Vegetation Survey Report – Denbighshire Roadside Nature Reserves and Alternative Verge Management Pilot Areas

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1 INTRODUCTION

1.1 Background

There are nine sites throughout Denbighshire designated as roadside nature reserves for the conservation of either uncommon plant species or for plant communities which are no longer common in the surrounding countryside. Since the designation of these reserves, a need has been recognised for a broader approach to management of verges throughout the county for biodiversity. Two pilot areas have been identified for alternative management regimes with the objective of promoting grassland habitats. These sites require ongoing monitoring to determine the effects of the alternative management.

The results of verge condition surveys from these sites conducted in summer 2013 are reported in this document. Species lists were produced for each site and compared with previous surveys. Observations were made of the site conditions in relation to prescribed management. In general, sites were found to be in favourable condition with a diversity of species-rich grassland habitats. However, in a few instances, where the management regime had not been adhered to, it was found species richness had diminished. These findings are discussed fully in the body of this report however the context of this research is first summarised below.

1.2 Management and conservation value of roadside verges

The management of roadside verges has recently become a controversial topic with complaints from the public and a front-page article in the Denbighshire Free Press regarding unfavourable management for wildflowers. Conversely complaints have also been received regarding road safety due to reduced cutting. The local authority has statutory responsibilities both in relation to road safety and to the promotion of biodiversity.

Newspaper advertisement on the A5 in June 2013

Roadside verges represent refuges of species-rich plant communities. They reflect the biodiversity historically present in the surrounding countryside but since have been lost due intensive, modern farming practices. Specifically, they support a wide range of grassland habitats (including calcareous, neutral and acid) with differences due to local topography, soils, geology, altitude and shade. There are legal requirements relating to these habitats. For example, the UK Biodiversity Action Plan (UKBAP) lists grasslands as priority habitats and wildflower-rich roadside verges have been identified for action in the Denbighshire Local Biodiversity Action Plan (LBAP).

These habitats also include a number of priority species listed within the above legislation.

UKBAP priority habitats:

> Hedgerows (inc. herbaceous vegetation within 2m of centre of hedge), Lowland Calcareous Grassland, Lowland Dry Acid Grassland, Lowland Meadows, Upland Calcareous Grassland

Denbighshire LBAP priority habitats:

> Transport corridors (inc. roadside verges), Acid Grassland, Calcareous Grassland, Neutral Grassland,

The value of verges is that they represent remnants of declining plant communities which support wider biodiversity. For example, wildflower-rich verges provide a reliable nectar source for important pollinators such as bees. Verges provide food and refuge for wild animals and, as well as associated hedgerows, important corridors linking otherwise isolated habitats.

It is necessary to cut verges to prevent encroachment of vegetation onto roads and to prevent succession of grassland to scrub. Cutting preserves grassland habitats by removing shrubs, tall herbaceous species and coarse grasses, consequently reducing competition for light and allowing the growth of a broader range of species.

Historically roadside verges were cut for hay, simultaneously preventing succession to scrub and removing excess nutrients required by more competitive species. More recently, however, this process has been mechanised with flail mowers which leave cuttings and can scalp soils. This has led to a decline in the quality of verge grassland habitats.

1.3 Roadside Nature Reserves

Within Denbighshire there are nine Roadside Nature Reserves which are designated to be managed for either uncommon plant species or a plant community which has largely disappeared from the adjoining countryside. Each of these sites has a management schedule specific to promotion of these communities or species. The boundaries of these reserves are marked with posts to indicate to managing parties where alternative management applies.

1.4 Alternative Management Pilot Areas

Two pilot areas for biodiversity-sympathetic management of roadside verges were identified. These areas were selected on the basis of their habitat composition.

The Llanarmon yn Ial pilot area is centred around Llanarmon yn Ial, extending north to Eryrys and east to Grianrhyd and includes the B5431. The area is characterised by limestone geology with associated neutral to base-rich soils. Consequently, verges predominantly consist of species rich neutral and calcareous grassland with associated plant communities. These verges are typically old and undisturbed and are adjacent to hedges and stone walls.

The Bryneglwys pilot area consists of country roads between the A542 and A5104 to the west of the roundabout between these two roads. The area also includes the road between Bryneglwys and Carrog. This area has more acidic soil types than those in the Llanarmon-yn-Ial pilot area and consequently contains more neutral to acidic grassland in addition to more shaded verges associated with woodland and hedgerows.

Both pilot areas identified are now partially within the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty (AONB).

