Cheshire Ecology Ltd

What is an NVC Survey?

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Introduction

A National Vegetation Classification (NVC) survey is a detailed botanical survey of a site. They are normally required for large infrastructure projects such as major trunk roads, wind farms, power stations and gas pipeline installations and provide part of the ecological baseline information for an Environmental Impact Assessment (EIA).

The National Vegetation Classification was originally commissioned by the Joint Nature Conservation Committee (JNCC) in 1975. The aim of the survey was to provide a systematic and comprehensive classification of British plant communities. The results of the NVC were published in a series of five books entitled *British Plant Communities* (Rodwell, 1991-2000). The majority of the fieldwork was carried out between 1976 and 1979 and resulted in the collection of approximately 35,000 samples. Some of these samples were contributed by other workers, including the author, who provided approximately 800 records. The books describe a total of 295 plant communities, the great majority of which are similar to the plant 'association' of continental phytosociological systems.



The NVC has been widely adopted by the statutory bodies (Natural England, Natural Resources Wales and Scottish Natural Heritage), the Environmental Agency, universities and the Forestry Commission. The NVC is not perfect, but it is currently the standard methodology for describing vegetation in the British Isles and has made a major contribution to our understanding of plant communities.

Do I need an NVC survey?

A full NVC survey takes a considerable amount of time to carry out and may not be necessary for smaller projects. In some cases a local authority will request a botanical survey to determine the range of plant communities that are present on a site, before it makes a decision regarding a planning application. This can often happen if the proposed development site is near a Site of Special Scientific Interest (SSSI) or has been

notified as a Wildlife Site or a Site of Interest for Nature Conservation (SINC) by the local authority. This can often be achieved by commissioning an experienced botanist to carry out a thorough survey of the site, including lower plants such as mosses, liverworts and lichens. This type of survey will normally be carried out during a single day and, depending upon the size of the site, may cost less than a £1,000, including the report. The report will normally include a list of the species that were found and their abundance according to the DAFOR Scale (D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare).

The survey

A complete NVC survey, by contrast, may take several days to complete and involves the collection of relevés (a quadrat with additional information about the structure of the site and composition of the plant community). Quadrats can be made from four pieces of wood or metal or, in the case of larger plots, are marked out using a measuring tape.

Depending upon the type of habitat and weather an experienced botanist or plant ecologist should be able to collect between twelve and fifteen relevés in a day (sometimes more in good weather). Relevés range in size from 2mx2m for grassland to 50mx50m for a woodland canopy. A woodland survey will usually take longer to complete than one for grassland because of the significantly larger quadrat size and the requirement to record several layers (ground flora, scrub and canopy). All of the plants in a relevé are recorded, including non-flowering grasses, sedges, mosses, fungi, liverworts and lichens. The identification of these species can add significantly to the cost of the survey, but will normally be expected by the statutory bodies.

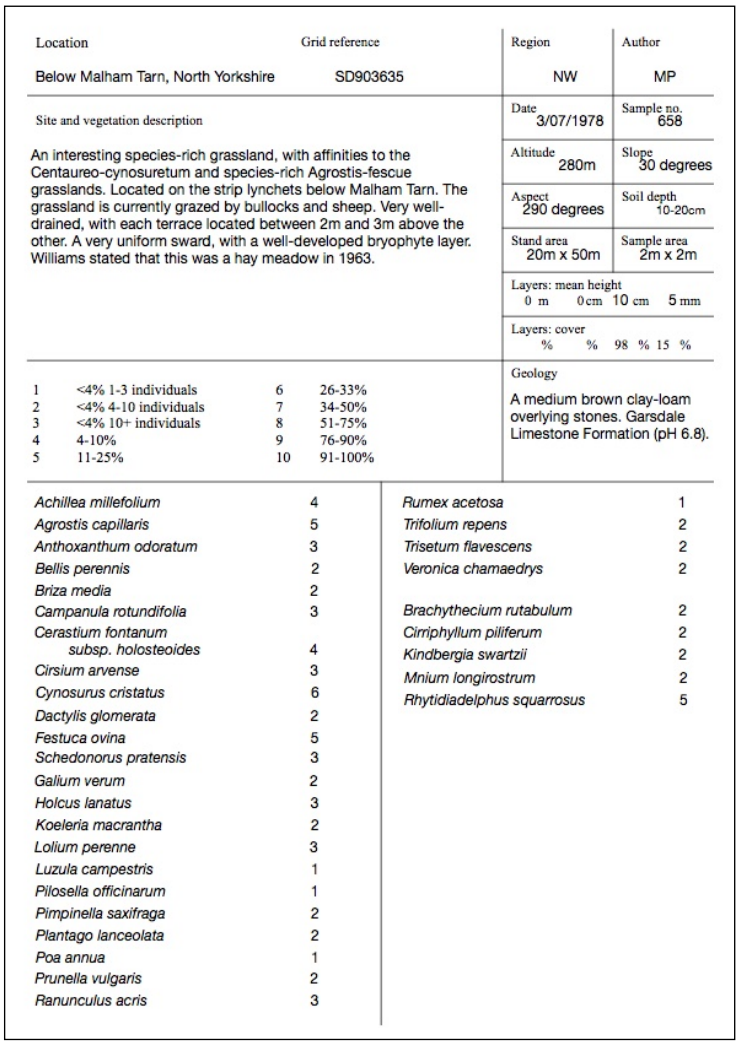
Who can carry out an NVC survey?

