

**Botanical survey and management
plan of land at the A370 / B3130
intersection, Flax Bourton,
North Somerset**

for

**North Somerset Council
(Streets and Open Spaces)**

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Phil Quinn (Ecology and land use) MIEEM



CONTENTS

1. Summary		3
2. Remit		3
3. Site description	4-5	
3.1 General	4	
3.2 The Roundabout	4	
3.3 The Bank	5	
4. Methodology	5	
5. Results		5-9
5.1 General	5-6	
5.2 The Roundabout	6-8	
5.3 The Bank	8-9	
Fig. 1: Land at the A370 / B3130 intersection, Flax Bourton, North Somerset: Current situation		
6. Discussion		9
7. Management recommendations	10	
7.1 Overview	10	
7.2 General	10	
7.3 The roundabout: specific management recommendations		10
7.4 The bank: specific management recommendations		11
7.5 Table of proposed management works		11-12
7.6 Reasons for proposed management	13	
7.6.1 Regular cutting of the grassland		13
7.6.2 Cutting the grassland on a rotational basis		13
7.6.3 Cutting the bramble, nettle and the denser scrub		13
7.6.4 Replanting the planted trees	13	
Fig. 2: Land at the A370 / B3130 intersection, Flax Bourton, North Somerset: Proposed management works		
8. Conclusion	14	
Appendix 1: Plant species list (and DAFOR scores) for Barrow Gurney roundabout and bank (2008)		
		15-18

Appendix 2: Incidental records:	18	
1. Butterflies and day-flying moths	18	
2. Birds		18
3. Mammals		19

1. Summary

The two sites surveyed in detail: “the roundabout” and “the bank” both have high botanical value. Locally scarce species such as adder’s-tongue fern *Ophioglossum vulgatum* and corky-fruited water-dropwort *Oenanthe pimpinelloides* are present along with other species of note such as betony *Stachys officinalis*, hairy St John’s-wort *Hypericum hirsutum*, grass vetchling *Lathyrus nissolia* and large numbers of pyramidal orchid *Anacamptis pyramidalis*.

Both sites require appropriate management; as part of a grassland Site of Importance for Nature Conservation (SINC), with a smaller scrub element, they will require regular cutting of the herbaceous vegetation along with some management of scrub. Some trees and areas of scrub will have to be removed to maintain and enhance the important grassland communities.

2. Remit

To undertake two botanical surveys over the roundabout and adjacent bank, one in June and one in August, recording species presence and also abundance using the DAFOR methodology.

To produce a report identifying all species present on the site, their relative levels of abundance and on-site distribution, their regional and national status, and management requirements. This report shall include detailed maps identifying particular plant communities and species of note as well as providing recommended management compartments. The report will provide a baseline for future monitoring on the site at approximately five and ten year intervals.

3. Site description

3.1 General

The site consists of two areas of a larger complex of the highway verge associated with the intersection of the A370 (Long Ashton by-pass) and the B3130 south of Cambridge Batch in the parish of Flax Bourton (central grid reference ST520693). The main area is a large central roundabout (hereon referred to as “the roundabout”). The smaller area of the site subject to this survey and report is an embankment (hereon referred to as “the bank”) lying north of the eastbound carriageway of the A370 and lying south of a slip road leading onto the B3130. Parts of the highway verge –mainly shallow cuttings - which are part of this wider complex, but not subject to this survey and report, directly abut farmland.

It is believed that the site dates from the 1970s with the creation of the Long Ashton by-pass. Adjacent land use is predominantly permanent pasture in the south with arable agriculture in the north. The village of Flax Bourton lies approximately 1 km to the west, the settlement of Cambridge Batch (part of Flax Bourton parish) 300m to the north, Barrow Gurney village 1.5 km to the south east and Long Ashton village approximately 1.5 km to the north east.

3.2 The roundabout

The roundabout consists of a central area of level ground with a short length of gentle slope on its eastern edge. On its northern and western edges there is an embankment approximately 4m high in the east and gently losing elevation to the west and south west until it grades into the level of the central area. Within the inner edge of this embankment is a dry ditch approximately 1m deep. The embankment is largely covered with very dense young / semi-mature trees and scrub however there is an outer verge, at the top of the embankment and level with the adjacent road surface, which is free of trees and scrub and which supports grasses and herbs. A crash barrier runs along the top of eastern end of the embankment.

The roundabout experiences a degree of impeded drainage, especially towards the centre of the level area. Grasses, herbs and sedges predominate within the level area although there are some young planted and self-sown trees and shrubs scattered throughout. The level area was completely cleared of trees and scrub, and experienced a cut of all herbaceous vegetation in one episode during the late 1990s/ early 2000s. It is believed that this was the last time the site was managed. The southern and southeastern edges of the site experienced considerable disturbance during 2006 /7 as part of roadworks adjacent to the site: soil, hardcore and debris were temporarily stored here and some vehicles were present on the site.