The management objectives for these areas were:

- To maintain and enhance the variety of wildflowers in roadside verges, and also maintain characteristic grassland communities.
- To maintain populations of uncommon species
- To provide habitat for associated wildlife including invertebrates, birds and small mammals.

To accomplish these objectives the following management regime was determined. Verges should ideally be cut once per year, no earlier than late July. They should be left uncut during spring/early summer except where cutting is required for safety reasons. Where verges are heavily shaded by adjoining woodland or tall shrubs sparser growth may only require bi-annual cuts. Where feasible, cuttings should be removed and, on wider verges, the back of the verges should be left uncut as refugia.

1.5 Study Objectives

The objectives of this study are as follows:

- To monitor diversity of flowering vascular plants and verge condition in Roadside Nature Reserves and Pilot Areas.
- To inform relevant managing parties of effectiveness of current management and highlight any issues therein.

2 METHODOLOGY

Sites surveys were carried out between June and August 2013. This time period was chosen to coincide with the flowering season of the majority of wildflowers and the greatest species visibility. However, due to an unusually cold spring, many species were later flowering which may have influenced the results. Verges were walked and every herbaceous species growing within the verge was recorded (excluding grasses). Species growing from hedges, which would be cut during hedge management, and therefore be less affected by verge management regime, were excluded.

Plants were identified to species (or genus where species not possible) using keys from Francis Rose (2006) The Wildflower Key. Species were cross referenced for national/regional abundance and also for inclusion in the UKBAP and/or Denbighshire LBAP. Where previous survey data exists, comparisons were made between previously and current recorded species. Notable and visually prominent species have been included for each reserve and pilot area in the relevant sections of this report.

Observations of the verge condition were also recorded during surveys with reference to the prescribed management of roadside nature reserves and the management objectives of the pilot areas.

3 RESULTS

3.1 Roadside Nature Reserves

The findings for each roadside nature reserve are included below.

3.1.1 Aelwyd Uchaf

Surveyed 04/07/13

In the 1998 survey of Aelwyd Uchaf, two distinct habitat types were identified: ancient species-rich hedgebank, and neutral grassland with ancient woodland species *Saniclua europea* (Sanicle), *Mercurialis perennis* (Dog's Mercury) and *Hyacinthoides non-scripta* (Bluebell); and neutral grassland with *Rhinanthus minor* (Yellow Rattle), *Centaurea nigra* (Common Knapweed), *Hypericum tetrapteum* (Square-stalked St John's-wort) and *Linaria vulgaris* (Common Toadflax). All previously recorded species were found to be present in this survey with the exception of *L. vulgaris*, which flowers between July and October and therefore may not have been visually prominent at the time of survey.

In addition to the above species the current survey also identified the presence of ancient woodland indicator species: *Fragaria vesca* (Wild Strawberry), *Potentilla*

sterilis (Barren Strawberry) and *Primula veris* (Cowslip). Species that were particularly prominent in the neutral grassland included *Lathyrus pratensis* (Meadow Vetchling), clusters of *Dactylorhiza fuchii* (Common Spotted Orchid) and *Knautia arvensis* (Field Scabilous).

The management schedule for this site prescribes a single annual cut of the hedgebank during September, and two annual cuts of the neutral grassland verge in May and September. All cuttings should be removed.

At the time of the survey the hedgebank was uncut and supported a diverse community of wildflowers. Neutral grassland verge appeared to have been mown in the metre closest to the road, however further back the grasses had grown tall and the verges were rich in wildflowers, with no evidence of succession to scrub.

Summary

Current management appears favourable for maintaining the plant communities within the reserve.

3.1.2 Bont yr allt goch

Surveyed 26/06/13

The Bont yr Allt Goch reserve consists of a south facing species-rich lowland grassland verge, with *Lychnis flos-cuculi* (Ragged-Robin) and *Lotus corniculatus* (Bird's-foot Trefoil), and the wide verge of similar habitat on the inside of the corner opposite Pen-y-Bont. In addition to the above species, the reserve also supports a population of *Vicia bithynica (*Bithynian Vetch), listed as a Denbighshire LBAP priority species and as vulnerable on the UK IUCN Red List. Each of the above species was found to be present. Additionally, *Centaurea nigra* (Common Kapweed), *Sonchus oleraceus* (Smooth Sow-thistle), *Filipendula ulmaria* (Meadowsweet), *Vicia sativa and V. Cracca* (Common and Tufted Vetches) were identified.

