

DesertNet International



DesertNet International Newsletter n. 4/2013

This quarterly electronic newsletter is intended to inform the scientific community about dryland-relevant research matters. The **deadline** for receipt of material for the next issue is **15.03.2014**. Please send your contributions (1000 characters max, including spaces) to czanolla@uniss.it

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1. DesertNet updates

Collaboration and Cooperation Agreement signed by DNI-WOCAT-GNDRI at UNCCD COP 11



At the recent UNCCD COP 11 held in Windhoek, Namibia, from 16 until 27th September 2013, DesertNet International held a side event on 17th September to “Launch a Networking Process of International Scientific Bodies on Research on Land Degradation and Desertification”. This independent science-driven initiative of DNI to pursue a networking process between DesertNet International (DNI), the World Overview of Conservation Approaches and Technologies (WOCAT), and the Global Network of Desert Research Institutes (GNDRI) was presented and discussed. The cooperation agreement between DNI, WOCAT and GNDRI was officially signed by the chairs of the three networks at the presence of

the former UNCCD Executive Secretary Luc Gnacadja.

Information contributed by: DNI Bureau

UN Sustainable Development Solutions Network:

DesertNet International has been accepted as member of the UN Sustainable Development Solutions Network (SDSN). The network mobilizes scientific and technical expertise from academia, civil society, and the private sector in support of sustainable development problem solving at local, national, and global scales. For more information, please visit <http://unsdsn.org/>.

Information contributed by: DNI Bureau

2. Information relevant to DesertNet members

First IPBES work programme includes an assessment on “land degradation and restoration”



Second Plenary of the IPBES in Antalya, Turkey (9-14.12.2013)

Photo: M. Akhtar-Schuster

The 2nd Plenary of the recently established Intergovernmental Platform on Biodiversity and Ecosystems Services / IPBES (9 – 14.12. 2013 in Antalya/Turkey) has adopted its first 5-year work programme (2014-2018).

The IPBES work programme also includes a request made by the UNCCD Bureau of the Committee of Science and Technology (CST) for a thematic assessment on land degradation.

For more details see “**work programme for the period 2014–2018 (IPBES/2/CRP.9)**” <http://www.ipbes.net/antalya#conf-room-papers>.

The UNCCD secretariat welcomed the assessment, as its results will be crucial for addressing the goal of a land degradation neutral world. The Secretariat also informed the IPBES Plenary about the decision taken at UNCCD COP.11, in September 2013, to establish a Science-Policy Interface (SPI), making the UNCCD ready to be an active partner to contribute to the IPBES work programme.

The IPBES Plenary in Antalya also approved DesertNet International (DNI) as observer. DNI will be providing news on IPBES activities related to land degradation.

Information contributed by: Mariam Akhtar-Schuster, coordinator of the Advisory Board of DNI.

DesertNet International in the Global Soil Week 2013 (Berlin, 27-31 October 2013)



This initiative of the Global Soil Forum (established by IASS in 2011) is convened within the framework of the Global Soil Partnership (GSP) and a group of partners to improve global governance of the world’s soil resources to guarantee

GSW is a forum for interactive exchange and dialogue among stakeholders from science, government, business and civil society to develop plans of action for At this year’s GSW titled “Loosing Ground?”, Desertnet International, SNOWMAN Network EC – European Commission Directorate-General for Research and Innovation and CityChlor hosted a

session titled “Making connections between soil and societal challenges: Transdisciplinary collaboration and strengthening the Science-Policy-Practice linkages”. Particularly, the identification of bottlenecks in international

science-policy and mechanisms to improve decision making were presented and discussed. The presentations will be published soon on the GSW website and other Global Soil Forum approved platforms.

More information at: http://globalsoilweek.org/gsw-2013/programme/wednesday/wednesday_2_5/

Information contributed by: Maria José Marques, DNI Bureau

2014 World Day to Combat Desertification . Land belongs to the future, let's climate proof it!

The theme of the 2014 World Day to Combat Desertification is ecosystem-based adaptation. The day will include special events and announcements, social media and other activities. For further information, contact Awareness Raising, Education and Communication Unit. Email: arce@unccd.int

More information at <http://bit.ly/WDCD2014>

Information contributed by: DNI Bureau

Land for Life Award. Call for Applications.