3.3 The bank

This is a very attenuated triangular area of embankment, broader and steeper to the east but narrower and with a more gentle slope to the west. It has a northerly aspect and is free draining throughout. A crash barrier runs along part of the eastern section of the southern edge and, in common with the roundabout, there is an outer (in this case southern) mown strip approximately 1.5m wide adjacent to the carriageway of the A370. In common with the roundabout the bank consists of grassland with a considerable scrub and semi-mature tree component. Its steep topography would appear to have prevented the storage of materials and vehicles here during roadworks.

4. Methodology

The two areas of the site were surveyed twice during 2008: 20th June and 1st August, with both sites being surveyed on both dates. Each of the two surveys were conducted during dry weather conditions. Species presence was recorded on a species recording form which also enabled relative abundance levels to be recorded according to the DAFOR scale with additional comments made on distribution and status. All vascular plants (herbs, woody plants, sedges, rushes and grasses) were recorded and general notes made on the presence or absence of bryophytes. All species were recorded according to the taxonomy given in Stace (1997).

The survey was conducted by Phil Quinn, a field ecologist with twenty years' experience of botanical survey. PQ was also a member of the BRERC (Bristol Regional Environmental Records Centre) team which first surveyed this site in 1995 and recommended its SINC designation.

5. Results

5.1 General

Both parts of the survey site demonstrated a high level of botanical interest which validates their continued status as part of the SINC. Although each area supports a different suite of plants, the grassland sward in both is an unimproved neutral grassland community and, with regard to the National Vegetation Classification (NVC), is strongly associated with the MG5 *Cynosurus cristatus-Centaurea nigra* grassland in the more species rich areas and the MG1 *Arrhenatherum elatius* grassland community where this particular grass species is dominant.

Scrub and semi-mature broadleaved trees are also diagnostic features across both parts of the survey site. The scrub, particularly on the roundabout area, approximates most closely with the NVC communities W21 *Crataegus monogyna-Hedera helix* scrub and W22 *Prunus spinosa-Rubus fruticosus* scrub, with planted trees adding greater species diversity than would normally be associated with these communities.

Scattered semi-mature trees and shrubs are present across both sites. These represent significant threats to the grassland interest on the site.

The roundabout

The central area of the roundabout –the level area and the eastern slope – support the main area of grassland here. There are zones within this general grassland community where particular species compositions predominate and give rise to distinctive swards.

1. In the centre there is species-rich, and in particular a herb and sedge rich, community which is especially striking in June with a strong display of flowering herbs and fine grasses. Black knapweed *Centaurea nigra* is particularly abundant here along with glaucous sedge *Carex flacca*, red fescue *Festuca rubra*, crested dog's-tail *Cynosurus cristatus*, ox-eye daisy *Leucanthemum vulgare*, sweet vernal grass *Anthoxanthum odoratum* and bird's-foot trefoil *Lotus corniculatus*. Grass vetchling is also very common.

1a. A particularly herb rich part of this neutral grassland community is situated on the northwestern edge of the grassland area. Here the herbs and sedges mentioned above are even more abundant; there is also a localised abundance of pyramidal orchid *Anacamptis pyramidalis* and a large population of adder's-tongue fern. The western part of this area also supports a large population of fleabane *Pulicaria dysenterica* which was particularly striking in August.

1b. An even greater concentration of neutral grassland herbs and fine grasses, the best population of cowslip *Primula veris* on the whole site and a considerable abundance of pyramidal orchid are located here, providing a matrix within which scattered scrub has established. This scattered scrub also includes some planted trees.

1c. A moderately species-rich neutral grassland sward with all the herbs, grasses and sedge described above (although lacking adder's-tongue fern) this area has much scattered scrub and a considerable number of planted trees.

1d. On the southern edge of the roundabout is a small area of moderately species rich neutral grassland with no species of particular note.

2. This area occupies the steeper part of the eastern slope and is a species rich neutral grassland community although with a greater proportion of coarser grasses and a slightly reduced level of herbs and sedges than that encountered in zone 1. Black knapweed, grass vetchling, ox-eye daisy and bird's-foot trefoil, along with self-heal *Prunella vulgaris*, are again the predominant herb species although a large population of adder's-tongue fern is also present here and there are scattered plants of common spotted orchid *Dactylorhiza fuchsii*. Semi-mature scrub starts to become slightly more common to the north of this section and contributes some shading to the sward.