Management prescribed was a twice annual cut in May and September with all cuttings removed, and the cut should not exceed 1.5m from the road on the bend.

When surveyed in late June the reserve had been very recently cut and cuttings had been left. The verge on the bend had been cut back to the hedge line (in excess of 2 metres) and the verge adjacent to the estate fencing on the northern side of the road had also been mown short. A single living specimen of *Vicia bithynica (*Bithynian Vetch) was recorded growing, and in flower, from beneath the hedge abutting the cut section and remains of cut, flowering specimens were identified amongst the left cuttings.

Summary

Observations suggest that management at this site was not as prescribed and was unsupportive of conservation of priority species and habitats.

3.1.3 Coed Talwrn

Surveyed 19/06/13

Coed Talwrn reserve is primarily ancient limestone woodland/hedgebank with *Geranium robertianum* (Herb Robert), *Geum urbanum* (Wood Avens), *Viola riviniana* (Common Dog-violet) and *Oxalis acetosella* (Wood Sorrel). All of the above species were recorded apart from *V. riviniana*, however other woodland indicator species were recorded: *Stellaria holostea* (Greater Stitchwort), *Lionicera periclymenium* (Honeysuckle), *Fragaria vesca* (Wild Strawberry), *Mercuriales perrenis* (Dog's Mercury) and *Hyacinthoides non-scripta* (Bluebell). South of Coed-talwrn Farm the tree cover diminishes and the habitat changes to lowland grassland with *Silene dioica* (Red Campion), *Lotus corniculatus* (Bird's-foot Trefoil), *Geranium lucidum* (Shining Crane's-bill) and *Cruciata laevipes* (Crosswort).

The reserve schedule prescribes a single cut in September every other year due to the shaded nature of the majority of the reserve. When surveyed the shaded woodland areas supported the expected plant community, which were not encroaching on the road.

Summary

Management appears to be supportive of maintenance of this habitat.

3.1.4 Denbigh Golf Course

Surveyed 03/07/13

The Denbigh Golf Course roadside reserve consists of unimproved neutral grassland with *Lotus corniculatus* (Bird's-foot Trefoil), *Lathyrus pratensis* (Meadow Vetchling), *Centaurea scabiosa* (Greater Knapweed), *Plantago media* (Hoary Plantain), *Geranium lucidum* (Shining Crane's-bill), *Leontodon hispidus* (Rough Hawkbit), *Pimpinella saxifraga* (Burnet Saxifrage) and *Agrimonia eupatoria* (Agrimony) when surveyed in 1996. *G. lucidum, P. saxifraga and A. eupatoria* were not recorded, however, the verge was rich in other neutral grassland species including: *Galium verum* (Lady's Bedstraw), *Silene vulgaris* (Bladder Campion), *Cerastium glomeratum* (Sticky Mouse-ear) and *Tragopogon pratensis* (Goat's-beard).

The management plan for this reserve is two cuts yearly in May and October with all cuttings removed. The grassland in the majority of the reserve was generally in good condition although with signs of improvement closer to hedges with areas

dominated by *Anthriscus sylvestris* (Cow Parsley) and *Heracleum sphondylium* (Hogweed). However, the wide verge adjacent to golf course car park has been closely mown and is species poor with *Trifolium repens* (White Clover) being the only flowering species recorded growing on the sward.

Summary

Generally, management of this site appears to be favourable for protected habitat however liaison with Denbigh Golf Course may be required regarding the section adjacent to their property.

3.1.5 Graig Ddyrys

Surveyed 02/07/13

Graig Ddyrys represents ancient limestone woodland understorey with Sanicle, and Giant Bellflower recorded in the 1993 and 1998 surveys of the site. These species were not found during this survey however other ancient woodland associated species were abundant including *Mercurialis perrenis* (Dog's Mercury), *Stellaria holostea* (Greater Stitchwort), *Fragaria vesca* (Wild Strawberry), *Galium odoratum* (Woodruff) and *Allium ursinum* (Ramsons).

The reserve also previously recorded supporting *Platanthera bifolia* (Lesser Butterfly Orchid), a UKBAP priority species listed as vulnerable on the UK IUCN Red List. Although only represented by a single specimen this species was found to be present and flowering during the current survey.

The management plan for Graig Ddyrys prescribes a single cut in September. In accordance with this management the reserve had not been cut when surveyed. The site is heavily shaded and vegetation was low to the ground and therefore, as noted in the management plan, the site may not require cutting.

Summary

Management of the ancient woodland habitat appears favourable however further monitoring of *P. bifolia* population may be required.

