (Spain) in September 2006, the interactions between the ESSC and younger soil scientists were discussed (see Newsletter 2006/3, p. 5-8). It was decided that the ESSC should be more proactive in its support of younger scientists. As part of that initiative, we welcome articles from both Ph.D. researchers and supervisors. We would like to hear from recent Ph.D. graduates; what advice and experience do you have which you would like to share with your colleagues in earlier stages of their research? We would also like to hear from current Ph.D. researchers; what are the factors which both encourage and limit progress? What are the particular challenges facing part-time Ph.D. researchers? We also invite contributions from experienced Ph.D. supervisors. What experience would you like to share with less experienced colleagues? If you are a less experienced Ph.D. supervisor, what supervisory issues do you find challenging? In short, please tell us "what I know now, which I wish I knew then!"

Editor's note:

The citation details of Ph.D. theses by ESSC members since and including 2004 have been added as an additional page to the ESSC web site. To date, 50 Ph.D. theses are quoted. On the ESSC web site, please look under 'Publications.' Please forward the citation details of any additional Ph.D. thesis completed since the year 2000 by an ESSC member to any of the Editorial team. We will then add the thesis citation details to the web site.

New Ph.D. thesis

Pedogenesis on the Sefton coastal dunes, north-west England (2010). Ph.D. thesis, 375 pp.

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Abstract

This work examines the use of pedo-properties to identify dune soil system responses to environmental change on the Sefton coast, based on the development of conceptual pedogenic models. Previous environmental change and shoreline dynamics were determined through Ordnance Survey (OS) maps and aerial photographs (cf. Plate 1), while present day processes were investigated through a dune-toe photographic survey and seasonal monitoring by fixed-point photography (cf. Plate 2). Topsoil (0-5 cm) physico-

chemical characteristics are presented in a series of baseline GIS maps, displaying spatial pedo-property variation across the dune landscape. Combined with vegetation data, topsoil analysis identified 10 distinct pedo-environments. Physico-chemical characteristics of associated National Soil Resources Institute (NSRI) soil profile classifications and an exposed stratigraphic section are presented graphically in a proposed sequence of development.

Topsoil and soil profile samples were analysed for soil pH, soil organic matter (SOM) content, particle size distribution, geochemical composition and mineral magnetic properties. Significant differences ($p < 0.05$) are apparent between the suite of topsoil characteristics, indicating that discrete dune environments are influenced by specific soil properties. Distinct down-profile variations in soil characteristics were also apparent between dune environments, highlighting pedological dynamism. Multivariate factor analysis grouped bare sand and mobile dune communities into 'frontal dunes' and fixed dune communities (i.e. pasture, scrubland, deciduous woodland and coniferous plantations). 'Hind dunes' were separated into heath and slack communities, based on topsoil characteristics. Factor analysis also identified linkages between pedo-characteristics within soil profile horizons, suggesting pedogenesis on the Sefton dunes initiates as raw sand, progressing to sand-pararendzinas through leaching of nutrients. Desalinization and decalcification processes lead to the development of brown earths, followed by increased acidicification, subsequently resulting in the formation of 'micro-podzols.' Groundwater gley soils are associated with dune slacks, where drainage is inhibited and anaerobic conditions prevail. Analysis of buried soils suggests such pedo-environment formations are cyclic, responding to phases of shoreline regression/transgression, dune activity and stabilization.

Conceptual models were designed to graphically demonstrate pedogenesis under both erosion and deposition regimes on the Sefton coast. Regression equations and correlation coefficients between pedo-properties and distance from mean high water were used as a proxy for soil age, which represent lateral soil maturity from the unstable frontal dunes to the stable hind dunes inland. The models simulate formation processes for the full array of soil properties, accounting for geomorphological impacts and anthropogenic influences. This has considerable implications for dune managers by raising awareness of pedogenesis as an integral component of nature and associated habitats, which could be incorporated into future shoreline management plans (SMPs).

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Note

The full pdf of this Ph.D. thesis is available from the University of Wolverhampton e-Library 'WIRE.' Please visit:

http://wlv.openrepository.com/wlv/

Publications

Chiverrell, R.C., Harvey, A.M., Hunter, S.Y., Millington, J.A. and Richardson, N.J. (2008). Late Holocene environmental change in the Howgill Fells, Northwest England. Geomorphology 100, 41-69.

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Plate 1. Oblique view of the Sefton coastal dunes (reproduced by kind permission and copyright of the 'North West England and North Wales Coastal Group').

Plate 2. Sand dunes of the Sefton coast showing the presence of buried minero-organic soil horizons (photo by J.A. Millington).

Recent publications by ESSC members

Included are the citation details of papers and books produced by ESSC members. These provide a growing resource for exchange of valuable information to both research and teaching. The cumulative citation list is being added to and updated on the ESSC web site. Students of ESSC members (both undergraduate and postgraduate) are increasingly accessing this facility in their literature searches. Currently, the number of quoted publications cited on the web page is 542. Please e-mail the citation details of papers in international refereed journals since and including the year 2000 to any member of the Editorial team.

PUBLICATIONS

Chiverrell, R.C., Harvey, A.M., Hunter, S.Y., Millington, J.A. and Richardson, N.J. (2008). Late Holocene environmental change in the Howgill Fells, Northwest England. Geomorphology 100, 41-69.

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Ruiz Sinoga, J.D. and Romero Diaz, A. (2010). Soil degradation factors along a Mediterranean pluviometric gradient in Southern Spain. Geomorphology 118, 359-368.

Conference Reports

Seminar on: 'Evaluation of Soil Degradation Processes: Methodological Problems,' held in Lleida (Spain), 14-16 July 2010

The Seminar, sponsored by the 'Spanish Society of Soil Science' (SECS) and co-sponsored by the 'European Society for Soil Conservation' (ESSC), had 20 participants from Spain and Portugal (Plate 1). All activities (except the field trip) were held in the Agricultural School of the University of Lleida (ETSEA) in Lleida (Spain). The field trip took the participants to the irrigated vineyards in Raimat, near Lleida.