2a. A more impoverished version of area 2 this still has a good proportion of neutral grassland herbs and grasses but its recent history of disturbance during roadwork operations has resulted in a more disturbed and weedy sward where creeping thistle *Cirsium arvense* and docks *Rumex* spp. are common.

2b. The lower section of the eastern slope this is still quite herb rich but is more characterised by rank grasses than either 2 or 2a. Common spotted orchid is present but rare here. A small population of the very coarse grass tall fescue *Festuca arundinacea* is present in the south of this area; this is an undesirable and invasive native species which can impoverish species-rich swards if not managed appropriately.

3. This is a somewhat herb-poor sward dominated by the coarse false oat-grass *Arrhenatherum elatius*. Grass vetchling is still relatively common here and many of the herbs described above are also present but in considerably reduced quantity. In the east of this area is a particularly interesting sward where stone parsley *Sison amomum* is locally abundant and there is large patch of adder's-tongue fern as well as a small population of meadow barley *Hordeum secalinum*.

3a. Also dominated by false oat-grass this area has a slightly elevated level of herbs, in particular ox-eye daisy and black knapweed are both frequent here along with the ubiquitous grass vetchling. A small stand of the scarce grass meadow brome *Bromus commutatus* is present in the centre of this area.

3b. Another area dominated by false oat-grass but with much scattered scrub.

3c. Although false oat-grass remains abundant here the sward is somewhat finer than in areas 3-3b and there is a localised abundance of ox-eye daisy.

4. A very disturbed area with two large patches of creeping thistle, small mounds of roadworks debris, bare ground and a mix of both fine and coarse, grassland and ruderal, plant communities with much false oat-grass.

5. This is the narrow outer rim of the roundabout lying on the flat top of the embankment. The outer 1 m is mown short but the rest of the sward is long, largely unmanaged and grades into the edge of the scrub vegetation. The sward has similarities to the moderately species rich community found in area 2b and includes a small population of tall fescue as well as a small population of hairy St John's-wort *Hypericum hirsutum*.

5a. Two small glades in the eastern area of embankment scrub this supports a population of betony *Stachys officinalis* as well as a declining population of an alien grass species (believed to be Hungarian brome *Bromus inermis* but this identification is not confirmed).

6. A very substantial area dominated by nettle *Urtica dioica* with some false oat-grass admixed and lying on the northern edge of the level area of the roundabout. Although poor in botanical interest there may be entomological interest here especially in the

opportunities provided to Vanessa butterfly species (small tortoiseshell *Aglais urticae*, red admiral *Vanessa atalanta* etc) which lay their eggs on nettle.

7. This is a large patch of bramble *Rubus fruticosus* agg. which, again although of low botanical interest, will be of high value to insects and also to birds and small mammals.

8. The ring of dense semi-mature scrub which lies on the slopes of the embankment and frames the grassland and tall herb communities of the level area of the roundabout is of relatively low botanical interest. Raspberry *Rubus idaeus* is a notable, but not rare species here and probably derives from fruit jettisoned or dropped from passing vehicles as its native sites are predominantly upon acidic soils.

Blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna* and bramble are the main species here although ash *Fraxinus excelsior*, English elm *Ulmus procera*, elder *Sambucus nigra* and dogwood *Cornus sanguinea* are also common. Creeping thistle, nettle and black bryony *Tamus communis* are also characteristic in the more open areas.

5.3 The bank

This embankment runs for approximately 300m along the northern side of the westbound carriageway of the A370. The grassland interest, although still high, is slightly lower than that of the roundabout, partly given the smaller surface area of the bank and its northerly aspect but mainly due to the greater quantity of semi-mature trees and scattered scrub casting shade and thus favouring a coarser and less diverse sward.

Along the curb of the A370 there are substantial lengths of verge where buck's-horn plantain *Plantago coronopus*, a locally uncommon species in the Bristol region, is recorded. This is a species more typically associated with saltmarshes and sparse grassy coastal situations however it can be locally frequent along the curbside of main roads away from the coast and would appear to benefit from rock salt being applied to the roads during the winter.

Along the curb of the slip road leading to the B3130 there are populations of fern grass *Catapodium rigidum*; this locally uncommon species also favours sparsely vegetated mineral substrates.

9. A small area at the eastern end of the bank and with a steep easterly aspect this is an area of tall herbs dominated by meadowsweet *Filipendula ulmaria* and dewberry *Rubus caesium*. A small patch of hart's-tongue fern *Phyllitis scolopendrium* is present here and there appears to have been some scrub clearance work undertaken here in the recent past.

