Slowing climate change, saving European grasslands

Kick-off event of the “SIGNAL” European Research Project at the University of Bayreuth

Assessing the ecological performance, the species diversity and the aesthetic beauty of the meadows and pastures of Europe – with this thought in mind the universities and research centers of eight European countries have come together, forming the research project “SIGNAL”. The central coordination of the “SIGNAL” project (with 1.5 million Euro of ERA-Net funding, a network of national science funding organisations), lies with Prof. Dr. Anke Jentsch, Professor of Disturbance Ecology at the University of Bayreuth and member of the Bayreuth Center for Ecological and Environmental Research (BayCEER).

Researchers from all partner universities and research institutes came together in Bayreuth for the kick-off meeting, which took place on March 13th and 14th 2013. Together they share the opinion that the stability of European grasslands could be endangered through climate change via increasing extreme weather events, especially in connection with the increasing presence of invasive species. Nearly half of all agricultural areas in Europe are meadows and pastures. The important functions of these areas include: scenic beauty, regeneration of groundwater, filtration of pollutants, storage of nutrients and the availability of green fodder. Should any of these functions be disturbed via extended periods of drought, or the introduction of new plants serving as so-called “ecosystem engineers”, the consequences could be drastic.

“These kinds of developments don’t have to be our fate,” says Anke Jentsch, project leader. “In the SIGNAL project, we want to develop precautionary measures that are aimed towards preventing or at least mitigating damages from ecological threats. We have big hopes for the potential that lies in species diversity. In our first meeting, all participants were highly motivated, and are looking forward to tackling this task. Hereby we aim to develop guidelines based on reliable scientific results, which are aimed at the needs of state authorities at European, national and regional levels as well as those of non-governmental organizations. Hereby all project partners hope to be actively involved in public outreach and relations, in order to demonstrate possibilities for responsible action. People should also be better informed about the preventative measures that can be undergone in order to maintain the quality of life of Europeans in the face of climate change. This would also include an increased exchange of information about the goings-on in the agricultural and forestry sectors as well as the efforts of the environmental and nature protections.”

Vorbeugende Maßnahmen, die künftig im SIGNAL-Projekt entwickelt werden, konzentrieren sich vor allem auf drei Faktoren: die Entwicklung der Biodiversität auf den Grünlandflächen, die Beurteilung der Rolle Stickstoff fixierender Hülsenfrüchte und invasiver Arten, sowie landwirtschaftliche Techniken, welche womöglich alte Formen der Landnutzung auf neue Weise realisieren. Diese Faktoren gelten heute in der Forschung als 'Puffer' gegenüber den Folgen extremer Wetterereignisse. Die Wissenschaftlerinnen und Wissenschaftler, die bei SIGNAL mitarbeiten, bringen

zahlreiche Erfahrungen aus internationalen Projekten zur Klimawandelforschung mit. Sie kommen aus acht europäischen Ländern, auf die besonders hohe Anteile der europäischen Grünlandflächen entfallen: aus Belgien, Bulgarien, Deutschland, Frankreich, Italien, Schweiz, Türkei und Ungarn.

Preventative measures developed in the SIGNAL project will be focused on three factors: (1) the development of biodiversity in grasslands, (2) the assessment of the role of nitrogen fixating in legumes and invasive species, as well as (3) agricultural techniques which, where possible, may reintroduce previous forms of land use. These factors may serve as a sort of “buffer” towards the potential consequences of extreme weather events. Researchers involved in the project bring with them a significant amount of experience in international projects on climate change. In total the scientists come from eight European countries and include: Belgium, Bulgaria, Germany, France, Italy, Switzerland, Turkey and Hungary. In these countries, one can find a particularly high amount of grasslands and pastures.

The University of Bayreuth specializes in experiments related to biodiversity and climate change, which are of central importance for the SIGNAL project. Without the existence of designated research sites at the Ecological Botanical Garden at the Bayreuth Campus, these experiments would not be possible. Here it is possible to investigate the consequences of simulated extreme weather events with high levels of precision. The kick-off meeting participants were especially impressed by the present infrastructure and all are very excited about the prospects of the SIGNAL project, which will convey methods and results to other European Countries and contribute valuable information to research focused on the consequences of climate change.

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