The opening ceremony was attended by the Presidents of both SECS and the ESSC. The ceremony was chaired by the Director of ETSEA. The opening session was completed by the keynote lecture 'Agro-ecological systems for better soil use and protection' delivered by Diego de la Rosa (Micro LEIS Group, CSIC-IRNAS, Seville, Spain). The presentation emphasized the key role of the integrated evaluation of dominant factors (climate, soil and management) and of their interactions, for the diagnosis of soil degradation processes and of their effects on agricultural production and environmental problems. The speaker also explained his model, which facilitates such integrated evaluations. In the subsequent sessions there were several keynote presentations. Ildefonso Pla spoke on 'Evaluation of hydrological parameters for the diagnosis of degradation problems in lands and soils,' where the fundamental roles of hydrological processes in soil degradation were discussed. This included consideration of their effects on agricultural production and environmental problems, including climate change and natural disasters. The presentation emphasized the more common difficulties and mistakes made in the evaluation and estimation of the required hydrological parameters. Francisco Ferrer and Francisco Fonseca discussed 'Best management practises for using soil moisture sensors in soil degradation studies,' where they shared their experiences on the analysis of the advantages, limitations and precautions needed for the use of different equipment and sensors for measuring soil moisture under field conditions, as well as the challenges posed by the interpretation of results.

The presented papers, both oral and poster, covered different aspects, both

methodological and interpretational, of the diagnosis of soil degradation problems. Both the keynote lectures and the regular presentations (oral and poster) generated lively debate based on the different experiences of the participants. These debates contributed to the final round-table formulation of conclusions.

The main conclusions were:

1) The evaluation of soil degradation processes should not only rely on general empirical appraisals, but on quantitative evaluations and measurements mainly at field level, using adequate samples and methodologies. Among the evaluations the more important are the deductions and measurement of hydrological parameters.
2) The indirect deductions of hydrologic properties and parameters from other soil characteristics, previously evaluated for other purposes using different samples, sample conditions and methodologies, by the so called 'pedo-transfer functions,' may lead to considerable and costly errors. In turn, these may result in incorrect identification of soil degradation processes and of their effects, and on the selection of inadequate land use and management strategies. In some cases, if the resources for precise field evaluations are unavailable, it would be more convenient to make observations and simple *in situ* semi-quantitative measurements of the required properties and parameters, than to rely on such indirect deductions.
3) For the selection of laboratory and especially field methodologies for evaluation of the required hydro-physical parameters, it is important to maximize efficiency, based on the relation between the precision of measurements and the requirements of equipment and facilities to make measurements under field conditions. Generally, there must be preferred methodologies and equipment with physical principles and precision adequate for our aims and objectives, allowing more replications and using appropriate (size and condition) soil samples. These strategies need to adapt to conditions and soil variability (both horizontal and vertical) in the field.
4) Much equipment and many methodologies for the evaluation of soil hydro-physical parameters have been developed, proved and calibrated under controlled laboratory conditions, or in specific ideal soil and field situations. Because of this, frequently it is very difficult to use them under different soils and field conditions, and when they are used without previous consideration or evaluation of the effects of those different conditions on the precision and accuracy of measurements. Indeed, errors may be considerable.
5) Several parameters are poorly evaluated, which can lead to considerable errors in the evaluation of hydrological parameters and derived soil degradation processes and their effects. These include the infiltrability of rain-water into the soil system, soil depth, soil water retention properties and hydraulic heterogeneity throughout the soil profile. This becomes more critical in sloping lands, with stony soils and with very variable and erratic rainfall, which are very common in the semi-arid Mediterranean region.
6) The effective use of models to integrate information obtained in different evaluations and measurements, with the purpose of deducing or diagnosing soil degradation processes, depends on information quality. Empirical models, frequently used because they require less accurate local information, are usually based on statistical relations obtained under very different conditions of topography, soils and climate. Use of these models may lead to considerable diagnostic errors. The same happens with the so called 'black-box models,' which often include relations among them which do not correspond to the specific conditions of soils, climate and topography where they are applied.

The field trip on 15 July was to Raimat, an area near Lleida with over 3000 ha of irrigated (sprinkler and drop systems) vineyards, used for the production of wine and cava (Spanish Champaign). In an experimental area within the commercial fields, we observed the setting and functioning of various equipment and instruments for the measurement of soil moisture, infiltration, hydraulic conductivity, runoff, drainage, erosion, effective root depth and root distribution (Plate 2). There was a useful *in situ* discussion about the use, limitations and advantages of each technique. The field trip finished with a guided visit, with wine tasting, to the Raimat wine cellars, one of the largest in Spain, with structures combining tradition with modernity.

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Plate 1. The Seminar delegates at the University of Lleida.

Plate 2. The Seminar delegates visiting Raimat vineyard.

Environment Workshop 2010, Optimizing and integrating predictions of agricultural soil and water conservation models at different scales, held in Baeza (Spain), 27-29 September 2010

The University of Córdoba and the International University of Andalucía (UNIA) organized 'Environment Workshop 2010,' which was held in Baeza (Spain), an official UNESCO World Heritage town. The Workshop was held in 'Sede Antonio Machado,' a 17th Century building turned into a Conference Centre in UNIA. The main aim of this Workshop was to address the important need to bring together soil erosion scientists that work with predictive models with scientists that gather field data and information on the spatial variability of the environmental factors (soil, climate, vegetation) that control soil erosion. This should contribute to improved understanding of the inter-related issues of land degradation, agricultural performance and the effects of soil and water conservation measures.

The Workshop brought together 15 invited speakers and an additional *circa* 20 participants, who presented posters summarizing their research. In total, five Workshop sessions were organized, ranging from a general overview of modelling soil and water conservation to improving numerical treatment in soil and water conservation models. The Workshop was very successful. This can be attributed to the admirable combination and

integration of general keynote presentations on 'state-of-the-art' knowledge on soil and water conservation, individual studies with innovative research methods and interesting discussions on prevailing research needs. One of the main Workshop conclusions was that much research is available on methods to assess soil erosion and conservation. However, there remains a distinct lack of knowledge on the effectiveness of existing soil conservation techniques. During recent decades, few innovative studies exist that clearly indicate how effective a soil conservation technique could be at different scales and in different environments. Thus, there remains a gap between scientists testing soil conservation techniques for different conditions and stakeholders searching for reliable predictions of the effectiveness of specific soil conservation measures in specific environments.