3.1.6 Lower Dinbren Road

Surveyed: 18/06/13

The Lower Dinbren Road reserve is a 50m stretch of south-facing calcareous grassland supporting a population of *Geranium pratense* (Meadow Crane's-bill). Meadow Crane's-bill was recorded in this survey as were other species including: *Vicia sepium* (Bush Vetch), *Myosotis arvensis* (Field Forget-me-not), *Stellaria media*

(Common Chickweed), *Silene dioica* (Red Campion) and *Cruciata laevipes* (Crosswort).

The management prescribed for this site is one annual cut in October. The verges were found to be uncut at the time of survey as per the management plan.

Summary

Management appears to be suitable.

3.1.7 Pen-y-felin

Surveyed 19/06/13

The Pen y Felin reserve consists of south-facing limestone woodland with small areas of calcareous grassland and dry-stone wall. Previously recorded woodland species include: *Geum urbanum* (Wood Avens), *Mercurialis perennis* (Dog's Mercury), *Stellaria holostea* (Greater Stitchwort) and *Teucrium scorodonia* (Wood Sage), all of which were still found to be present, with the exception of *T. scorodonia* which may not have been mature at the time of survey. The previously recorded grassland species include: *Galium verum* (Lady's Bedstraw), *Campanula rotundifolia* (Harebell), *Succisa pratensis* (Devil's-bit Scabious), *Lotus corniculatus* (Bird's-foot Trefoil) and *Jasione Montana* (Sheep's-bit) of which only *L. corniculatus* was identified in the current survey. However, *S. pratensis, G. verus* and *C. rotundifolia* may not have been in flower at the time. Previous surveys recorded *Umbilicus rupestris* (Navelwort) growing from the dry-stone wall, both of which were identified in the current survey.

The prescribed management is a single cut in September and to monitor and control, where necessary, scrub and bracken encroachment. The reserve was uncut at the time of survey; however there was considerable succession to scrub and bracken back from the roadside where the verge was deeper. This encroachment may explain why fewer grassland species were identified.

Summary

Current annual management appears to be suitable, however scrub and bracken control is necessary to preserve grassland habitat.

3.1.8 Plas Tyna

Surveyed 26/06/13

Two habitat types are identified in the management plan for Plas Tyna: Ancient species-rich hedgerow with Bluebell, Wood Avens, Giant Bellflower and Greater Stitchwort and with Water Avens and Meadowsweet adjacent to ditches; and

calcareous grassland with Rockrose, Early-purple Orchid, Salad Burnet, Lady's Bedstraw and Cowslip. The majority of previously described species were identified in this survey and those that were not identified (Bluebell, Early-purple Orchid, Cowslip and Giant Bellflower) would be expected to have either finished flowering or not yet be mature at the time the survey was conducted. Other species identified included: Dog's Mercury, and Wild strawberry in hedgerows and Common bird's-foot trefoil, Shining Crane's-bill, Prickly Sow-Thistle and Goat's Beard in grassland sections.

The verge should be cut annually in September and cuttings left. When surveyed, the verge was uncut in accordance with the prescribed management.

Summary

Current management appears to be appropriate for maintaining the reserve.

3.1.9 Rock Farm

Surveyed 17/06/13

Rock Farm roadside nature reserve is managed for its calcareous grassland habitat with *Linum catharticum* (Fairy Flax), *Carlina vulgaris* (Carline Thistle), *Cirsium nutans* (Musk thistle), *Polygala serpyllifolia* (Heath Milkwort), *Calluna vulgaris* Heather, *Succisa pratensis* (Devil's-bit scabious), *Viola sp.* violet and the Denbighshire LBAP priority species *Cirsium acaule* (Dwarf Thistle). The eastern verge of the reserve is also included within the Ruabon and Llantysilio mountains Site of Special Scientific Interest (SSSI) designated, in part, for calcareous habitats.

The thistle species were not identified, however they may not have been prominent at the time of the survey. The other previously identified species were all present and the site was rich in other calcareous grassland species including: *Orchis mascula* (Early Purple Orchid), *Dactylorhiza fuchsia* (Common Spotted Orchid), *Geranium pratense* (Meadow Crane's-bill) and *Leontodon hispidus* (Rough Hawkbit).

There were also some areas of ancient hedgerow supporting *Hyacinthoides non-scripta* (Bluebell), *Allium ursinum* (Ramsons) and *Fragaria vesca* (Wild Strawberry).