10. This is an expansive area of low-growing dewberry with little other botanical interest.

11. The northeastern tip of the bank this is quite species rich and supports small populations of greater bird's-foot trefoil *Lotus uliginosus* and hairy St John's-wort

Hypericum hirsutum. Much woody debris here suggests some recent scrub clearance with arisings being left in linear piles at the foot of the embankment.

12. Much of the eastern half of the bank has a similar structure and species composition with semi-mature trees and shrubs being frequent and casting considerable shade onto a rather species-poor grassland sward dominated by false oat-grass with much moss. Pyramidal orchid and common spotted orchid are scattered over this area but rarely in abundance.

13. A small length of grassland at the foot of the bank where black knapweed is common; this species is infrequent elsewhere on the bank.

14. Along the upper slopes in the mid section of the bank is an open area where creeping thistle is very common along with false wood-brome *Brachypodium sylvaticum* and hedge bedstraw *Galium mollugo*; this community is suggestive of an area where some scrub clearance has recently occurred. On the A370 verge adjacent to this area is a single plant of the locally scarce corky-fruited water-dropwort *Oenanthe pimpinelloides* as well as a clump of biting stonecrop *Sedum acre*.

15. Directly north of area 14 is an area dominated by hedge bedstraw.

16. The western half of the bank is predominantly scattered blocks of young and semi-mature scrub with a relatively species-rich sward where pyramidal orchid is locally abundant. Ivy *Hedera helix* can also be locally frequent here and its presence is suggestive of an area recently cleared of scrub.

6. Discussion

Although less than 40 years in age this site supports species-rich neutral grassland swards. Such grasslands are very scarce within this part of North Somerset where agriculturally improved grassland and arable agriculture predominate. The age of the site is irrelevant; what is of great relevance is the species composition and ensuring that it is both maintained and enhanced, and that destructive practices such as tree planting and storage materials and vehicles associated with road works no longer take place here.

Considerable damage has been caused by the ill-judged planting of trees (some of which are non-native species) in species-rich areas of grassland on the roundabout. Further damage has been caused by the recent road works disturbing the sward and depositing debris over parts of the roundabout.

With focussed management, which need not be expensive or time-consuming, the recent damage inflicted upon the roundabout can be rectified and possibilities exist, through appropriate management, for enhancing the nature conservation value of the site for plants, birds, invertebrates and mammals.

7. Management recommendations

7.1 Overview

Management of this site must acknowledge above all that it is a SINC notified for its rich neutral grassland flora –a very rare and declining habitat in this part of North Somerset. Semi-mature trees and scrub, and the generalist invertebrates, birds and mammals associated with them are ubiquitous throughout lowland Britain.

It is not proposed to remove a significant quantity of young trees and scrub from the roundabout but to manage this habitat to maintain it and its associated wildlife on the area it currently occupies on the site.

The much smaller area of the bank renders its grassland communities (again, the prime nature conservation interest) much more vulnerable to the encroachment of scrub and trees and to the heavy shading and coarsening of the sward associated with woody vegetation. Here it is proposed that a considerable amount of the trees and shrubs be removed.

Following this management plan should ensure that no species or plant communities are lost from the site. However the prime value of the site –the species-rich grassland – will be considerably enhanced.

7.2 General

1. Institute a management group consisting of relevant North Somerset officers and local people with a keen interest in managing this site. This group will ensure the delivery of the management plan and oversee any works or unforeseen incidents which may occur on or close to the site.

7.3 The roundabout –specific management recommendations

1. Mow one half of the grassland once every two years, mow the other half two years later; repeat this cycle so that all areas of grassland are mown once every two years. Some mowing will thus take place every year. Undertake this work in late summer.

2. Flail one half of the bramble and nettle areas once every five years, flail the other five years later; repeat this cycle. Undertake this work in the autumn to avoid disturbance to nesting birds.

3. Coppice one half of the scrub every ten years, the other half ten years later; repeat this cycle. Undertake this work during the winter to avoid disturbance to nesting birds.

4. Remove the planted trees; replant amongst the nettle and bramble –these areas are where the trees should have been planted had ecological advice, offered at the time, been adhered to. Leaving the trees amidst the species-rich neutral grassland helps place the whole site in an unfavourable management status. Undertake this work during the winter

to avoid unnecessary stress to the trees and to facilitate their establishment at the receptor site.

7.4 The bank –specific management recommendations

1. Remove 70% of the trees and shrubs –particularly the larger trees (including ash); treat stumps to prevent regrowth; remove all arisings. Do not leave cut material on site: the bank is too small to allow for a range of micro-habitats to be created by leaving piles of cut material to decompose on site. These micro-habitats will encourage coarse vegetation and will be at the expense of the true, and threatened, interest on the site -the species rich neutral grassland.