Since relatively few scientists (*circa* 40) attended this Workshop, particularly interactive, interesting and fruitful discussions developed, both during the sessions and the non-scientific programme. On the last day of the Workshop, an interesting and enjoyable field trip was organized to 'El Piélago' (the Roman bridge of Vadollano) and the archaeological site of Cástulo.

On behalf of all Workshop participants, I thank Dr Juan Vicente Giráldez-Cervera, Dr Tom Vanwalleghem, Dr Fransisco Jiménez-Hornero and Dr Lourdes Soria for their perfect organization and co-ordination of 'Environment Workshop 2010.'

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Iberian Workshop on 'Research and post-fire management of burnt forest ecosystems,' held in Santiago de Compostela (Spain), 6-8 October 2010

The National Thematic Network **FUEGORED** ('Effects of Forest Fires on Soils') celebrated its third workshop in Santiago de Compostela (Galicia, Spain) from 6-8 October 2010. The meeting focused on the theme 'Research and post-fire management: soil protection and rehabilitation techniques for burnt forest ecosystems'. The Workshop had three objectives:

1) To bring together senior scientists and managers from several countries in an international workshop to review the scientific progress and technological performance achieved at international level on three themes. These themes were: a) the impact of fire and soil protection against post-fire erosion and degradation, b) the restoration of forest ecosystems affected by forest fires, and c) the management of burnt forest ecosystems.
2) To study the relevance and feasibility of introducing new techniques and measures to protect burnt soils and to restore the affected ecosystems, to improve or optimize current techniques and to develop innovative new technologies for the effective implementation of these measures in large burnt areas by the managers of fire-affected zones.
3) To create a forum for both national and international co-operation between research groups working on topics related to integrated protection from forest fires. These topics include fire prevention and suppression, soil protection, restoration of ecosystems affected by forest fires, and international issues of ecological, economic and social development in burnt areas.

The international Workshop included seven plenary lectures and several panel presentations across the three themes. These were led by internationally-recognized researchers, including J. Keizer (Portugal), P. Robichaud (USA) and J.L. Rubio (Spain). A field trip visited several areas affected by both controlled and uncontrolled fires which were subjected to varied soil protection and rehabilitation treatments (Plate 1). The Workshop concluded with a round-table discussion.

The agreed consensus developed throughout the thematic sessions and the associated field trip was that "forest fires damage soils. In some cases the damage is irreversible. Damage includes post-fire soil erosion. In turn this can induce very serious problems for hydrological resources. These problems include increased flooding downslope from burnt areas and attendant water contamination."

With the aim of mitigating, or at least minimizing, the direct impacts of fires on soils and the indirect effects discussed above, the following 10 recommendations for soil protection and restoration of forest ecosystems affected by forest fires have been developed. These recommendations constitute the main conclusions of the Workshop.

1) The scientific community, forest managers, forest users and land-owners have to work together to effectively promote the exchange of knowledge and experience.
2) The activities to be performed immediately after a fire ('post-fire period') should be rapidly agreed by stakeholders.

3) It is of paramount importance to elaborate a strategic generic protocol for interventions in fire-affected zones. This must include information and techniques for the identification within the fire-affected zone of the most critical and sensitive areas over which it is necessary to act urgently. Then adequate treatments must be applied for soil protection. These treatments should aim to minimize the damage caused by the fire on the affected ecosystem and on adjacent interacting ecosystems. The protocol must incorporate a strategy for the long-term restoration of burnt areas.
4) The measures must address several themes. These include emergency strategic interventions before the period of post-fire rains. In the medium term, a rehabilitation programme must be established.
5) Hydrological resources and associated fluvial networks that could be in danger of being affected, either directly or indirectly, must be included in the protocol of urgent interventions. Due attention must be paid to the fragility of these systems.
6) In designed restoration programmes, the option of natural vegetal regeneration on burnt areas should be the optimum approach. If this approach is not viable, then carefully-designed rehabilitation treatments must be implemented.
7) It is recommended that public administration authorities permanently include in their budgets emergency funds to rapidly and pro-actively apply emergency treatments.
8) Forest fires may have prolonged socio-economic consequences. Furthermore, it is recognized that future patterns of climate change will exacerbate the attendant problems. Therefore, any established programme of post-fire interventions must be maintained over time. Where possible, these interventions should be progressively improved, employing innovative advances in remedial techniques.
9) Emergency intervention measures for soil protection against post-fire erosion agreed in some Spanish Autonomous Communities (such as Andalucía and Galicia) are the result of established collaboration between scientists and managers. Globally, these interventions have been evaluated positively and it is recommended to adopt these measures as a generic model.
10) To achieve sustainable management of areas affected by forest fires, it is necessary to both maintain the exchange of knowledge and experience within Iberia and to enhance international relationships. This is an established core strategy of FUEGORED.

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htpp://www.iiag.csic.es/fuegored

Plate 1. Runoff and erosion from a burnt hillslope after a wildfire in Monte Pedroso (Galicia, north-west Spain) prior to the application of post-fire stabilization treatments.

New Geodatabases on the soils of Italy are available via the web

On www.soilmaps.it, it is now possible to download the maps of Soil Regions, Soil Systems, Pedological Handicaps, and Soilsites of Italy in the 'Google Earth format' (KML).

Soil Regions and Soil Systems have information on soil and soil forming factors at different reference scales, varying from 1:5,000,000 to 1:500,000. The original information comes from a collaborative project involving all regional soil services in Italy, named 'Badasuoli' (soil database of Italy). Badasuoli stores over 44,000 pedons, classified both according to Soil Taxonomy (2003) and the World Reference Base (WRB) (1998). WRB is taken as a reference for soil correlation.

The 'Pedological Handicap' maps show the agricultural lands with limiting soil factors. These factors include drainage, chemical properties (e.g. salinity, lime-requirements, gypsum content), rooting depth, texture and stoniness.

The map of Soil Sites reports the description and image of the pedons belonging to the national soil cultural heritage.

Further information is reported in the download page of the site, available at:

http://www.soilmaps.it

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Ruiz Sinoga, J.D. and Romero Diaz, A. (2010) Soil degradation factors along a Mediterranean pluviometric gradient in Southern Spain. Geomorphology 118, 359-368.

This article was selected by the European Commission for reporting in Science for Environment Policy, Issue 208 (September 2010).

