

Arable plant practical survey: species identification and rapid survey

Objectives:

- To design a sampling strategy for an arable plant survey.
- To practice botanical skills to identify positive and negative indicator species.

Context:

The rapid survey is designed as a monitoring tool that uses positive and negative indicator species to assess site condition. Species are recorded in quadrats. The positive and negative indicators vary by region, so surveyors can produce their own locally-relevant lists or Plantlife (2019b) have produced indicative lists for use on:

- Clay, silt and slowly permeable soils
- Limestone, chalk and calcareous derived soils
- Shale, sand and freely draining soils.

The survey can be relatively simple or more complex depending on the surveyor's requirements. As a minimum, presence of positive and negative indicator species is recorded. Additionally, frequency occurrence and/ or percentage cover data can be recorded. Usually 10-15 positive indicators and 5-10 negative indicators are used.

Study site:

Insert a map of the of study area here, and adapt the size and scale:



Sampling design

Work in a group of 3-5 to plan your fieldwork and robust sampling strategy at the field scale.

- What is the soil type of your study site and which indicative list would be suitable?
- Is your site under conventional or organic production, and how might this affect sampling?
- Is your site under a spring or autumn sown crop, and how might this affect survey timing?
- What quadrat size and shape would be appropriate?
- How many quadrats would be surveyed for a representative sample in each field?
- Will you sample for species presence only, or frequency occurrence/ abundance too?

Field methods and interpretation:

- Work in a group of around 3-5.
- In the field note the crop species, organic or conventional, and the grid reference of each plot.
- Use identification resources to identify the species present.
- Use the Plantlife (2019b) rapid survey form to record presence of positive and negative indicators.
- Once finished in the field, you might assess the frequency occurrence or abundance of positive species using the DAFORN scale as described in Plantlife (2019b)
- Consider how the outcome of the survey may influence future management of the site for arable plant communities.

Using the survey data:

- Produce an academic poster summarising the survey, the results, and implications for management.
- Present a justification for whether the arable plant community is in good or poor condition.
- Submit species records with photographic evidence to National Biodiversity Network.
- Suggest targets to achieve for species frequency occurrence or abundance increases/ decreases.
- Consider how your data could be used for a research project to inform future management.

Resources:

British Geological Survey (2019). *Geology of Britain map*. Retrieved from: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

Centre for Ecology and Hydrology (2016). *Rare arable flowers identification app*. Retrieved from: <https://itunes.apple.com/gb/app/rare-arable-flowers/id1107601988?mt=8&ign-itsct=1107601988-1107601988&ign-itscg=0177&ign-mpt=uo%3D4>

Cranfield Soil and Agrifood Institute (2019). *Soilscapes map*. Retrieved from: <http://www.landis.org.uk/soilscapes/>

Plantlife (2019a). *Arable plant identification keys*. Retrieved from: <https://www.plantlife.org.uk/uk/discover-wild-plants-nature/habitats/arable-farmland/surveying-arable-plants>

Plantlife (2019b). *Survey method: rapid assessment*. Retrieved from: <https://www.plantlife.org.uk/uk/discover-wild-plants-nature/habitats/arable-farmland/surveying-arable-plants>

National Biodiversity Network (2019). *Record, share and explore data*. Retrieved from: <https://nbn.org.uk/record-share-explore-data/>

Rose and O'Reilly (2006). *The Wildflower Key*, pages 83-92. Warne.

Wilson, P. and King, M. (2004). *Arable plants: a field guide*. Wildguides

Health and safety considerations: Health and safety are the responsibility of the activity leader who must complete a risk assessment for safe surveying on a working farm or outdoor area