Background information

The GREENVEINS project was conceived due to the realisation that very little is known about biodiversity levels of the agricultural landscape. Nonetheless, biodiversity of those landscapes is not unimportant. More than half of the EU consists of agricultural landscapes, and in the temperate zone the amount is even higher. In a very general sense, it is quite well known that biodiversity decreases with an increasing Land Use Intensity and the often linked decrease of the amount of natural and semi-natural elements in a landscape. But there is no information about quantitative relationships, although there is some indication that there might be a vulnerability zone or threshold, where a relatively small decrease of conditions might cause a large collapse of biodiversity level.

Agricultural landscapes are very dynamic systems, and change is in their nature. Changes in the landscape will especially occur as a result of changes in agricultural policy. At the moment, the information to forecast the effect that e.g. the policy change due to the accession of 10 new countries to the EU in 2004 will have on biodiversity is clearly lacking. The GREENVEINS project is devised to start filling that gap.

GREENVEINS is an RTD project of the European Commission's 5th framework's Energy, Environment and Sustainable Development programme, key action Global Change, Climate and Biodiversity, topic Ecosystem vulnerability.

Greenveins partners

Administration of the protected landscape
Czech Republic

ALTERRA Green World Research (co-ordinator)
The Netherlands

National center for scientific research
France

Swiss Federal Research Station for Agroecology and Agriculture
Switzerland

Geobotanical Institute of the Swiss Federal Institute of Technology
Switzerland

Institute of Forest Ecosystems Research
Czech Republic

Institute of Nature conservation
Belgium

Plant Research International
The Netherlands

Tartu University
Estonia

UFZ Centre for Environmental Research
Germany

University of Rennes
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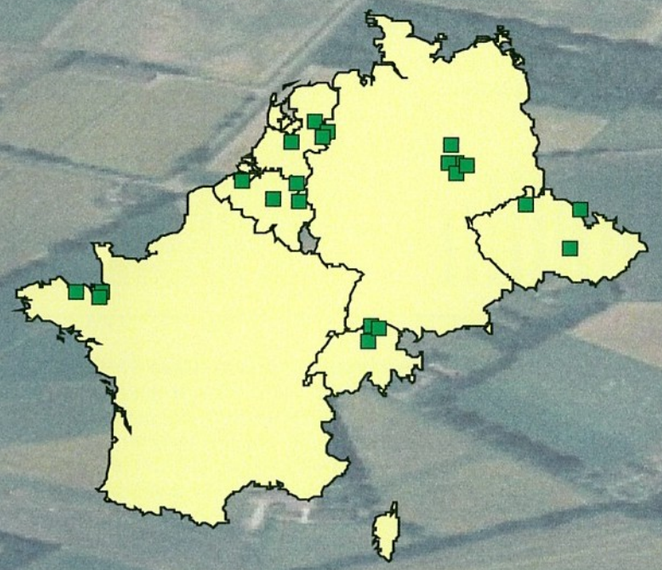
Photographs on front page by Regula Billeter (left landscape and Treefrog), Danieal Csencsics (middle landscape and Bush cricket), Isabel Augenstein (right landscape) and unknown photographers(rest)



Stakeholder newsletter

October 2003



GREENVEINS

A short introduction

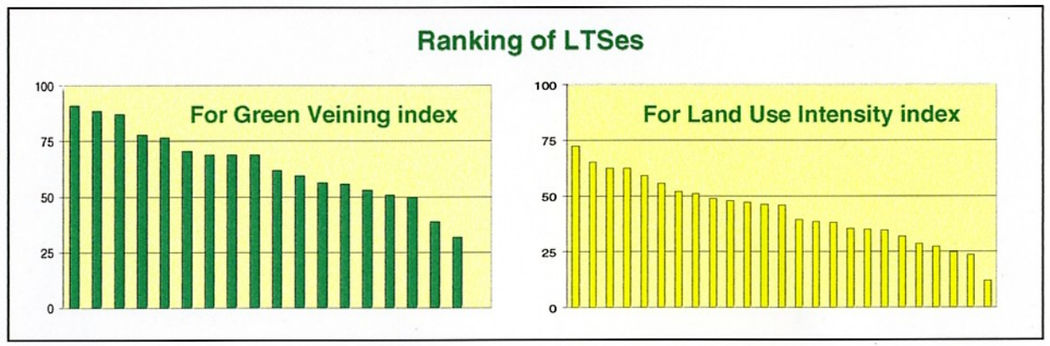
In the GREENVEINS project, research institutes from seven countries co-operate to develop a methodology for the assessment of vulnerability of biodiversity in the agricultural landscape. To achieve this, we measure landscape structure, the intensity of land use and biodiversity on 25 Landscape Test Sites (LTS) of 5 x 5 km, spread over the 7 participating countries in the temperate zone of Europe. We measure landscape structure through the amount and connectivity of the natural and semi-natural elements, the Green Veining (GV). Land Use Intensity (LUI) is established by collecting relevant information (e.g. the applied amounts of fertilizer and herbicides, live stock size) through interviewing farmers. For biodiversity, we collect data on the diversity of vascular plants, songbirds and insects. For nine species (three plant species and six animal species) we look at the relationship between spatial structure of habitat and the sustainability of their populations in detail.

The GREENVEINS project started in February 2001, and is scheduled to finish in 2004. Almost all of the field data was gathered in 2001 and 2002 and processed in the first half of 2003. The results of a first explorative analysis on Green Veining, Land Use Intensity, vascular plants and birds are now available.

Some information on the project background can be found on the back of this newsletter.

