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Authors: Margherita CIERVO, Serge SCHMITZ
Title: Sustainable biofuel: A question of scale and aims
Abstract: Bio-energy (like other renewable energy sources) is proposed as a solution for climate change and other energy-related and economic issues. The predominant production model, however, which is based on first-generation biofuels developed on a global scale, creates ecological impacts throughout the production chain, resulting in a sustainability paradox, as well as social unrest and territorial conflict. Therefore, attention here is focussed on agro-energy and second-generation biofuels, investigating the structural differences, the advantages, the potential problems and the possible solutions of some local biofuel initiatives in North Western Europe. Finally, we propose a regional agrarian model to avoid the impacts and contradictions of the global industrial model, to produce a better ecological balance at both the local and the global levels, and to improve the democratic character of energy governance. In addition, we suggest a paradigmatic reading to better understand the cultural, political and socio-economic implications of the two models.
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Authors: Bohumil FRANTÁL, Tadej BEVK, Bregje VAN VEELEN, Mihaela HĂRMĂNESCU, Karl BENEDIKTSSON
Title: The importance of on-site evaluation for placing renewable energy in the landscape: A case study of the Búrfell wind farm (Iceland)
Abstract: Using a case study of the Búrfell Wind Farm project, a large wind farm proposed in the Central Highlands of Iceland, the authors attempt to provide new insights into the factors shaping subjective landscape perceptions and attitudes to renewable energy developments, and into alternative methods that may be used for their assessment. The research was based on an on-site visit and actual experience of the place, investigated using a combination of mental mapping, the technique of the semantic differential and a questionnaire survey. The results show that participants visiting a landscape and using all sensory organs in combination with mental mapping, can reveal more important information than using only 'laboratory' methods with static photographs. The results suggest that the perception of landscape is highly subjective. Those perceiving the landscape as more open, homogenous, industrial, unfamiliar and resilient also consider it more compatible with wind turbines. The perception of the landscape's compatibility with wind turbines proved to be a dominant factor shaping attitudes towards the project. The acceptance of wind turbines is not, however, inconsistent with the perception of landscape as beautiful, wild and unique. Participants from more densely populated countries and countries with a developed wind energy industry were more tolerant of wind turbines in the Icelandic landscape.
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Authors: Luís SILVA, Ana DELICADO
Title: Wind farms and rural tourism: A Portuguese case study of residents' and visitors' perceptions and attitudes
Abstract: Residents' and visitors' perceptions of and attitudes towards existing wind farms, as well as the perceived impact of wind farms on tourism, are examined in this article with reference to a built heritage site in the Portuguese countryside. Based on a set of semi-structured interviews, the paper sheds light on the positive impact that the community's or local actors' involvement in the constitution, management and decision-making processes has on the residents' perceptions and attitudes, and also on the trade-off with the perceived effect of wind farms on local tourism. Moreover, it shows that although most visitors criticised the proximity of wind turbines to medieval architecture, a clear majority of them accepted their presence and virtually all of them stated that these facilities had no impact on their choice of destination.
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Authors: Elena DE UÑA-ÁLVAREZ, Miguel Ángel ÁLVAREZ-VÁZQUEZ, María del Carmen CUQUEJO-BELLO
Title: Landform values for rural sustainability: Recognition and assessment in a Spanish–Portuguese border region case study
Abstract: Landform assemblages may be used to define sites of geomorphological interest which are resources for rural sustainability. This paper focuses on the valuation and significance of such sites in the context of one European internal border region, illustrated using a case study from the inland mountains of the Portuguese - Spanish border: the Serra do Larouco. The theoretical and methodological approach used includes the recognition, inventory and assessment of a preliminary list of twenty-eight sites. They comprise diverse granitic landforms which characterise the rural inland landscapes in the North West of the Iberian Peninsula. The results from the qualitative and quantitative assessments were the basis for a final selection of nine sites as significant land resources. An analysis of their key values supports the proposal of different use and management options to promote rural sustainability. A review of the methodology applied and the consideration of other case studies provide a means to interpret and discuss the regional and local significance of the selected sites. The conclusions emphasise the crucial role that values linked to landforms can play in little-known mountainous and rural border regions, suggesting a future research agenda.
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Authors: Burghard Christian MEYER*, Gábor MEZŐSI, Ferenc KOVÁCS
Title: Landscape degradation at different spatial scales caused by aridification
Abstract: Landscape responses to degradation caused by aridification bring the landscape system into a new equilibrium state. The system transformation may entail irreversible changes to its constituting parameters. This paper analyses the impact of aridification on landscape degradation processes in the sand-covered landscapes of the Hungarian Danube-Tisza Interfluve region at the regional, landscape, and local site scales. Changes in groundwater level (well data), lake surface area (Modified Normalized Difference Water Index) and vegetation cover (Enhanced Vegetation Index) were analysed over time periods of 12–60 years. Significant regional variation in decreasing groundwater levels is observed and limits the regional applicability of this indicator. Applying the lake surface area parameter from remote sensing data demonstrated greater utility, identifying several local lakes in the landscapes which have dried out. Analysis of the vegetation response indicated minor changes over the 2000–2014 time period and did not indicate a landscape system change. Landscape degradation as a result of changes in groundwater, vegetation, land cover and land use is clearly identified exclusively in local lake areas, but at the landscape scale, changes in the water balance are found in phases of system stability and transformation. Thresholds are identified to support policy and management towards landscape degradation neutrality.
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Authors: Jana ŠKVARENINOVÁ, Mária TUHÁRSKA, Jaroslav ŠKVARENINA, Darina BABÁLOVÁ, Lenka SLOBODNÍKOVÁ, Branko SLOBODNÍK, Hana STŘEDOVÁ, Jozef MINĎAŠ
Title: Effects of light pollution on tree phenology in the urban environment
Abstract: Research on urban climates has been an important topic in recent years, given the growing number of city inhabitants and significant influences of climate on health. Nevertheless, far less research has focused on the impacts of light pollution, not only on humans, but also on plants and animals in the landscape. This paper reports a study measuring the intensity of light pollution and its impact on the autumn phenological phases of tree species in the town of Zvolen (Slovakia). The research was carried out at two housing estates and in the central part of the town in the period 2013–2016. The intensity of ambient nocturnal light at 18 measurement points was greater under cloudy weather than in clear weather conditions. Comparison with the ecological standard for Slovakia showed that average night light values in the town centre and in the housing estate with an older type of public lighting, exceeded the threshold value by 5 lux. Two tree species, sycamore maple (Acer pseudoplatanus L.) and staghorn sumac (Rhus typhina L.), demonstrated sensitivity to light pollution. The average onset of the autumn phenophases in the crown parts situated next to the light sources was delayed by 13 to 22 days, and their duration was prolonged by 6 to 9 days. There are three major results: (i) the effects of light pollution on organisms in the urban environment are documented; (ii) the results provide support for a theoretical and practical basis for better urban planning policies to mitigate light pollution effects on organisms; and (iii) some limits of the use of plant phenology as a bioindicator of climate change are presented.
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