

# Woodgreen Land Management Plan 2016-2026

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## Appendix I: Consultation Record

Consultee	Date contacted	Date response received	Concept Questionnaire Questions	Consultee Comment	Forest District Response
Concept Consultation (collated comments from feedback forms and online survey grouped related to topic)	08 Feb 2016 - 31 Mar 2016	08 Feb 2016 - 31 Mar 2016	Do you think you would use Woodgreen in the future?	Yes (x7)  "I walk my dog in this area and when my child was young we used to walk around identifying plants and animals. Most recently as a member of Kilwinning Heritage I am undertaking research into the Flemish wool merchants of the 11th to 14th centuries that lived in this area."	The District is pleased by the positive response.
"	"	"	What would you like to use Woodgreen for?	Summary of responses:  "Walking"  "Dog Walking"  "Cycling"  "Park for kids to appreciate nature"  "Education"  "I would love to see the area turn into a magnet for"	It is the intention for this site to be an available asset for each of the uses listed. It may be that path improvement will need to take place before cycling is more suitable but that is the ambition for the site. With regards anti-social behaviour the district will continue to work with the community council, community police and local authority to combat any potential issues.

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				wildlife and plant life. I am uneasy that this location might be abused due to it being so local. The area has had problems with anti-social behaviour at the bridge. I was a friend with James Craig-farmer. Spent EVERY day when I was younger walking this area"	
"	"	"	Are there any improvements or changes that you would like to see at Woodgreen?	"I am concerned about public access for non-walkers. Blair Road is quite narrow and curvy and many of the road users drive like maniacs along it. I am happy that you are incorporating viewpoints s the view up the Garnock Valley, over to Arran via Ashgrove, over Kilwinning to the Abbey and looking over Wood green Farm to the Southern Uplands is spectacular."  "I think that it would be a good idea to create a parking area in waste ground in Viaduct Circle, KA13 7EB. As a resident of Viaduct Circle, I have asked North Ayrshire Council to create such a parking area	Access to the site, is intended to be available via the Sustrans cycle route on the western side of the site and the proposed upgraded link to the east will allow for access to the whole site. For access from the public road this may best be taken via the proposed forest road to the east of the site. It is not the intention at this stage to provide any vehicle parking to the site as the site is not envisaged as a destination site but more of a local community resource.  As mentioned above it is not the intention to promote this as a destination site where visitors travel from further afield to the site and parking would be appropriate. The site is envisaged to be a local asset visited on foot or bicycle etc.

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				<p>in waste ground directly on the street itself, opposite number 18 Viaduct Circle, which is currently used to dump rubbish and set bonfires. North Ayrshire Council have refused to build it citing cost as their only reason, and at first denied it was being used to dump rubbish and set bonfires until I provided evidence. Nevertheless, they still refuse to build the car park. I think if the Forestry Commission decided to include a car park in Viaduct Circle in their plans for Woodgreen, then North Ayrshire Council would not refuse it. It would be a shame for Woodgreen to have such waste ground so close with rubbish being dumped on it and bonfires being set regularly."</p> <p>"Plenty of dog poo bins, in sensible locations. Ideally, an enclosed dog exercise area where dogs could be allowed off-lead without means of escape."</p>	<p>Therefore pursuing an option to provide parking would not fit with this site and to do so on land out with our ownership would incur an onerous management burden and liability.</p> <p>It is not the intention in the district to install dog waste bins as there is a large resource commitment required to manage these as well as their tendency to increase the volume of dog waste bags found discarded out with the</p>
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				<p>"Bird boxes. Traditional hedge-laying."</p>	<p>bins. Having an area to allow dogs to run and foul with waste bins within it is an option FES may explore in consultation with the local community and user groups in the future if there is demand.</p> <p>The establishing trees will be too small for bird boxes initially and as the trees mature they should provide natural conditions for tree nesting birds but additional bird boxes may be looked at. Our communities' team may explore hedge laying as an educational engagement tool with interested groups in the future.</p>
"	"	"	Are there any changes you would not like to see?	<p>"No play parks. No barbecue areas."</p> <p>"Cars parking on Viaduct Circle to the detriment of residents."</p> <p>"A dog area"</p> <p>"Concrete! Restrictions for fishermen on the banks. In fact be good if you could come to some agreement to allow younger people free permits to fish."</p>	<p>It is not our intention to provide or install any of the features listed but rather create a pleasant natural asset. Any potential future additions of seating or benches would be based on the levels of use of the site and feedback we receive and would be in keeping with the site.</p>