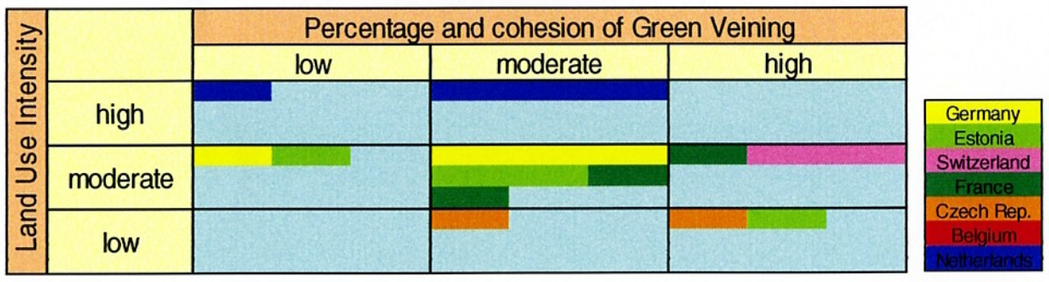
Preliminary results:

- Green Veining and Land Use Intensity

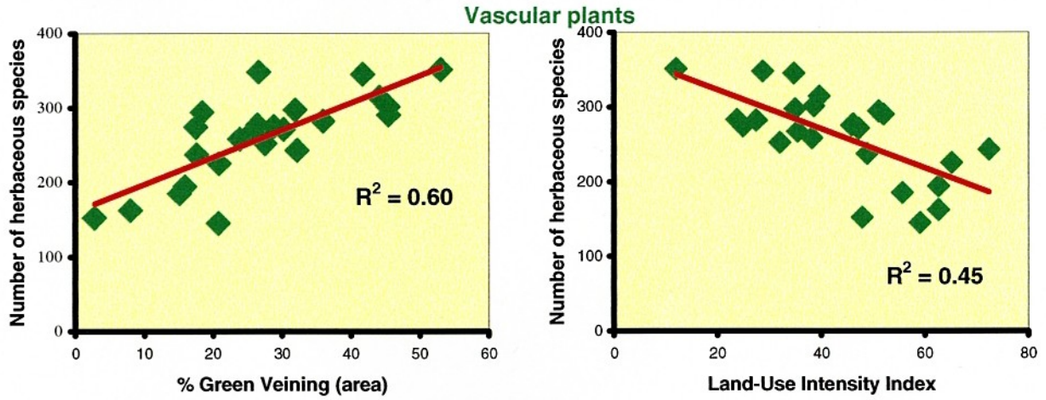


We calculated preliminary indices for both Land Use Intensity (LUI) and Green Veining (GV). The preliminary ranking as shown in the graphs above shows a large and fairly smooth gradient for both LUI and GV. However, we did not succeed in representing all possible combinations in our survey. The ranking of the now available* LTSes in a matrix according to the preliminary LUI and GV indices is shown below. There is obviously a lower representation in the categories that combine LUI and GV extremes, and at the moment no LTSes fall in the two 'unusual combination' categories of low LUI / low GV and high LUI / high GV. However, the variation in combinations is still large enough to be able to distinguish between LUI and GV effects in analysis.

* Green Veining indices for all Belgian, one Czech and one Swiss LTS are still missing, so these sites are not shown.

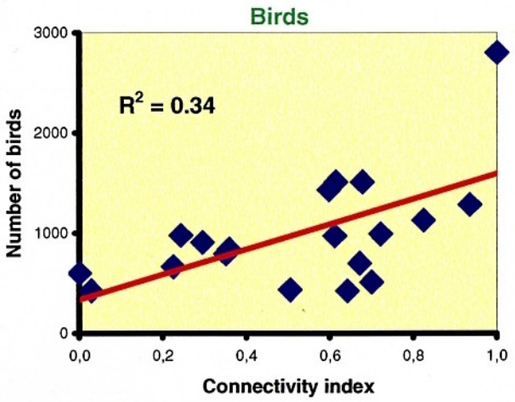


- Vascular plants and birds



The next step in the explorative analysis was to look at the relationship between the preliminary GV and LUI indices, and vascular plants and song birds data. All data are still uncorrected for the effects of (a.o.) sampling intensity and geographic position, but the three sample graphs shown here already indicate a clear relationship. The preliminary results sofar show:

- A clear link between biodiversity, landuse intensity and landscape structure
- A higher impact of LUI on plants than on birds
- A higher dependency of birds on connectivity than on amount of GV



Next steps

The rest of our data (invertebrate sampling, habitat and presence/absence surveys for nine species) will be available soon. Inventories of the regional species richness in the area of the LTSes will also be completed soon which will enable us to calculate relative richness indices. Analysis will then proceed to a more detailed level, where we will focus on more specific groups. For the mentioned nine species, we will analyse the influence of spatial structure of populations on sustainability in relation to LUI and GV. The results of those analyses will be communicated through journal publications and future newsletters.

Stakeholder involvement

During the first two years of the project, with no results available yet, the part of stakeholders in GREENVEINS has been necessarily limited. But now that first results are appearing, they will get a very important role. Project results could lead to landscape development guidelines, biodiversity vulnerability thresholds, etc. To ensure that these products and the interpretation of the results are based on are practical and generally accepted, we will need to develop them in close contact with our stakeholders. At the moment, we have 1 – 2 stakeholders for each country, from either administation or NGO's. We will start with discussing our first results together at the coming stakeholder meeting on 3 November in Prague.

N.B. The preliminary results presented in this newsletter are for information only and may not be cited or reprinted.