2. Mow one half of the grassland once every two years, mow the other half two years later; repeat this cycle so that all areas of grassland are mown once every two years. Some mowing will thus take place every year.

3. Flail the dewberry-dominated area once every five years. Undertake this work in the autumn to avoid disturbance to nesting birds.

7.5 Table of proposed management works

This table represents the range of works required to maintain and enhance the nature conservation interest on the site over a ten year period

Year	Proposed works	
	Whole site	
1	Institute a management group to oversee the delivery of the management plan and ensure the maintenance of nature conservation interest of the site	
	Roundabout	Bank
1	Mow one half of the grassland area; remove all arisings. Make note on which area cut.	Mow one half of the grassland area; remove all arisings. Make note on which area cut.
1	Mow /flail one half of the bramble and nettle areas (6 & 7); remove all arisings. Make note on which area cut.	Mow /flail the dewberry-dominated area; remove all arisings.
1	Fell one half of the dense scrub; remove most of the arisings; allow to regenerate	
1	Replant planted trees in the nettle area	
2		Remove 70% of the trees and scrub; remove all arisings; treat stumps to prevent regrowth.

2	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.
3	Mow one half of the grassland area; remove all arisings. Make note on which area cut.	Mow one half of the grassland area; remove all arisings. Make note on which area cut.
4	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.
5	Mow one half of the grassland area; remove all arisings. Make note on which area cut.	Mow one half of the grassland area; remove all arisings. Make note on which area cut.
6	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.
6	Mow /flail one half of the bramble and nettle areas (6 & 7); remove all arisings. Make note on which area cut.	Mow /flail the dewberry-dominated area; remove all arisings.
7	Mow one half of the grassland area; remove all arisings. Make note on which area cut.	Mow one half of the grassland area; remove all arisings. Make note on which area cut.
8	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.
9	Mow one half of the grassland area; remove all arisings. Make note on which area cut.	Mow one half of the grassland area; remove all arisings. Make note on which area cut.
10	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.	Mow the other half of the grassland area; remove all arisings. Make note on which area cut.
10	Fell the other half of the dense scrub; remove most of the arisings; allow to regenerate	

7.6 Reasons for proposed management

7.6.1. Regular cutting of the grassland: Grasslands become coarse and lose their species richness if not cut regularly (either by grazing animals or mechanical means). Rank grasses and species such as thistles and docks predominate at the expense of flowering herbs and sedges. Woody species such as bramble and hawthorn will slowly invade and further reduce the botanical diversity of the grassland as they develop into a scrub community. The specialist insects dependent upon fine species-rich grasslands will be lost from the site.

7.6.2. Cutting the grassland on a rotational basis: Some plants (e.g. biennials) and many insect species have lifecycles which require a period of two years or so to develop through the various stages until they are mature enough to reproduce. Furthermore even those plants which can grow and set seed in one year may do so at slightly different times each year depending upon climatic factors –e.g. flowering and setting seed later in a cool wet summer.

To ensure that species of plant and insect on a small isolated site such as this are able to reproduce each year it is advisable to cut only one half of the grassland area on the roundabout and the bank in any one year thus leaving uncut areas where plants and insects can reproduce. That area left uncut in one year is cut the following year.

This regime ensures that the sward does not coarsen but also that plants and insect species on the site can live out their lifecycles and not risk extinction from the site if cutting took place across the whole site at the same time.

7.6.3. Cutting the bramble, nettle and the denser scrub: Undertaking this on a five to ten year basis preserves the early successional nature of these communities that is so valuable to a wide range of wildlife. If these areas were not managed thus they would soon become dense thickets with a poor understorey with a field layer dominated by ivy. These mature scrub thickets are of limited value to birds and invertebrates.

7.6.4. Replanting the planted trees: Replanting the planted trees in the area currently dominated by nettle will ensure that the species rich grasslands in which the trees have been planted will be allowed to remain as species-rich grassland and not become shaded and coarsened by the effect of the trees. The area of nettle is big enough to absorb the planted trees and still have an area left over for invertebrates which require nettle in open conditions.

The opportunity should be taken to remove those species of planted tree which are non-native.

8. Conclusion

With the adoption of this management plan it will be possible to both maintain and enhance the nature conservation interest over both parts of this site. The site's species-rich neutral grassland is in particular need of systematic management.

As the landowner North Somerset Council are in an excellent position to not only institute appropriate management over this site but also to demonstrate best practice land management to other landowners with similar areas of non-agricultural land.

The involvement of members of the local community will help ensure that the management proposed for this site will be undertaken by those who will arguably benefit most from the habitat improvements and who will also be in more of a position to undertake works as and when required. Engaging local people is also in line with much current environmental thinking on empowerment of local communities and encouraging moderate outdoor exercise.