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"	"	"	Any other feedback on the draft concept?	<p>"I am happy with your plans. If you do happen to find any stray artefacts which could date to the 11th to 14th centuries, I would be really grateful if you could let me know. And if it is not something of value/historical significance Kilwinning Heritage would be happy to display it in their museum in the Abbey Tower." (Jeni Park; contactable via Kilwinning Heritage website)</p> <p>"No."</p> <p>"I'm excited about this project and looking forward to seeing the end result.</p> <p>the draft is perfect"</p> <p>"Happy to see a native woodland and hope there will be some barriers to stop motor cycles e.c.t , could be for example kissing gates"</p> <p>"I like the draft and has actually brought a tear to me. I am 30 and spent every day walking my dogs here. Loved bird watching</p>	A walkover survey and desk based survey have not shown up any features of note but if we should find anything as part of our establishment of the wood we will adhere to the UK Forestry Standard Guidelines on Forests and Historic Environment.
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				<p>and talking with Jim as he got the beast in for milking. Learned a lot from this ground and great to see it still attracts the varied bird life. Great childhood memories and was an escape having mental health issues. I would love to be involved in this. I had dreams of doing the John Muir Award on the land or the woods beside the farm. Used to pile up dead wood to attract bugs for the birds and stuck up bird boxes. Wanted to buy this land and turn it into something like you have planned. So was a shock to see it is happening!" (Bryan Morgan)</p>	
Notes from presentation delivered to Kilwinning Community Council	08 Feb 2016 - 17 Mar 2016	17/03/2016		<p>Questions:</p> <ul style="list-style-type: none"><li>• Will there be parking provision e.g. for local schools?</li><li>• How will you protect the site/trees from vandalism?</li></ul>	<p>As mentioned above the site is not envisaged as a destination site where parking would be required and site limitations would be a constraint on that should it become an aspiration.</p> <p>The site will most likely be fenced to protect it from deer but will also have access which prevents anti-social access e.g. trail bikes and quads. There</p>

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					<ul style="list-style-type: none"><li>• What way would timber travel?</li><li>• Would the site be suitable for bicycles?</li><li>• Have we contacted the local access officer?</li><li>• Who did we purchase the ground from and are we aware the land was held in trust?</li></ul> <p>Comment:</p> <p>A gentleman had visited similar projects in the area and deemed them to be of</p>	<p>will also be an increased site presence by our operations and communities' team as the site establishes.</p> <p>Timber would need to travel south toward Kilwinning as there is a weight restriction on the road bridge.</p> <p>Initially the site would only have mown grass paths so would not be ideal for bicycles but it is hoped that these paths might be upgraded in time to more formal paths better suited to cyclists.</p> <p>As part of our consultation we contact statutory stakeholders, the local authority being one where the access officer should be informed.</p> <p>We purchased the site from the previous owner and our estates team has concluded any previous issues attached to the land.</p>
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				great value and enjoyment and could provide a very good asset for Kilwinning.	
Gillian McIntyre - Biologist and Project Manager Ayrshire Rivers Trust	24/02/2016	25/02/2016		"I have looked through your concept and on the map invasive non-native species (INNS) are mentioned. We have controlled Giant hogweed and Japanese knotweed along the length of the River Garnock for the past few years and have trained several volunteers who are local to the river. So we could possibly combine experience and bodies to continue this control. Another INNS we haven't undertaken any control with is Himalayan balsam, which is present along the length of the Garnock. The benefit of this INNS is you do not need any experience or training to control as the most effective method is hand pulling it, which is ideal for volunteers."	Our Environment team have been passed these comments and will be keen to discuss opportunities to collaborate in the future.
John Coleman – Local landowner with an interest in woodland and education	08 Feb 2016 - 31 Mar 2016	18/04/2016		"There may be some aspects of interest in your deliberations both to your organisation and any interested notaries."	Thanks you for your comments which echo much of what we envisage for the site.

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				<p>1 The concept is good and I am able to reflect my experience of woodland planting of 54 years. Along with this I echo the desire to involve the interests of the community.</p> <p>2 I would see this as a 100 year or more project as such it has several distinct phases.</p> <p>[a] Initial development with community involvement.</p> <p>[b] Formal establishment of tasks and interests.</p> <p>[c] Woodland and land maintenance and management.</p> <p>[d] Progressive developments and changes.</p> <p>3 In community Interests I would propose the involvement of your organisation, North Ayrshire Council parks department. Kilwinning Heritage and any volunteer groups who wish to participate.</p> <p>4 I see continuity of interest being an aspect that has to be sold to the community.</p>	
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				<p>My approach to this would be first the interested schools or academies in North Ayrshire. I would also suggest established youth groups or any like organisations.</p> <p>An approach on this that may be incorporated in the establishment of the woodland allocating a designated compartment to say a school. The planting mix could be varied as would the aspect and appearance.</p> <p>A level of interest and competition could result between the different groups. Long-term interest would emerge from this as would productivity.</p> <p>5 Long-term interest and work such as thinning, replanting could become a function of local colleges with an interest in training and land works. Kilwinning and Kilmarnock.</p> <p>6 An early development could be in the form of a log cabin constructed by the</p>	
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				<p>interested parties to display information on forestry, wood its use. It could even dispense tea made over a log fire.</p> <p>I could supply some logs for the structure and fire.</p> <p>At such a forestry centre, information on trees, data, wild life and birds could be displayed.</p> <p>If the woodland is fenced Roe Deer will be secure and safe as would Badgers."</p>	
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## Appendix II: General Management & Potential Projects