The Land for Life Award is the only global award that solely focuses on recognizing organizations and individuals working to restore degraded lands and improve soil's natural health and productive capacity.

A prize fund of USD \$100,000 will be shared among three winners. The application form is available in different languages. Deadline to apply: 15 March 2014.

More information at <http://bit.ly/L4L2014>

Information contributed by: DNI Bureau

3. Researchers Updates

CASCADE Project



The CASCADE Project is searching for evidence of tipping points in dryland ecosystems across southern Europe, in areas where the main drivers of degradation are overgrazing or recurrent fires.

A wide range of experiments is being replicated in each of 6 study sites (in Portugal, Spain, Italy, Greece and Cyprus) looking in particular at the stress of drought by continuing rainfall exclusion artificially. As we approach the end of year 2, preliminary results from the experiments, which are at a range of spatial scales, are being collected and analysed. A combination of empirical and modelling approaches is being used to gain a better understanding of the stresses of discontinuous changes. This work will then provide indicators of early warning, which should lead to better-focussed restoration programmes, to save time and spending on more successful mitigation measures.

Information contributed by: Nichola Geeson, CASCADE dissemination

New website for the Center for International Forestry Research (CIFOR)

The Center for International Forestry Research (CIFOR), Bogor, Indonesia recently launched a new website dedicated to the role of forests in climate change mitigation and adaptation. <http://www.forestsclimatechange.org/>
 This is a frequently updated online information hub for news, debate, research and tools on forests and climate change. The site is run by CIFOR as part of its Global Comparative Study on REDD+. Since early 2013, DNI Advisory Board Member Christopher Martius is Principal Scientist for Climate Change at CIFOR.

Information contributed by: Christopher Martius, DNI AB member

Sustainability science: a new prospective of studies

In October 2013, several Italian researchers from different disciplines have founded the Italian Association of Sustainability Science (AISS). The rationale of the Association is based on the new academic approach to the need of a comprehensive systems methodology for effective decision making with regard to global sustainability, involving transdisciplinary research with industrial, social, and ecological systems.

AISS will cooperate with the international network of Sustainability Science that was founded at a meeting in Arizona State University in 2012. Sustainability Science is based on the awareness that despite efforts to reduce unsustainability, global resource consumption continues to grow. There is an urgent need for a better understanding of the dynamic, adaptive behaviour of complex systems and their resilience in the face of disruptions.

For more information, please contact: grego@unitus.it; vincenzo.naso@uniroma1.it

Information contributed by: Stefano Grego, University of Tuscia, Viterbo, Italy, DNI AB member

Assessing the risk of desertification in Spain

The Spanish Ministry of Agriculture Food and Environment has developed an early warning system to estimate the risk of desertification in the country. SAT (<ftp://nostromo.eeza.csic.es/> Username: SAT) is programmed in Visual Basic and uses Excel as the platform from which system dynamics models constructed in Vensim®DSS are launched.

The five archetypical cases of desertification in Spain are adaptations of a generic model whose structure is made up of causal feedback loops including non-linear relationships and delays. These socio-ecological systems reproduce changes in the use of resources and their removal by considering both climatic drivers and market conditions.

The tool is designed to implement three simulation exercises: (i) trends for the main variables of the system; (ii) estimation of the risk of desertification from the implementation of 1000 random simulations; and (iii) the ranking of the desertification factors according to their impact on the key variables.

Among the authors: j. Martínez-Valderrama, J. Ibáñez, S. Martínez, A. Martínez Ruiz, Leopoldo Rojo

Information contributed by: Jaime Martínez Valderrama, Estación Experimental de Zonas Áridas (CSIC), Spain, DNI member

4. Important upcoming events

List of links to next meetings regarding desertification, water conservation and land degradation.