APPENDIX 1

Plant species list (and DAFOR scores) for Barrow Gurney roundabout and bank (2008)

Common name (and status)	Scientific name	Roundabout		Bank	
		June	August	June	August
Field maple	<i>Acer campestre</i>	R	R	R	R
Sycamore	<i>Acer pseudoplatanus</i>	R	R	R	R
Yarrow	<i>Achillea millefolium</i>	O	O	F	F
Agrimony	<i>Agrimonia eupatoria</i>	O/LF	O/LF	R	R
Common bent	<i>Agrostis capillaris</i>	F	LA	F	F
Creeping bent	<i>Agrostis stolonifera</i>	O	O		
Bugle	<i>Ajuga reptans</i>	O	R		
Marsh foxtail	<i>Alopecurus geniculatus</i>	R	R		
Pyramidal orchid (U)	<i>Anacamptis pyramidalis</i>	LF		F/LA	
Barren brome	<i>Anisantha sterilis</i>	O	O		
Sweet vernal grass	<i>Anthoxanthum odoratum</i>	O	R	O/LF	R
Cow parsley	<i>Anthriscus sylvestris</i>	R		R	
Prostrate orache	<i>Atriplex prostrata</i>		R		
False oat-grass	<i>Arrhenatherum elatius</i>	A	A	A	A
Mugwort	<i>Artemisia vulgaris</i>	R	R		
Daisy	<i>Bellis perennis</i>	R	R	O	O
False wood-brome	<i>Brachypodium sylvaticum</i>	O	O	F/LA	F/LA
(?) Hungarian brome (NS)	(?) <i>Bromus inermis</i>	R	R		
Hairy brome	<i>Bromus hordaceus hordaceus</i>	R	R	O	O
Meadow brome (U)	<i>Bromus commutatus</i>		R		
Cuckoo-flower	<i>Cardamine pratensis</i>	R			
Grey sedge	<i>Carex divulsa</i>	R	R	R	R
Glaucous sedge	<i>Carex flacca</i>	F/LA	O	O/LF	O/LF
Hairy sedge	<i>Carex hirta</i>	F	F	R/LF	R/LF
Spiked sedge	<i>Carex spicata</i>	LF	O		
Fern grass (U)	<i>Catapodium rigidum</i>			LF	LF
Black knapweed	<i>Centaurea nigra</i>	F	F/LA	R/LF	R/LF
Common mouse-ear	<i>Cerastium fontanum</i>	O	O	O	R
Bur chervil	<i>Chaerophyllum temulum</i>	O			
Fat hen	<i>Chenopodium album</i>		R		
Creeping thistle	<i>Cirsium arvense</i>	LD	LD		
Marsh thistle	<i>Cirsium palustre</i>			R	R
Spear thistle	<i>Cirsium vulgare</i>	O	O	O	O
Wild clematis	<i>Clematis vitalba</i>	R	R	R/LO	R/LO
Danish scurvy-grass (U)	<i>Cochlearia danica</i>			R	
Field bindweed	<i>Convolvulus arvensis</i>	O	O		
Dogwood	<i>Cornus sanguinea</i>	O	O	R	R
Hazel	<i>Corylus avellana</i>	R	R		
Hawthorn	<i>Crataegus monogyna</i>	LF	LF	F	F
Smooth hawksbeard	<i>Crepis capillaris</i>	O	O	O	O
Beaked hawksbeard	<i>Crepis vesicaria</i>	R	R	R	R
Crested dog's-tail	<i>Cynosurus cristatus</i>	LA	LA	R	R
Cock's-foot	<i>Dactylis glomerata</i>	F	F	F	F