The Journal 'Science for Environment Policy' provides monthly access to the latest policy-relevant scientific research. In this case, the article published in the Journal 'Geomorphology' by José Damián Ruiz Sinoga (University of Málaga, Spain) and Asunción Romero Díaz (University of Murcia, Spain) was selected. The paper is entitled 'Soil degradation factors along a Mediterranean pluviometric gradient in Southern Spain.'

Summary

Soil condition can be represented by many soil properties but how well they represent soil status depends on the level of rainfall in the area. Researchers in Spain found that in wet regions soil status is strongly linked to biological factors, such as vegetation cover and biodiversity. In drier regions, status has stronger links to soil physical properties.

Soil degradation, which includes erosion and loss of organic matter, is accelerating in Europe and the EU has proposed a Soil Directive which requires Member States to identify and combat soil degradation. Since the level of soil degradation and the means to measure it can vary according to local situations, Member States will have flexibility in how to implement the Directive.

There are clear changes in water availability across Southern Spain, from 240 mm of rain per year in dry Mediterranean regions such as Gergal, to 1100 mm of rain per year in humid areas such as Gaucin. Changes in precipitation affect vegetation, which has impacts on soil organic matter (SOM) dynamics and soil texture. This can influence runoff rates and the formation of surface crusts, which affect erosion and cause deterioration.

The study investigated the status of the soil in eight different areas in southern Spain. Several soil properties were measured in a total of 469 topsoil samples. Many of these properties could be divided into two broad categories. Firstly, biotic or biological factors, such as vegetation cover, biodiversity and SOM. Secondly, abiotic factors, such as soil texture (e.g. sand or clay) structural stability and salt content. The researchers also measured soil moisture content and calculated the likelihood of erosion.

Generally, increased mean annual precipitation was linked to changes in soil properties. Indicators of soil degradation increase as decreasing rainfall affects average moisture contents. Vegetation as a consumer of water has a different role in soil degradation. In the wet areas the average moisture levels are higher, despite the greater water consumption associated with greater vegetation cover (75-90%). In contrast, vegetation in the semi-arid to arid environments acts as a consumer of the scarce soil water available, so vegetated areas

have lower average moisture contents. Thus, soil status was better in wet Mediterranean areas and poorer in drier areas.

In wet environments, with 950-1100 mm of annual rain, biotic factors, such as the amount of vegetation and SOM, play the greatest role in maintaining good soil status and preventing erosion. In sub-humid environments, with 650-950 mm of annual rain, biotic factors were also important, but so too was soil texture. For example, high sand content and low clay content increased the likelihood of erosion.

In dry Mediterranean soils, with 450-550 mm precipitation per year, there was less vegetation and more unprotected soil, so conditions were mediated by soil moisture and by soil texture, with the sand content again increasing the likelihood of erosion. Finally, in the semi-arid and arid regions, where rainfall is between 250-350 mm per year, vegetation is of a specific type that needs little water, such as strawflower and cottonweed. This vegetation produces little SOM and soil conditions are more closely linked to abiotic properties. High levels of sand content increase the likelihood of erosion, but so do high levels of clay since, due to lack of vegetation, there will be a crusting of the clay surface, which in turn increases erosion.

The research suggests that, depending on precipitation amounts, different indicators for soil condition are needed. The relationship between biotic and abiotic factors controlled the soil degradation status along a pluviometric gradient from wet to semi-arid/arid conditions in the Mediterranean area. The stability of the eco-geomorphological system depends on the dominant factor. From humid to arid Mediterranean conditions the analysed properties indicate progressive soil degradation, and the importance of the relationship between biotic and abiotic factors varies. Through the soil vegetation-moisture relationship, biotic factors ensure the stability of the eco-geomorphological system, even in dry Mediterranean conditions. Hence, vegetation is better adapted to water stress conditions because of the occurrence of xerophytic species. Thus, the distribution of soil moisture patches in non-vegetated areas is more closely linked to abiotic factors, including texture and structural stability.

The researchers established a precipitation threshold of 500 mm per year, below which vegetation is no longer associated with soil moisture and soil status depends more on its physico-chemical properties.

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For access to 'Science for Environment Policy,' please visit:

http://ec.europa.eu/environment/integration/research/research_alert_en.htm

Web Based Bulletin Board

The ESSC wishes to rapidly disseminate information to its members. Please forward information to the ESSC web site to be placed on our ESSC Bulletin Board. These could include searches for potential collaborators for research proposals, calls for research proposals, job opportunities, research studentship opportunities, impending conferences and other items of important information for rapid dissemination. Of course, we will also continue the regular circulation of information via our Newsletter. The ESSC web site is:

http://www.essc.sk

ESSC membership list and contact details

The full ESSC membership list is held on the ESSC web site. Under 'members' you can obtain a full listing. Also under 'members' you can click on any member country and find a listing of members in the selected country.

We are trying to keep the membership list on the web site up-to-date. Please check your details and let us know if there are any necessary correction(s). If your details change, also please let us know. Some members have requested that we do not add their e-mail addresses to the web site, to avoid uninvited 'spam' e-mails. Of course, we respect this request. Therefore, while we retain a list of the e-mail addresses of ESSC members, this list will not be available on the web site.

Editorial matters in Bratislava are handled by Ida Kurincová Kriegerová. In terms of membership lists, contact details and the ESSC web site, please send updated information to Ida at:

E-mail: i.kriegerova@vupop.sk

Please also use and refer to the **'Directory of European Organizations and Persons Working on Soil Protection'** as a reference source for European colleagues, both members and non-members of the ESSC. This publication contains the e-mail addresses of most ESSC members and will be subject to periodic updates. The reference citation is:

Rubio, J.L., Imeson, A.C., Bielek, P., Fullen, M.A., Pascual, J.A., Andreu, V., Recatala, L. and Ano, C. (2006). **Directory of European Organizations and Persons Working on Soil Protection.** Soil Science and Conservation Research Institute, Bratislava, 190 pp. (plus CD-Rom).

FORTHCOMING DATES FOR YOUR DIARY

FIRST ANNOUNCEMENTS

Bioengineering Symposium. Erosion Control and Slope Stabilization from a Bioengineering Approach

LOCATION: La Rosaleda (Parque del Oeste), Madrid, Spain
DATES: 30-31 March 2011

There will be two main guidelines:

Guideline 1. Research work: processes, materials and techniques; Present and future.
- Research programmes.
- Case studies.
- Current needs and new challenges.
- The role of Administration and Universities.