2014		
19-21 Feb	Gender, Water and Development Conference 2014 http://global-water-conference1.com/	Eastern London, South Africa
3-7 Mar	Nexus 2014: Water, Food, Climate and Energy Conference	North Carolina, US

	http://nexusconference.web.unc.edu/	
24-24 Mar	Soil Change Matters www.soilmatters.org	Bendigo, Australia
26-28 Mar	Globe 2014. Building resilience through sustainability strategies & innovation http://www.globe-net.com/events/2014/3/globe-2014/	Vancouver, Canada
27 Apr-2 May	General Assembly of the European Geosciences Union http://www.egu2014.eu/	Vienna, Austria
15-17 May	Building Resilience for Food and Nutrition Security http://www.2020resilience.ifpri.info/	Adis Abeba, Ethiopia
8-13 Jun	20th World Congress of Soil Science http://www.20wcss.org/	Jeju, Korea
23-26 Jun	Biogeochemical processes at Air-Soil-Water Interfaces and Environmental Protection. http://aswep-essc.unibo.it/	Imola, Italy
21-25 Jul	Eight International Conference on Aeolian Research (ICAR VIII) http://www.2014icar8.com/	Lanzhou, China
3-8 Aug	Restoration, Ecosystem Services and Land Use Policy http://www.ser2014.org/	Oulu, Finland
22-25 Sep	the Earth Living Skin: Soil, Life and Climate Changes http://www.els2014.eu/d/98/Invitation_to_attend/	Nova Yardinia, Italy
14-16 Oct	9th International Soil Science Congress on "The Soul of Soil and Civilization" http://www.soil2014.com/	Side, Antalya, Turkey
9-15 Nov	XX Latinoamerican Soil Science Congress http://www.xxcongresolatinoamericanodesuelosperu.org/index_e.php	Cusco, Peru
12-13 Nov	International Symposium on the Post 2015 Agenda & The Sustainable Development Goals http://www.sdgp2015.com/	Sydney, Australia
17-20 Nov	Drylands, Deserts and Desertification http://in.bgu.ac.il/en/desertification/	Negev, Israel

5. Publications and Special Issues

1. Barzani, M. M., and O. S. Khairulmaini, 2013, Desertification risk mapping of the Zayandeh Rood Basin in Iran: *Journal of Earth System Science*, v. 122, p. 1269-1282.
2. Bouma J., McBratney A. (2013). Framing soils as an actor when dealing with wicked environmental problems. *Geoderma* 200–201 (2013) 130–139
3. Cortina, J., A. Vilagrosa, and R. Trubat, 2013, The role of nutrients for improving seedling quality in drylands: *New Forests*, v. 44, p. 719-732.
4. Estrada, B., R. Aroca, F. J. M. Maathuis, J. M. Barea, and J. M. Ruiz-Lozano, 2013, Arbuscular mycorrhizal fungi native from a Mediterranean saline area enhance maize tolerance to salinity through improved ion homeostasis: *Plant Cell and Environment*, v. 36, p. 1771-1782.
5. Jarvis, W. T., 2013, Water Scarcity: Moving Beyond Indexes to Innovative Institutions: *Ground Water*, v. 51, p. 663-669.
6. Kiage, L. M., 2013, Perspectives on the assumed causes of land degradation in the rangelands of Sub-Saharan

Africa: Progress in Physical Geography, v. 37, p. 664-684.

