EU MATTERS

NIEL's Monthly European Environmental News

Agriculture

Natural enemies of crop pests will feature in the future of environmentally friendly farming

Biological control agents are an environmentally-friendly way of controlling pests and diseases on crops and are advocated in the EU's Sustainable Use of Pesticides Directive1. The authors of a new review of the current state of biological control refer to a recent UN report2 which states that it is possible to produce enough food to feed a world population of nine billion with substantially less chemical pesticides — and even without these pesticides if sufficient effort is made to develop biocontrol-based Integrated Pest Management (IPM) methods. The study suggests that policy measures can speed up the development and use of environmentally-friendly crop protection.

Study suggests anaerobic digestion may reduce microplastics in sewage sludge

European policy permits the application of nutrient-rich sewage sludge on agricultural land as a means of recycling1. However, contamination of sludge with microplastics may pose a risk to ecosystems. This study looked at the characteristics of microplastics in sewage sludge after three types of waste-water treatment, finding that anaerobic digestion should be explored as a method of microplastic reduction.

Livestock worming treatments can reduce seed germination of grassland species

A common anti-parasitic drug used to control gastrointestinal worms in livestock has been shown to inhibit seed germination of three common grassland species. This recent study is the first to show that anthelmintics may negatively affect plant regeneration. The researchers say that treatments should be carefully timed in order to avoid the strongest impact of the drugs on germination and the consequential negative affect on grassland regeneration.

Air Quality

Urban vegetation can react with car emissions to decrease air quality in summer

Researchers have shown that emissions from vehicles can react with emissions from urban trees and other plants, resulting in a decrease in air quality in cities in summer; this reduces the otherwise positive impacts of urban vegetation. The study, conducted in Berlin, showed that during a July heatwave, 20% of ozone concentrations were due to emissions of volatile organic compounds (VOCs) from vegetation interacting with other pollutants. To reduce this effect, lowering emissions of these other pollutants is crucial.

Biodiversity

Data gathered by the public on UK butterfly populations could be useful for conservation

Researchers have compared the findings of a citizen-science project and a long-running butterfly monitoring scheme in the UK to gain insights into the reliability of data gathering by the public. They found that — contrary to the scepticism with which such projects are sometimes viewed — much of the citizen-recorded data agreed with the findings of more formal monitoring, particularly for species often found in gardens. This indicates that mass-participation sampling not only provides a valuable tool for public engagement, but, in this case, could also provide valid data to inform butterfly conservation.

Northern Ireland environment link

Brexit: ***Updates on NIEL's EU Policy work after the UK Referendum decision can be found here.***

Circular Economy

Clarity needed on environmental impact of plastic waste for evidence-based policy

Plastic waste in the environment presents cause for concern, but scientific understanding of its exact impacts is still in its infancy. A team of Dutch scientists has presented recommendations on how to develop a new assessment method which provides clear, specific evidence on the risks of plastic waste. Once developed, this method could inform scientifically sound policies for managing plastic waste.

Towards a Circular Economy: Developing Indicators to Measure Progress in the EU and China

The circular economy concept is increasingly being adopted by policy makers as well as other actors as part of sustainable development agendas. Consequently, attention is also being given to developing tools and methodologies for assessing it effectively.

Climate Action

Mapping the vulnerability of European cities to climate change

A new study has assessed the vulnerability of 571 European cities to heatwaves, droughts and flooding caused by climate change. The causes of vulnerability differ across Europe and the researchers say the results could be used to design policies to mitigate the impacts.

Rapid and significant sea-level rise expected if global warming exceeds 2°C, with global variation

The world could experience the highest ever global sea-level rise in the history of human civilisation if global temperature rises exceed 2 °C, predicts a new study. Under current carbon-emission rates, this temperature rise will occur around the middle of this century, with damaging effects on coastal businesses and ecosystems, while also triggering major human migration from low-lying areas. Global sea-level rise will not be uniform, and will differ for different points of the globe.

Energy

Nordic countries demonstrate the potential of low - carbon energy policies

How are Denmark, Finland, Iceland, Norway and Sweden moving towards renewable and lower - carbon energy use? A study suggests the key areas for progress, to ensure Nordic countries meet low carbon goals, include more renewable and decentralised electricity supply, the development of low - carbon transport systems, improved energy efficiency in building design and industrial use of carbon capture and storage.

Freshwater

Managing flood risk: more realistic models need to take account of spatial differences

Effective flood-risk management requires accurate risk-analysis models. Conventional analysis approaches, however, are based on the evaluation of spatially homogenous scenarios, which do not account for variation in flooding across a river reach/region. Since flood events are often spatially heterogeneous (i.e. unevenly distributed), this paves the way for error. Now, scientists have developed a novel framework for risk analysis that accounts for their heterogeneity, and successfully demonstrated the accuracy of the approach by applying it in a proof-of-concept exercise. By facilitating improved prediction and quantification of flood events, this model is likely to inform future flood-risk management and related decision-making.

Environmental DNA in rivers can assess broad-scale biodiversity

Traces of animals' DNA in the environment, known as environmental DNA (eDNA), can be monitored to paint a picture of biodiversity, new research shows. This study used eDNA to assess biodiversity in an entire river catchment in Switzerland. Importantly, the eDNA technique allowed the researchers to detect both aquatic and land-based species in river water, making it possible to assess biodiversity over a broad scale.

Governance

Remarks by Michel Barnier at Green 10: "Is Brexit a threat to the future of the EU's environment?"

Marine

Warming in the Channel leads to a decline in cold-water fish

Results from a long-term study of fish communities in the Bay of Somme in the English Channel show that numbers of cold-water fish, such as dab and plaice, have been dropping since 1998, as sea temperatures have risen. The researchers say this is evidence of 'tropicalisation' in an English-Channel ecosystem. The findings may have implications for conservation policies in the Bay, which is a Marine Protected Area1 designated under the Natura 2000 programme, as well as other marine sites affected by warming.

Natural Capital

Taking stock: progress in natural capital accounting

The growing human population and a shift to more resource-intensive habits and behaviours are increasing the demands on global ecosystems. Natural capital is a way to describe Earth's natural assets, including soil, air, water, and living things, existing as complex ecosystems, which provide a range of services to humans. Depleting and degrading these reserves may irreversibly reduce the availability of benefits to future generations. This In-Depth Report presents an overview of ideas, debates and progress so far in natural capital accounting, in particular in accounting for ecosystems and their services.

Planning

Insights for urban planning — constructed wetlands sited near industry exposed to high levels of pollution

Constructed wetlands serve as a cost-effective and multi-purpose option for storm-water treatment in urban landscapes, offering flood protection as well as wildlife habitat. However, a new study shows that when nearby land use includes industry, wetlands can accumulate high levels of pollution and potentially become toxic to wildlife. This research offers important insights for the planning and management of wetlands.

Soil

Visual soil evaluation — a key tool for better management of risks to soils

A new review of the potential uses of visual soil evaluation (VSE) shows how this tool can be used to indicate risks of erosion, compaction, greenhouse gas emission or storage and surface-water run-off. Assessing soils in this way is not only useful for agriculture, but has implications for the wider environment, due to the vital role that soil plays in the provision of ecosystem services, for example as a habitat for biodiversity and as a carbon sink.