Guideline 2. Practical cases. Work and projects.

PRELIMINARY CONTENTS

DAY 1
Morning (09^{00}-14^{00}). 40 minute communications.
Presentation of the event by members of Madrid City Hall.
Communications related to research on the use of vegetation to improve slope stability and erosion control.
Round-table discussion.

Afternoon (15^{30}-19^{30}). 30 minute communications.
Research needs in the development of bioengineering techniques: the role of Administration, Universities and commercial companies. Participants will include:
- Alexia Stokes, INRA (France).
- Joanne Norris, Nottingham Trent University and Halcrow Group (UK).
- Chris Phillips, Landcare Research (New Zealand).
- James Bathurst, University of Newcastle (UK).
- Fernando Magdaleno, CEDEX and Hydrographical Confederations of Cantábrico, Guadiana, Tajo, Duero and Ebro (Spain).
- Eduardo del Palacio, Ministry of the Environment (Spain).
- Paola Sangalli, President of the Spanish Association of Landscape Engineering (Spain).
- José Luís Rubio (President of The European Society for Soil Conservation, Professor of the Polytechnic University of Valencia), Valencia (Spain).
- Madrid City Hall.

Round-table discussion

DAY 2: Practical case studies
Morning (09^{00}-14^{00}). 20 minute communications.

Examples of projects or works in which bioengineering techniques were used.

Close.

For further information, please contact:
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E-mail: gtc@profoyma.com

4TH ANNUAL INTERNATIONAL CONFERENCE ON AGRICULTURE, 18-21 JULY 2011, ATHENS, GREECE
CALL FOR PAPERS AND PARTICIPATION

The 'Environment and Agriculture Research Unit' of the 'Athens Institute for Education and Research' (AT.IN.E.R.) is organizing its '4th Annual International Symposium on Agricultural Research' from 18-21 July 2011 in Athens, Greece.

The aim of the Conference is to bring together scholars and students of all related disciplines. Areas of interest include (but are not confined to): Botany, Ecology and Nature Conservation, Waste Management, Rural Development, Biomass, Animal Behaviour, Geochemistry, Computers in Agriculture, Food and Nutrition, Plant and Tree Studies, Marine Science, Agricultural Engineering, Crop Science, Agronomy, Soil Science, Mycology, Fish Issues, Forestry Sciences, Genetics, Agribusiness, Hydrology, Land Use and Policy, Pesticides, Plant Pathology and Veterinary Sciences. Selected papers will be published by ATINER in a Special Volume.

The Conference registration fee is €250, covering access to all sessions, two lunches, coffee breaks and Conference materials. In addition, several events are organized (at additional cost): a Greek night of entertainment, a dinner, a half-day tour to archaeological sites in the Prefecture of Attica and a special one-day cruise to nearby Greek islands. Special arrangements are being made with local hotels for a limited number of rooms at a special conference rate.

Please submit a 300-word abstract by 24 December 2010, by e-mail to:

Dr Costas Stathopoulos, Deputy Head, Environment and Agriculture Research Unit of ATINER, University of Newcastle, New South Wales, Australia.

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Abstracts should include: Paper Title, Family Name(s), First Name(s), Institutional Affiliation, Current Position, e-mail address and at least three key-words that best describe the subject of the proposed paper. If you want to participate without presenting a paper (i.e. chair a session, evaluate papers to be included in the Conference proceedings or books, contribute to editing, or any other offer to help), please e-mail:

Dr Gregory T. Papanikos (Director of ATINER) at:

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The Athens Institute for Education and Research (ATINER) was established in 1995 as an independent academic organization with the mission to become a forum, where academics and researchers, from all over the world, could meet in Athens and exchange ideas on their research and discuss the future developments of their discipline. Since 1995, ATINER has organized over 100 international conferences and published over 80 books. Academically, the Institute consists of four research divisions and 19 research units. Each research unit organizes at least one annual conference and undertakes various research projects.

For further information, please visit the Conference website:
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ASSOCIATION OF ENVIRONMENTAL AND ENGINEERING GEOLOGISTS 54TH ANNUAL MEETING, ANCHORAGE, ALASKA, 19-24 SEPTEMBER 2011

Tentative Technical Programme

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3rd International Conference on Soil Bio- and Eco-engineering 'The Use of Vegetation to Improve Slope Stability,' Vancouver, Canada, 23-27 July 2012

Third in the Series 'The Use of Vegetation to Improve Slope Stability,' this Conference will take place at the Department of Forest Sciences, the University of British Columbia, Vancouver, Canada. As in the preceding conferences, we will bring together scientific researchers, practitioners, geotechnical and civil engineers, biologists, ecologists, geomorphologists and foresters to discuss current problems in slope stability research, and how to address those problems using soil bio- and eco-engineering techniques.

Over the last 50 years, alterations in land-use coupled with the consequences of climate change have led to severe degradation of mountainous and hilly regions around the world. Once a landslide has occurred or erosion processes are underway, the replacement of soil on the denuded slope can take thousands of years through natural processes. In a world where the population is expected to reach 9 billion by 2040, agricultural soil is precious and hillslope stability is now a priority for governments needing to feed rapidly increasing populations. Therefore, the prevention of slope instability, the restoration of degraded slopes and the correct management of steep farmed slopes is of utmost importance. In response to the need for better mitigation strategies, major advances in research and applications for using vegetation to improve slope stability have been made in the last 10 years, largely due to the development of techniques and models for the study of root-soil interactions at different scales. These advances will be presented and discussed at the Conference, where sessions will focus on root-soil mechanics, vegetation on slopes over time and space, vegetation for reversing soil degradation and soil bioengineering case studies. Proceedings will be published in a special edition of the international journal 'Ecological Engineering.'

We hope that you will be able to join us at this meeting, to be held in Vancouver, one of the most beautiful cities in the world (Plate 1). Surrounded by majestic mountains, sparkling ocean and rainforests, Vancouver is situated in a unique location, making it the ideal venue for our Conference and for post-meeting leisure activities.

The Organizing Committee.