Common spotted orchid	<i>Dactylorhiza fuchsii</i>	R		O/LF	O/LF
Wild carrot	<i>Daucus carota</i>	O	LF	O	O
Teasel	<i>Dipsacus fullonum</i>	O	O		
Male fern	<i>Dryopteris filix-mas</i>	R	R		
Common couch	<i>Elytrigia repens</i>	O	O	R	R
Willowherb species	<i>Epilobium</i> sp.	O	O		
American willowherb	<i>Epilobium ciliatum</i>			O	O
Great willowherb	<i>Epilobium hirsutum</i>			R	R
Broad-leaved willowherb	<i>Epilobium montanum</i>	O	O	O	O
Hoary willowherb	<i>Epilobium parviflorum</i>	O	O	O	O
Square-stemmed willowherb	<i>Epilobium tetragonum</i>		LO		
Field horsetail	<i>Equisetum arvense</i>	O	O	O/LF	O/LF
Hemp agrimony	<i>Eupatorium cannabinum</i>			R	R
Tall fescue	<i>Festuca arundinacea</i>	O	O		
Red fescue	<i>Festuca rubra</i>	O	O	F	F
Meadowsweet	<i>Filipendula ulmaria</i>	R	R	LA	LA
Ash	<i>Fraxinus excelsior</i>	LF	LF	F	F
Common cleavers	<i>Galium aparine</i>	LO	LO	O	O
Hedge bedstraw	<i>Galium mollugo</i>	LO	LO	F/LD	F/LD
Cut-leaved crane's-bill	<i>Geranium dissectum</i>	F	O	R	R
Herb robert	<i>Geranium robertianum</i>	O	O	O	O
Ground ivy	<i>Glechoma hederacea</i>	O	O	F	F
Ivy	<i>Hedera helix</i>	O	O	O/LA	O/LA
Hogweed	<i>Heracleum sphondylium</i>	O	O	R	R
Yorkshire fog	<i>Holcus lanatus</i>	A	A	F	F
Wall barley	<i>Hordeum murinum</i>	R	R		
Meadow barley	<i>Hordeum secalinum</i>	R			
Hairy St John's-wort	<i>Hypericum hirsutum</i>	R	R	R/LF	R/LF
Square-stemmed St John's-wort	<i>Hypericum tetrapterum</i>	OLF	OLF	R	R
Common cat's-ear	<i>Hypochaeris radicata</i>	R	R	R	R
Holly	<i>Ilex aquifolium</i>	R	R		
Compact rush (U)	<i>Juncus conglomeratus</i>	R	R		
Prickly lettuce	<i>Lactuca seriola</i>	R			
Nipplewort	<i>Lapsana communis</i>	R	R	R	R
Grass vetchling (U)	<i>Lathyrus nissolia</i>	F	R		
Meadow vetchling	<i>Lathyrus pratensis</i>	F	R	O	O
Autumn hawkbit	<i>Leontodon autumnalis</i>	O	O		
Rough hawkbit	<i>Leontodon hispidus</i>	R			
Lesser hawkbit	<i>Leontodon saxatilis</i>	O	O	R	R
Ox-eye daisy	<i>Leucanthmum vulgare</i>	LF	O	F	O
Italian rye-grass	<i>Lolium multiflorum</i>	R	R		
Perennial rye-grass	<i>Lolium perenne</i>	O	O	F	F
Bird's-foot trefoil	<i>Lotus corniculatus</i>	F	O	O	O
Greater bird's-foot trefoil	<i>Lotus pedunculatus</i>			R	R
Domestic apple	<i>Malus domestica</i>			R	R
Black medick	<i>Medicago lupulina</i>			R	R
Field forget-me-not	<i>Myosotis arvensis</i>	R	R	R	R
Corky-fruited water-dropwort (S)	<i>Oenanthe pimpinelloides</i>			R	
Adder's-tongue fern (S)	<i>Ophioglossum vulgatum</i>	O	R		
Timothy	<i>Phleum pratense</i>		R		
Hartstongue fern	<i>Phyllitis scolopendrium</i>			R	R
Bristly ox-tongue	<i>Picris echioides</i>	F	F	F	F