Many consultant ecologists offer NVC surveys, but it is important to check that they are capable of carrying out this demanding work. NVC surveys should normally be undertaken by experienced botanists or plant ecologists who can recognise non-flowering plants and identify the critical species such as *Sphagnum* moss. Many ecologists are also competent botanists, but it may be worth requesting a copy of their CV to check that they are qualified to carry out the work and have sufficient experience before you commission them. Experienced botanists are usually members of the Botanical Society of the British Isles (BSBI) and the dedicated ones will often be members of the British Bryological Society and British Lichen Society.

It is always tempting to choose the company that quotes the cheapest price for the job, but it is impossible to carry out a thorough NVC survey in a short period of time and I would advise readers to be suspicious if the fee appears to low. Poorly written NVC surveys or those that have been carried out by people who cannot identify the characteristic plants are likely to be rejected by the statutory bodies. This can result in considerable delays to a planning application and potentially a challenge at a public enquiry. An experienced plant ecologist will recognise whether a survey has been carried out correctly by the species that are included in the report. Many plants are restricted to certain plant communities and an incorrectly identified species will stand out like a 'sore thumb'.

Clients occasionally request a scoping survey, where an experienced botanist walks over a site and describes the NVC plant communities that are present. This can be done, but such surveys can be prone to challenge if there is no relevé data to back it up.

What should I expect from an NVC survey?



Location	Grid reference	Region	Author
Below Malham Tarn, North Yorkshire	SD903635	NW	MP

Site and vegetation description

An interesting species-rich grassland, with affinities to the Centaureo-cynosuretum and species-rich Agrostis-fescue grasslands. Located on the strip lynchets below Malham Tarn. The grassland is currently grazed by bullocks and sheep. Very well-drained, with each terrace located between 2m and 3m above the other. A very uniform sward, with a well-developed bryophyte layer. Williams stated that this was a hay meadow in 1963.

Date	3/07/1978	Sample no.	658
Altitude	280m	Slope	30 degrees
Aspect	290 degrees	Soil depth	10-20cm
Stand area	20m x 50m	Sample area	2m x 2m

Layers: mean height — 0 m | 0cm | 10 cm | 5 mm

Layers: cover — % | % | 98 % | 15 % | %

1	<4% 1-3 individuals	6	26-33%
2	<4% 4-10 individuals	7	34-50%
3	<4% 10+ individuals	8	51-75%
4	4-10%	9	76-90%
5	11-25%	10	91-100%

Geology

A medium brown clay-loam overlying stones. Garsdale Limestone Formation (pH 6.8).

Achillea millefolium	4	*Rumex acetosa*	1
Agrostis capillaris	5	*Trifolium repens*	2
Anthoxanthum odoratum	3	*Trisetum flavescens*	2
Bellis perennis	2	*Veronica chamaedrys*	2
Briza media	2		
Campanula rotundifolia	3	*Brachythecium rutabulum*	2
Cerastium fontanum subsp. holosteoides	4	*Cirriphyllum piliferum*	2
Cirsium arvense	3	*Kindbergia swartzii*	2
Cynosurus cristatus	6	*Mnium longirostrum*	2
Dactylis glomerata	2	*Rhytidiadelphus squarrosus*	5
Festuca ovina	5		
Schedonorus pratensis	3		
Galium verum	2		
Holcus lanatus	3		
Koeleria macrantha	2		
Lolium perenne	3		
Luzula campestris	1		
Pilosella officinarum	1		
Pimpinella saxifraga	2		
Plantago lanceolata	2		
Poa annua	1		
Prunella vulgaris	2		
Ranunculus acris	3		

An NVC survey report typically includes a description of all of the plant communities that have been found, a table with all of the species recorded, their cover on the Domin Scale (1-10) and a plan showing the location of the relevés and the plant communities. The author may use numerical methods such as Cluster Analysis or TWINSPAN to analyse the data, but the plant communities are usually identified using a combination of experience and the keys in *British Plant Communities*. The inter-relationship of the plant communities can be determined using a program such as Principal Components Analysis (PCA).

The NVC was originally carried out by describing uniform stands of vegetation. It is less successful for describing mosaics, unless each component of the vegetation is recorded separately. Mosaics are often found where a habitat has been disturbed by man, but they can also occur naturally.

One of the big advantages of having an NVC survey carried out is that it enables another person to assess the quality and condition of the site from the written description and the relevé data. It can also be used for long-term monitoring. A standard botanical survey is, by comparison, one person's opinion of the site and may not include any quantitative data to support their assessment.

Cheshire Ecology Ltd. specialises in carrying out NVC surveys. Please contact us if you would like further information.

Martin Page PhD FLS MCIEEM

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