Plate 1. The City of Vancouver, British Columbia, Canada.

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E-mail: alexia.stokes@cirad.fr

IAG/AIG Regional Conference on Geomorphology 2011: 'Geomorphology for Human Adaptation to Changing Tropical Environments,' 18-22 February 2011 in Addis Ababa, Ethiopia

The Conference promotes exchange of studies and methods for the investigation of tropical geomorphology in connection with different effects of global environmental change. The Conference programme includes lectures, workshops, two pre-conference and three post-conference field trips and a range of social activities.

Conference Topics

1. Land Degradation and Resilience.
2. Geomorphological Mapping.
3. Quaternary Stratigraphy and Palaeoclimate.
4. Coastal Geomorphology.
5. Geoheritage and Geoarchaeology.
6. Fluvial Geomorphology and Flooding Hazard.
7. Volcanic Geomorphology and Hazards.
8. Geomorphology of Tropical Mountains.
9. Dryland Geomorphology and Desertification.
10. Morphotectonics, Active Tectonics and Seismic Hazards.
11. Landslide Hazard Assessment and Zoning.
12. Environmental Change and Human Impacts.
13. Karst Geomorphology.
14. Geomorphology of Wetlands.
15. Urban Geomorphology.
16. Mining Area Rehabilitation.
17. Planetary Geomorphology.
18. Geoecology.
19. Tectonic Topography.

Field trips:

Pre-Conference Field Trip; Trip 1 (MER): Geomorphology of the Main Ethiopian Rift.

Pre-Conference Field Trip; Trip 2 (AFAR): Tectonic Landforms and Volcanism in the Southern Afar.

Post-Conference Field Trip; Trip 3 (NEH): Geomorphological hazards, land degradation and resilience in the northern Ethiopian Highlands.

Post-Conference Field Trip; Trip 4 (NEHLAL): Visit to Mounts Simien and Lalibela and Lake Tana.

Post-Conference Field Trip; Trip 5 (NEHEX): Visit to the Danakil Depression.

Intensive Course on Landslide Geomorphology and Mapping (LANDMAP).

The First and Second Circulars and Registration and Payment Forms can be downloaded from the IAG/AIG Website:
www.geomorph.org

ORGANIZING COMMITTEE

Asfawossen Asrat, Mohammed Umer, Francesco Dramis, Jan Nyssen.

IAG/AIG REGIONAL CONFERENCE 2011
GEOMORPHOLOGY FOR HUMAN ADAPTATION TO CHANGING TROPICAL ENVIRONMENTS

ADDIS ABABA, ETHIOPIA; 18-22 FEBRUARY 2011

REGISTRATION FORM

Please complete this form and e-mail it to the Local Organizers:
Department of Earth Sciences, Addis Ababa University, P.O. Box 1176, Addis Ababa, Ethiopia
E-mails: asrata@geol.aau.edu.et; asfawossena@gmail.com; moha_umero@yahoo.com

Title	❒ Prof. ❒ Dr ❒ Mr. ❒ Ms.		**Name for Badge**		
Given Name(s)		**Middle Name**		**Family Name**	
Gender	❒ M ❒ F	**Student**	❒ Y ❒ N	**Date of Birth**	____/____/____ (dd/mm/yyyy)
Affiliation					
Postal Address					
State or Province		**Postal Code**		**Country**	
E-mail				**Telephone**	
2nd E-mail (Optional)				**Fax**	
Abstract Title					
Preferred Theme	❒ Land Degradation and Resilience ❒ Geomorphological Mapping ❒ Quaternary Stratigraphy and Palaeoclimate ❒ Coastal Geomorphology ❒ Geoheritages and geoarchaeology ❒ Fluvial Geomorphology and Flooding Hazard ❒ Volcanic Geomorphology and Hazard ❒ Geomorphology of Tropical Mountains ❒ Drylands Geomorphology and Desertification ❒ Morphotectonics, Active Tectonics and Seismic Hazard			❒ Landslide Hazard Assessment and Zoning ❒ Environmental Change and Human Impact ❒ Karst Geomorphology ❒ Wetlands Geomorphology ❒ Urban Geomorphology ❒ Mining Areas Rehabilitation ❒ Planetary Geomorphology ❒ Geoecology ❒ Tectonic Topography	
Preferred Presentation	❒ Oral ❒ Poster	**In which Pre- and/or post-Conference Field trip will you participate?**		❒ MER; ❒ AFAR ❒ NEH; ❒ NEH-LAL ❒ NEH-EX; ❒ LANDMAP	
Need Invitation Letter for Visa	❒ Y ❒ N	**Apply for Sponsorship?**	❒ Y ❒ N		
Arrival Date	_____/_____/2011 (dd/mm/yyyy)		**Departure Date**	____/____/2011 (dd/mm/yyyy)	

Conference on Land Quality and Land Use Information in the European Union, Keszthely (Hungary), 26-27 May 2011

Following recent scientific and policy developments, which are also reflected in international environmental agreements, land quality is now regarded as an integral measure of different aspects of land ecosystem services.

The Hungarian Academy of Sciences, together with the European Commission (Eurostat, DG Environment and the Joint Research Centre) and the University of Pannonia is organizing a Conference on the issue. This is in association with the Hungarian Presidency of the EU.

The Conference plans to facilitate the exchange of information and views among stakeholders involved in different aspects of land quality management; including research, policy planning, soil management and conservation.

Among the goals of the Conference is to enhance the understanding of the role of land quality in rural systems and to progress the development of land information, land use planning and related services based on land quality on different levels; from farm to continental scales.

The list of the addressed topics, and much more information, is available on the Conference website:

http://landq2011.uni-pannon.hu/

Registration to the Conference is now open.
To register and submit papers for presentation please visit the Conference website.
The deadline for paper submission is 30 November 2010.