7. Liu, R. T., H. L. Zhao, X. Y. Zhao, and F. Zhu, 2013, Effects of Cultivation and Grazing Exclusion on the Soil Macrofaunal Community of Semiarid Sandy Grasslands in Northern China: Arid Land Research and Management, v. 27, p. 377-393.
8. McBratney A., Field D. J., Koch A. (2014). The dimensions of soil security. Geoderma 213 (2014) 203–213
9. Munson, S. M., E. H. Muldavin, J. Belnap, D. P. C. Peters, J. P. Anderson, M. H. Reiser, K. Gallo, A. Melgoza-Castillo, J. E. Herrick, and T. A. Christiansen, 2013, Regional signatures of plant response to drought and elevated temperature across a desert ecosystem: Ecology, v. 94, p. 2030-2041.
10. Tisseuil, C., G. R. Roshan, T. Nasrabadi, and G. A. Asadpour, 2013, Statistical Modeling of Future Lake Level under Climatic Conditions, Case study of Urmia Lake (Iran): International Journal of Environmental Research, v. 7, p. 69-80.
11. Xiao, B., H. F. Wang, J. Fan, T. Fischer, and M. Veste, 2013, Biological soil crusts decrease soil temperature in summer and increase soil temperature in winter in semiarid environment: Ecological Engineering, v. 58, p. 52-56.
12. Zucca, C., M. Pulido-Fernandez, F. Fava, L. Dessena, and M. Mulas, 2013, Effects of restoration actions on soil and landscape functions: Atriplex nummularia L. plantations in Ouled Dlim (Central Morocco): Soil & Tillage Research, v. 133, p. 101-110.

New book on Restoration and Development of the Degraded Loess Plateau, China.

Restoration and Development of the Degraded Loess Plateau, China. Series: Ecological Research Monographs. Tsunekawa, A.; Liu, G.; Yamanaka, N.; Du, S. (Eds.). 2013, Springer. XVI. ISBN 978-4-431-54480-7. Hardcover, 344 pages. Price \$129.00.

A successful ecological restoration and protection over the past 30 years in China. The book describes case studies of success and failure in practice, including rare success stories of combating desertification; technical issues such as erosion control and breeding of stress-tolerant plant species, and socioeconomic measures taken by the Chinese government and lending policies with support from the World Bank; and comprehensive measures against desertification, such as water and wind erosion, salinization, and deforestation.

Information contributed by: Maria José Marques, DNI Bureau

New Open Access journal Change and Adaptation in Socio-Ecological Systems,

Versita (www.versita.com/cass) has started up a new range of journals covering topics that have emerged in the recent years, are growing fast, and have generated a considerable number of papers, yet not having a dedicated journal. One of such topics is the dynamics of socio-ecological systems and their drivers. The journal is published in Open Access model.

Versita is a scientific publisher of its own and third party journals in mathematics, physics, chemistry, medicine, life sciences and other fields. Versita publishes journals both in the traditional, paid access model, in partnership with Springer (www.springer.com), and in Open Access model; please see over 200 journals at www.versitaopen.com. Versita solicits excellent research and review articles, as well as communications and vision papers to be published. The manuscripts submitted in response to this invitation will be processed with the highest priority and all accepted papers will be immediately available on-line annual volumes.

Information contributed by: Christopher Martius, DNI AB member

“Science” presents a special section about natural systems in changing climates

DNI members do know that arid and semi-arid anthropoecosystems often exhibit surprising resilience or breakpoints and decline depending upon pressure factors. Anthropogenic pressure, rain, surface and underground water regimes are well known in that respect. Most of these factors directly depend upon an overarching one: climate change. So, climate change can both act as a direct pressure factor, and as an indirect one through these factors. How this chain of impacts affect the arid and semi-arid anthropoecosystems is far from being clearly understood on a consensus basis, and strongly depends upon climate change profile and specific ecosystems conditions. Again, impacts in some places can have severe consequences in other place due to high international exchanges and trade. In its 02 August issue (Vol. 341), the “SCIENCE” review presented a “special section” about “Natural Systems in Changing

Cimates”. Many DNI members should find there information relevant for his/her reserch depending upon his/her concerns.