The prescribed management for this site is a single yearly cut in July, with all cuttings removed, and allow light grazing by sheep and rabbits. Verge was uncut at time of survey with signs of grazing. However, there was some bracken and scrub encroachment on the eastern verge which may be detrimental to grassland habitat.

Summary

Management appears suitable although it may be beneficial to monitor bracken and scrub encroachment.

3.2 Pilot Areas

The findings for pilot areas are included below.

3.2.1 Llanarmon yn Ial

Surveyed: Between 01/07/13 and 25/07/13

135 species were recorded. These were predominantly typical of calcareous and neutral grassland with species including *Centaurea nigra* (Common Knapweed), *Galium verum* (Lady's Bedstraw), *Geranium pratense* (Meadow Crane's-bill), *Hypericum maculatum* (Imperforate St John's-wort), *Lathyrus pratensis* (Meadow Vetchling), *Leontodon hispidus* (Rough Hawkbit), *Lotus corniculatus* (Common Bird's-foot Trefoil), *Sanguisorba minor* (Salad Burnet), *Scabiosa comumbaria* (Small Scabious) and *Stachys sylvatica* (Hedge Woundwort).

In addition to the grassland habitats typical of the pilot area a small section of heath was identified north east of Eryrys with *Calluna vulgaris* (Heather), *Erica cinerea* (Bell Heather), *Vaccinium myrtillus* (Billberry) and *Galium saxatile* (Heath Bedstraw). There were also shaded verges with woodland associated communities including *Mercurialis perrenis* (Dog's Mercury), *Geum urbanum* (Wood Avens), *Fragaria vesca* (Wild Strawberry), *Hyacinthoides non-scripta* (Bluebell) and *Galium odoratum* (Woodruff).

One Denbighshire LBAP priority species were identified: *Gymnadenia conopsea* (Fragrant Orchid) (SJ 202,573).

Verges were uncut at time of survey except at junctions. No issues of verge encroachment onto roads were observed and visibility was good at junctions.

3.2.2 Bryneglwys

Surveyed: Between 25/07/13 and 30/07/13

124 species were identified which generally reflected the less calcareous geology of the area. Typical grassland species were *Achillea ptarmica* (Sneezewort), *Campanula rotundifolia* (Harebell), *Centaurea nigra* (Common Knapweed), *Lathyrus pratensis* (Meadow Vetchling), *Lotus coniculatus* (Common Bird's-foot Trefoil), *Potentilla reptans* (Creeping Cinquefoil), *Rhinanthus minor* (Yellow Rattle), *Tragopogon pratensis* (Goat's Beard) and *Vicia cracca* (Tufted Vetch). Where verges were shaded species included: *Alchemilla vulgaris* (Lady's Mantle), *Hyacinthoides non-scripta* (Bluebell), *Mercurialis perennis* (Dog's Mercury), *Stellaria holostea* (Greater Stitchwort), and *Teucrium scorodonia* (Wood Sage).

Verges were uncut at time of survey with the exception of the verges adjacent to the flying school and the business opposite which, as also observed during the 2005

Wildlife Trust survey of the area, had been closely mown. At no point were the verges seen to be encroaching onto roads although verges at some junctions between minor roads remained uncut and may have limited visibility.

3.3 Other comments

Whilst conducting surveys, surveyors were approached by a number of members of the public whose comments were unanimously supportive of wildflower-sympathetic management of verges. These persons were often unaware of the existence of Roadside Nature Reserves or the alternative verge management pilot areas.

4 CONCLUSION

Roadside nature reserves

The majority of species recorded in previous surveys were identified in this study suggesting that, in general, management of these reserves has generally been successful in promoting protected habitats and species. Continued management of some reserves may require further monitoring and control of bracken and scrub encroachment, particularly where the verge is deeper from the road and so may not receive regular cuts. Also, as illustrated at Bont-yr-Allt Goch if an early cut is delayed it may be better to cut only where road safety requires rather than a full cut of the site.

The posts originally marking the boundaries of the reserves were not found at any site, leaving nothing to identify the reserves as different from adjacent verges. Furthermore members of the public encountered during surveying did not know of the reserve's existence. New markers might serve a dual purpose in indicating to parties managing the reserve where alternative management applies and, raising public awareness of the Council's biodiversity-sympathetic approach to verge management.

Pilot areas

The alternative management appears to be successful in promoting roadside verge associated habitats in line with both national and local Biodiversity Action Plans whilst posing no observed issues to road safety. Verges throughout both pilot areas supported a broad diversity of species representative of associated semi-natural habitats.