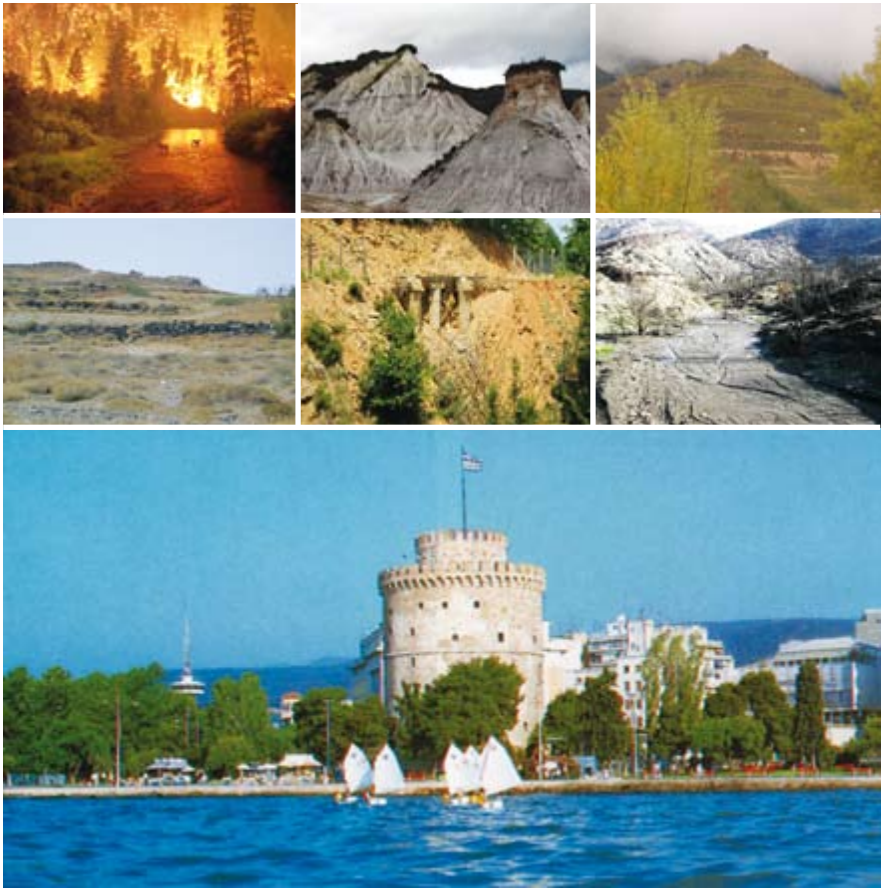

Land Quality and
Land Use Information
in the European Union
International conference
26-27 May, 2011
Keszthely, Hungary
Organisers
Hungarian Academy of Sciences
University of Pannonia
European Commission
(Joint Research Centre, DG Environment, Eurostat)
In association with
the Hungarian EU Presidency
Ministry of Agriculture and Rural Development
Republic of Hungary

THIRD AND FOURTH ANNOUNCEMENTS

EUROPEAN SOCIETY for SOIL CONSERVATION

6TH INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY FOR SOIL CONSERVATION

"Innovative Strategies and Policies for Soil Conservation"



9-14 May 2011

NAGREF

ESSC EUROPEAN SOCIETY for SOIL CONSERVATION

Dear Colleagues

On behalf of the Organising Committee, I have the pleasure to invite you to the **6th International Congress of the European Society for Soil Conservation** entitled *"Innovative Strategies and Policies for Soil Conservation".* This event will be held in Thessaloniki, GREECE, from 9-14 May 2011. It is a golden opportunity to participate at a major scientific event where the latest research findings and scientific and technological developments will be presented in numerous thematic fields. Special focus is given in the multi-disciplinary coverage of the selected themes to be covered by the Congress and you are invited to honour the scientific sessions with your contribution. Scientists from all over the world will be participating in a scientific forum to deliver the state-of-the-art in the selected scientific themes, meet with old colleagues, make new friends and start new co-operations.

Thessaloniki is at the crossroads between East and West; a marvellous seaside city with quaint historic districts, museums, cultural heritage, night life, transportation infrastructure and good connection with other European countries and Athens. The blend of high quality scientific sessions with what the host city and its surroundings have to offer will ensure that your participation will be a memorable one. We do hope you will take this opportunity to contribute to the overall success of this Congress and invite you to fill in the attached pre-registration form. Details of the Congress will be soon available through the official web site of the Congress and the circulars that will be posted to all pre-registered participants.

Please visit: www.esscthessalonikicongress.gr.

We look forward to seeing you in Thessaloniki

Dr Theodore Karyotis

President of the Organizing Committee

PRE- REGISTRATION FORM

"Innovative Strategies and Policies for Soil Conservation"
9-14 May 2011
GRAND HOTEL PALACE***, Thessaloniki, GREECE**

First Name	
Surname	
Organization	
E-mail address	
Telephone Number	
Contact Address	
I intend to present a paper(s) under thematic unit(s)	
I will probably participate without a presentation	

Please complete the congress pre-registration form and send it by e-mail to karyotis@nagref.gr or karyotis@hellasnet.gr

Please visit the new official Congress website: **www.esscthessalonikicongress.gr.**

THEMATIC Sessions

1. Policies and thematic strategies for soil protection.
2. Soil mapping and land evaluation for land use planning.
3. Forest fires impacts on natural resources.
4. Sustainable management of wetlands.
5. Policies and strategies for combating desertification.
6. Socio-economic aspects of land degradation.
7. Soil and water management under global climatic change scenarios.
8. New generation biofuels and their environmental effects.
9. Conservation and management of soil biodiversity.
10. Restoration and remediation of degraded lands.
11. Special session on 'Education in soil conservation and public awareness.'

Welcome to Thessaloniki

Articles, reports, letters, views or comments on any aspect of soil erosion and conservation in Europe are always welcome.

We invite proposals for special thematic issues of the Newsletter. We also welcome any comments on the ESSC Newsletter and suggestions on how it can be improved and developed.

Do not forget to send in your details of the following information:

(i) Reviews of recent conferences.
(ii) Recent grant awards.
(iii) The citation details and abstracts of completed Ph.D. and M.Sc. theses.
(iv) Newly enrolled Ph.D. research students, title of their research topic and names of research supervisors.
(v) Recent staff institutional movements/promotions.
(iv) A reference list of your 'new' international refereed scientific journal papers, which have been published recently (since and including the year 2000).
(v) At the ESSC Council at Průhonice (Czech Republic) in June 2009, it was agreed that the Newsletter will present a series of national reports on soil erosion and soil conservation activities in individual European countries. If you would like to volunteer a contribution, please contact any member of the Editorial team.