For more information: <http://www.sciencemag.org/content/341/6145.toc>

Information contributed by: Gerard Begni, CNES; DNI/AB; CSFD, France

..... and another one to “smarter pest control”

Considering the human population growth and the limited surfaces which can be dedicated to agriculture, it is a key challenge to increase crop yields. Among others, DNI focusses most of its attention to soil conservation, but fighting any factor in yield decrease is a part of the challenge. For instance, in perisaharian countries, locusts are a great hindering factor. Pest is also one of these factors, either in semi-desert areas or under more favourable climates. A yield decrease in any part of the world affects crop trade and food international exchanges. In its 16 August issue (Vol. 341), the “SCIENCE” review presented a “special section” about “Smarter Pest Control”. Many DNI members should find there information relevant for his/her reserch depending upon its concerns.

For more information: <http://www.sciencemag.org/content/341/6147.cover-expansion>

Information contributed by: Gerard Begni, CNES; DNI/AB; CSFD, France

6. Other Information**Training Courses and Scientific Missions**

The COST Action ES-1104 Desert Restoration Hub can provide financial support to eligible applicants* to carry out a Short-Term Scientific Mission (STSM) that will contribute to the

scientific objectives of this COST Action. Scientists can go to an institution or laboratory in another COST country to foster collaboration, to learn a new technique, or to take measurements using instruments and/or methods not available in their own institution/laboratory. Next application deadlines:

- 15 January 2014 for STSMs to be initiated and completed between March-May 2014.

**Eligible applicant should be graduate students, post-docs, or early stage researchers, and must be enrolled in or affiliated to an institution located in a COST country or an approved institution in a Near Neighbour country.*

COST countries: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom and Former Yugoslav Republic of Macedonia.

Approved institutions in Near Neighbour countries: the Centre for Ecological-Noosphere Studies, Armenian National Academy of Sciences; and Al Hussein Bin Talal University, Jordan.

More information at: <http://www.waterfootprint.org/?page=files/agenda>

Information contributed by: Maria José Marques, DNI Bureau

Desert Restoration Hub to Activate the Power of Children – Your Help Needed

The focus of COST Action ES1104 'Desert Restoration Hub' is to provide information on the combat of desertification and drylands restoration, with particular emphasis on practical measures for vegetation establishment and sustainable land management (<http://desertrestorationhub.com>).

Although the main thrust is towards innovation through university level research and networking, we also need to realize that the future lies in the hands of the world's children. To this end the Action intends to initiate a number of scientific and art focused projects for children in primary and secondary schools in arid areas and to connect these schools with others in more temperate areas, thereby increasing awareness of the challenges posed by water scarcity and land degradation. If you know of teachers and schools that would be interested in getting involved in this initiative please contact Benz Kotzen (b.kotzen@gre.ac.uk) and Sarah Milliken (s.milliken@gre.ac.uk) at the University of Greenwich.

Information contributed by: Benz Kotzen , University of Greenwich, UK, DNI member

Call for abstracts

COST Action ES1104 is organising a special session on Arid Lands Restoration & Combat of Desertification at the European Geosciences Union General Assembly (Vienna, 27 April-02 May 2014). We invite submission of abstracts on 'Theory and Practice in Vegetation Reestablishment and Sustainable Land Management'.

This session is planned to contribute to the dissemination and discussion of the science and practical guidance for dryland restoration and the combat of desertification. It is organised by members of COST Action ES1104 which focuses on the practical measures that can be used by practitioners, decision makers and stakeholders to restore degraded drylands and manage their recovery.

Contributions include and address the issues, problems, projects and research being undertaken related to the science, techniques, and the traditional as well as innovative methods of vegetation establishment regarding soils and hydrology, the plants themselves, the relative importance of other biotic and abiotic components on drylands and the use of native or non-native plants for restoration.

We aim to publish the proceedings of this session in a special issue of a high impact journal.

For further details see <http://desertrestorationhub.com/call-for-abstracts/>

Information contributed by: Sarah Milliken, University of Greenwich, UK

---- Editorial Board ----

Mariam Akhtar-Schuster, Hamburg University, Germany; Gérard Begni, Earth, Environment & Climate, CNES, France; María José Marqués Perez, Universidad Autónoma de Madrid, Spain; Lindsay Stringer, University of Leeds, UK; Chiara Zanolla, NRD - Sassari University, Italy.

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