Buck's-horn plantain (U)	<i>Plantago coronopus</i>			LF	LF
Ribwort	<i>Plantago lanceolata</i>	F/LA	F/LA	F	F
Greater plantain	<i>Plantago major</i>	R	R	R	R
Annual meadow-grass	<i>Poa annua</i>	O	O	R	R
Common knotgrass	<i>Polygonum aviculare</i>	R	R	R	R
Silverweed	<i>Potentilla anserina</i>	F/LA	F/LA	O	O
Creeping cinquefoil	<i>Potentilla reptans</i>	O	O	F	F
Cowslip	<i>Primula veris</i>	R		F	
Selfheal	<i>Prunella vulgaris</i>	F	F/LA	F	F
Blackthorn	<i>Prunus spinosa</i>	LF	LF	R	R
Fleabane	<i>Pulicaria dysenterica</i>	O	F/LA		
Pedunculate oak	<i>Quercus robur</i>	R	R	O	O
Meadow buttercup	<i>Ranunculus acris</i>	O	R	R	R
Creeping buttercup	<i>Ranunculus repens</i>	O	O	R	R
Rose species	<i>Rosa</i> sp.	O	O	R	R
Dewberry	<i>Rubus caesius</i>			LA	LA
Bramble	<i>Rubus fruticosus</i> agg.	O/LA	OLA	O	O
Raspberry	<i>Rubus idaeus</i>	R	R		
Sorrel	<i>Rumex acetosa</i>	O	O	O	O
Curled dock	<i>Rumex crispus</i>	O	O	R	
Broad-leaved dock	<i>Rumex obtusifolius</i>	R	R	R	
Wood dock	<i>Rumex sanguineus</i>	O	O	O	O
Willow hybrid	<i>Salix</i> sp.			R	R
Elder	<i>Sambucus nigra</i>	O	O		
Common figwort	<i>Scrophularia nodosa</i>			R	R
Biting stonecrop	<i>Sedum acre</i>			R	R
Hoary woundwort	<i>Senecio erucifolius</i>	O	R	R	R
Common ragwort	<i>Senecio jacobaea</i>	O	O	O	O
Oxford ragwort	<i>Senecio squalidus</i>		R		
Groundsel	<i>Senecio vulgaris</i>	R	R		
Red campion	<i>Silene dioica</i>	O	O		
Stone parsley	<i>Sison amomum</i>	R/LF	R		
Hedge mustard	<i>Sisymbrium officinale</i>			R	
Smooth sow-thistle	<i>Sonchus oleraceus</i>	O	O	R	R
Betony	<i>Stachys officinalis</i>	R	R		
Hedge woundwort	<i>Stachys sylvatica</i>	F	O	R/LO	R/LO
Common chickweed	<i>Stellaria media</i>	O	O	O	O
Black bryony	<i>Tamus communis</i>	R	R	O	O
Dandelion	<i>Taraxacum officinale</i> agg.	O	O	O	O
Upright hedge parsley	<i>Torilis japonica</i>		R		R
Goatsbeard	<i>Tragopogon pratense</i>	R	R		
Lesser trefoil	<i>Trifolium dubium</i>	O	R	O	R
Red clover	<i>Trifolium pratense</i>	F	F		
White clover	<i>Trifolium repens</i>	O	O	F	F
Scentless mayweed	<i>Tripleurospermum inodorum</i>		R		
Yellow oat-grass	<i>Trisetum flavescens</i>	R	R	R/LO	R
Volunteer wheat	<i>Triticum aestivum</i>			R	R
Coltsfoot	<i>Tussilago farfara</i>			R	
English elm	<i>Ulmus procera</i>	LO	LO		
Common nettle	<i>Urtica dioica</i>	LD	LD	O	O
Green field speedwell (U)	<i>Veronica agrestis</i>			R	R
Wall speedwell	<i>Veronica arvensis</i>		R	O	O

Germander speedwell	<i>Veronica chamaedrys</i>			R/LO	R/LO
Thyme-leaved speedwell	<i>Veronica serpyllifolia</i>	R	R		
Tufted vetch	<i>Vicia cracca</i>	F	R	F	R
Hairy tare	<i>Vicia hirta</i>	R			
Common vetch	<i>Vicia nigra</i>	O		R	R
Bush vetch	<i>Vicia sepium</i>	O	R	R	

Species status (taken from The Flora of the Bristol Region, BRERC 2000):

(NS): No status – not recorded in the Flora and believed to be unrecorded elsewhere in the region; therefore very rare

(S): Scarce – these plants are recorded in 8 to 50 one kilometre squares.

(U): Uncommon - these plants are recorded in 51 to 150 one kilometre squares.

All other species recorded here are common or widespread in the Bristol region; however the frequency with which each species occurs in the region will vary significantly with some species being very common and others

APPENDIX 2

Incidental records

1. Butterflies and day-flying moths

Common name	Scientific name	Roundabout		Bank	
		June	August	June	August
Small skipper	<i>Thymelicus sylvestris</i>	O		R	
Large white	<i>Pieris brassicae</i>	O	R		
Common blue	<i>Polyommatus icarus</i>	R			
Marbled white	<i>Melanargia galathea</i>	F	O	R	O
Ringlet	<i>Aphantopus hyperantus</i>	O	R	R	R
Gatekeeper	<i>Pyronia tithonus</i>	F	F	O	O
Meadow brown	<i>Maniola jurtina</i>	F	F	O	R
Speckled wood	<i>Pararge aegeria</i>	R	R		R
Cinnabar moth	<i>Tyria jacobaeae</i>	F	F	R	

2. Birds

Common name	Scientific name	Roundabout		Bank	
		June	August	June	August
Common whitethroat	<i>Sylvia communis</i>	O	O		
Common woodpigeon	<i>Columba palumbus</i>	R			
Winter wren	<i>Troglodytes troglodytes</i>	R	R	R	
Dunnock	<i>Prunella modularis</i>	R	R		
European robin	<i>Erithacus rubecula</i>	R	R		

3. Mammals

A roe deer *Capreolus capreolus* fawn was recorded hidden in the long grass of area 3a on the roundabout. Paths through the grass and scrub were presumably made by its mother.