Send these details to either:

Professor Mike Fullen: m.fullen@wlv.ac.uk
or
Dr Colin Booth: c.booth@wlv.ac.uk
and they will include this information in the next issue.

PLEASE NOTE:
We publish four Newsletter issues per year. The deadlines are:
10 January; 1 April, 1 July and 1 October.

Some Closing Thoughts:

"Nothing great is suddenly created, any more than a bunch of grapes or a fig.
If you tell me that you desire a fig,
I answer there must be time.
Let it first blossom, then bear fruit, then ripen" *(Epictetus, 341-271 BC)*

"Planet Earth has no tourists" *(Richard Templar, 2006)*

"Awry like an old thorn for lack
Of the soils depth
And destitute as a tree stripped
Of foliage under a bald sky" *(Ronald Stuart Williams, 1913-2000)*

"Learning is doing, doing is learning" *(Peter Senge, 2008)*

"It is better to know some of the questions than all of the answers" *(James Thurber)*

"The most beautiful experience in the universe is the mysterious. It is the source of all arts and sciences" *(Albert Einstein)*

"No snowflake in an avalanche ever feels responsible" *(Voltaire, 1694-1778)*

"Courage does not always roar. Sometimes courage is the quiet voice at the end of the day saying "I will try again tomorrow" *(Mary Anne Radmacher)*

"Nurture your mind with great thoughts; to believe in the heroic makes heroes"
(Benjamin Disraeli, 1804-1881)

"Sandwich every bit of criticism between two thick layers of praise"
(Mary Anne Ash, 1915-2001)

AIMS OF THE SOCIETY

The ESSC is an interdisciplinary, non-political association, which is dedicated to investigating and realizing soil conservation in Europe. The ESSC pursues its aims in the scientific, educational and applied sectors by:

Supporting investigations on soil degradation, soil erosion and soil conservation in Europe,

Informing the public about major questions of soil conservation in Europe,

Collaborating with institutions and persons involved in practical conservation work in Europe.

The ESSC aims at co-ordinating the efforts of all parties involved in the above cited subjects: research institutions; teachers and students of geosciences, agriculture and ecology; farmers; agricultural planning and advisory boards; industries and government institutions.

ZWECK DER VEREINIGUNG

Die ESSC ist einer interdisziplinäre, nicht politische Vereinigung. Ihr Ziel ist die Erforschung und Durchführung des Schutzes der Böden in Europa. Die ESSC verfolgt dieses Ziel auf wissenschaftlichem, erzieherischen und angewandtem Gebiet:

durch Unterstützung der Forschung auf den Gebieten der Boden-Degradierung, der Bodenerosion und des Bodenschutzes in Europa,

durch Information der Öffenlichkeit über wichtige Fragen des Bodenschutzes in Europa,

durch Zusammenarbeit mit Institutionen und Personen, die an der Praxis des Bodenschutzes in Europa beteiligt sind.

Die ESSC will alle Personen und Institutionen zusammenführen, die sich für die genannten Ziele einsetzen: Forschungsinstitutionen, Lehrer und Studenten der Geowissenschaften, der Landwirtschaftswissenschaften und der Ökologie, Bauern, landwirtschaftliche Planungs- und Beratungsstellen, Industrieunternehmen und Einrichtungen der öffentlichen Hand.

BUTS DE L'ASSOCIATION

L'ESSC est une association interdisciplinaire et non politique. Le but de l'association est la recherche et les réalisations concernant la conservation du sol en Europe. L'ESSC poursuit cette finalité dans les domaines de la recherche scientifique, de l'éducation et de l'application:

en encourageant la recherche sur la dégradation, l'érosion et la conservation du sol en Europe,

en informant le public des problemes majeurs de la conservation du sol en Europe,

par la collaboration avec des institutions et des personnes impliquées dans la pratique de la conservation du sol en Europe.

L'ESSC souhaite favoriser la collaboration de toutes les personnes et institutions poursuivant les buts définis ci-dessus, en particulier: institutions de recherche, professeurs et étudiants en géosciences, des agriculteurs, des institutions de planification et des conseil agricole, de l'industrie, et des institutions gouvernementales.

OBJECTIVOS DE LA SOCIEDAD

La ESSC es una asociación interdisciplinar, no-politica, dedicada a la investigación y a la realización de acciones orientadas a la conservación del suelo en Europa. La ESSC persigue sus objectivos en los sectores cientificos, educacionales y aplicados, en al ámbito europeo:

promocionando la investigación sobre degradación, erosión y conservación de suelos,

informanto al público sobre los principales aspectos de conservación de suelos,

colaborando con instituciones y personas implicadas en la práctica de la conservación de suelos.

La ESSC aspira a coordinar los esfuerzos, en los temas arriba mencionados, de todas las partes implicadas: centros de investigación, profesores y estudiantes de geo-ciencias, agricultura, selvicultura y ecología, agricultores, servicios de extensión agraria, industrias e instituciones gubernamentales.

Visit the ESSC Website: http://www.essc.sk

MEMBERSHIP FEES

I wish to (please mark appropriate box):

- Join the ESSC
- Renew my membership of the ESSC
- Know whether I have outstanding membership contributions to pay

Membership rates:

Standard Rates:

- One year € 25.00
- Three years € 70.00

Members in Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia and Ukraine:

- One year € 10.00
- Three years € 25.00

Students:

50 % reduction on above rates for three years
Your supervisor must provide written confirmation of student status

I wish to pay my membership contribution by (please mark appropriate box):

- Eurocard / Mastercard
- Visa Card
- American Express Card
- Bank Transfer

Branch address: Fortis Bank, Zonnestraat 2, B-9000 Gent, Belgium;
International transaction codes:
IBAN - BE29 0014 5139 8064 and BIC - GEBABEBB;
Account name: European Society for Soil Conservation;
Account number 001-4513980-64

CARD NO. ..... EXPIRY .....

Amount: € ..... Date: ..... Signature: .....

NAME: .....

ADDRESS: .....

.....

E-MAIL: .....

MEMBERSHIP NUMBER (if known): M0 .....

Please send this form to: ESSC Treasurer, Dr Wim Cornelis, Department of Soil Management and Soil Care, Coupure links 653, B-9000 Gent, BELGIUM.

wim.cornelis@UGent.be