CASCADE
Catastrophic shifts in drylands:
How can we prevent ecosystem degradation?

17 JUNE WORLD DAY TO COMBAT DESERTIFICATION

PRESS RELEASE FROM the CASCADE Project. "Catastrophic shifts in drylands: how can we prevent ecosystem degradation?"

Making drylands more resilient with a CASCADE of new research

People who live in drylands know that they can cope with scarcity of water up to a point, but sometimes their way of life becomes just too difficult to continue. It is the same with natural and agricultural ecosystems. Plants and animals need water and also tend to depend on one another to some extent. If environmental stresses become too much they may die back. Then if vegetation cover in the landscape is reduced and the soil is not protected from potential erosion, land degradation and desertification may result. Sometimes the resilience of landscapes is stressed to a tipping point and adverse changes then follow quickly. At the moment little is known about the connections between environmental stresses and catastrophic shifts.

Drylands cover about 40% of the land surface of the globe, and are home to over two billion people, so it is important to protect people's livelihoods. The CASCADE Project will help towards a better future. We know quite a lot about how plants and animals live together, but we need to know more about the thresholds that determine whether ecological communities can survive or not in drylands. Are some types of ecosystem more resilient to change than others? What characteristics improve resilience? How easy is it to restore degraded land? A series of experiments in different sites across dryland Europe will help to give some answers.

One important tool to combat desertification is to maintain and improve biodiversity in drylands. The greater the numbers and types of plants and animals, the more likely it is that

they can act together to protect the land from erosion and degradation. The United Nations Conventions to combat desertification, on biological diversity and on climate change are all closely linked, and the CASCADE Project will provide new insights on these links.

The CASCADE experiments will look at different spatial scales, from small plots to landscapes and the results will be shared with local people and policy makers. If these people like the CASCADE scientific recommendations for protecting their land, there is a good chance that their neighbours will also accept new ideas and want to try them for themselves. For those who can access the internet an online information system called CASCADIS will be built, giving details of the experiments, the results and the recommendations that will help to prevent ecosystem degradation.

What causes a "healthy" pattern of vegetation (left) to shift to a degraded landscape? (Photos by S. Kéfi, 2009)

For more information about the CASCADE project, visit: http://www.cascade-project.eu/index.php/project-information

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