

Science for Environment Policy

Communicating biodiversity to farmers: developing the right tools

Two metrics for informing farmers about the biodiversity on their land are presented in a recent Swiss study: average species richness and farm 'uniqueness'. These are both easy to understand and comparable between farms, the researchers say.

Dialogue between farmers and scientists has been shown to be a promising way of improving farmland **biodiversity**. This study, partly conducted under the EU **BioBio** project, explored how scientists offering agricultural consultancy or biodiversity assessments can use metrics to contribute to this conversation.

Metrics provide quantitative **information** about biodiversity that farmers can use as part of their management decisions. The question is: what makes a good metric? The researchers argue that it must be simple, comparable among farms, and work for different aspects of biodiversity and types of farm.

They conducted biodiversity assessments on 19 grassland farms in Switzerland to help identify such a metric. Their assessment method consisted of mapping habitats on each farm, interviewing farmers about their management practices and counting plants, spiders, earthworms and bees within one randomly-selected habitat on each farm.

This exercise produced a range of data about the farms' biodiversity. From this, the researchers identified 'average richness' and 'farm uniqueness' as measures that met all their criteria for good metrics. Average richness describes the variety of species found on each farm, and farm uniqueness reflects a farm's contribution to total species richness across all the farms studied, i.e. it is home to species that are not widely found. These measures reflect two different, but complementary, aspects of biodiversity: quantity and quality.

Richness and uniqueness were each scored as a percentage, with 'average' scoring 100%. Thus, a score of over 100% shows that a farm is above average. Farms were given richness and uniqueness scores for each group of species, as well as an overall score for all species surveyed.

The researchers recommend that farmers are given a table with these scores, which allows them to see at a glance how their land compares with other farms. The 19 farms fell into three groups: those with average richness and low uniqueness, those that were average in both respects and those that scored above average for both measures. Biodiversity advice could be tailored to each farm based on their scores.

For instance, one specific farm had high average richness but low uniqueness. Closer examination revealed that this was because it did not have many habitat types. The farm could therefore be advised to introduce new habitat types. Another farm scored very highly for uniqueness of bees. This was because it had a steep, isolated meadow with bare patches that was very attractive to ground-nesting bees. It should be recommended to this farm that this habitat is maintained.

The researchers emphasise that delivering information alone is not enough to change farm management. To bring about change, farmers must be involved in sharing and exchanging biodiversity knowledge, for they hold a wealth of expertise about nature on their land. The study's authors see scientists' role as 'detecting secrets' of biodiversity, emphasising aspects that may be harder for others to spot.



9 October 2014
Issue 388

**Subscribe to free
weekly News Alert**

Source: Lüscher, G.,
Schneider, M. K., Turnbull,
L. A., *et al.* (2014).

Appropriate metrics to
inform farmers about
species diversity.

*Environmental Science &
Policy*. 41, 52–62.

Doi:10.1016/j.envsci.2014.
04.012

Contact:

manuel.schneider@agro.scope.admin.ch

Read more about:

[Agriculture](#),
[Biodiversity](#),
[Environmental
information services](#)

The contents and views
included in *Science for
Environment Policy* are
based on independent,
peer-reviewed research
and do not necessarily
reflect the position of the
European Commission.

To cite this

article/service: "[Science
for Environment Policy](#)":

European Commission DG
Environment News Alert
Service, edited by
SCU, The University of the
West of England, Bristol.

1. BioBio (Biodiversity indicators
for organic and low-input
farming systems) was supported
by the European Commission
under the Seventh Framework
Programme. See: www.biobio-indicator.org