Woodgreen LMP  
management aspirations

Aspect	Feature	Aspiration	Task	General Management / Potential Project	Owner	Occurrence	Status Monitoring (Y/N)	Monitoring occurrence
Access	Ride paths	Maintain for amenity and habitat value and for longevity of path.	Selected rides will be managed primarily for recreational access and will be enhanced as habitats where possible. Flail/Mow/Strim ride paths for amenity of the site and to maintain in good condition. Ride edge spraying may also be undertaken if necessary	General Management	Communities Recreation & Tourism	As per internal Woodgreen Site Maintenance Plan	Y	Annual
Access	Operational Access	Improve operational access for on-going silviculture and operational site management	Create suitable entrance from the public road and construct a forest road suitable for timber traffic to turn.	Potential Project	Planning/Communities Recreation & Tourism/Civil Engineering	In advance of first thinning operation	Y	10 years after planting
Access	Operational Access	Improve operational access for on-going silviculture and operational site management	Re-establish an operational access track suitable for forestry machinery between the western and eastern areas of the site.	Potential Project	Planning/Communities Recreation & Tourism/Civil Engineering	In advance of first thinning operation	Y	10 years after planting

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Access	Entrances	Maintain formal access points	Entrance points, nodal zones, and signage will be maintained by keeping them free of encroaching scrub and litter to make them as attractive and inviting as possible. Barriers will also be maintained.	General Management	Communities Recreation & Tourism	As per internal Woodgreen Site Maintenance Plan	Y	Annual
Biodiversity	Lowland meadow	Maintain/improve the condition of the habitat above the river bank for biodiversity	Allow the natural development of the meadow habitat. If natural management is unsuccessful consider a cut and lift regime.	General Management	Environment & Heritage	On-going	Y	Annual
Biodiversity	Hawthorn Hedgerows	Maintain Hawthorn Hedgerow as a Dynamic Feature of the Woodland Structure	Hedgerow will be a integrated feature of Woodgreen through management to create a diverse woodland structure and habitat.	General Management	Environment & Heritage/Planning	On-going	Y	Annual
Biodiversity	Invasive non-native species	Eradicate invasive non-native species flora	Continue the programme of clearing and treating invasives i.e. Japanese knotweed, Himalayan Balsam & Giant Hogweed.	General Management	Environment & Heritage	On-going	Y	Annual
Education	Teaching areas	Creation of semi-formal teaching areas to encourage use by schools	Create area(s) that can be used easily for school groups for education areas. Involve the schools in the design and maintenance	Potential Project	Communities Recreation & Tourism	Within the life of the plan	Y	Quarterly

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Education	Interpretation of various aspects of the wood including wildlife, habitats, silviculture & heritage.	To enable visitors to the site to better appreciate the features within the wood.	Interpretation may enhance education provision in the woodland. Panels may be included in a regime of inspection to check for damage or removal. Co-operate with organisations such as North Ayrshire Council, local schools and the community groups to develop further interpretation.	Potential Project	Communities Recreation & Tourism	Within the life of the plan	Y	Annual
Education	Art features	To encourage exploration and imagination within the wood.	Art projects may help to create community ownership. Explore opportunities to employ art installations as a means to improve the visitor experience	Potential Project	Communities Recreation & Tourism	Within the life of the plan	Y	Annual
Landscape	Elevated views	Retain the View from elevated positions	Retain the views from the high points on both sides of the site.	General Management	Communities Recreation & Tourism	On-going	Y	Annual
Promotion	Local community	Increased use of the wood by local community	Continue to forge relationships and partnership with local schools and groups to encourage events, activities, education and appreciation of the woods.	General Management	Communities Recreation & Tourism	On-going	Y	Annual
Promotion	Litter	Improve visitor experience	litter blown or dropped into the wood should be removed	General Management	Communities Recreation & Tourism	As per internal Woodgreen Site Maintenance Plan	Y	Quarterly

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Promotion	Waste material	Improve visitor experience	Remove large items of waste/Fly-tipping.	General Management	Communities Recreation & Tourism	As per internal Woodgreen Site Maintenance Plan	Y	Quarterly
Silviculture	FM Operations	Maintain a healthy woodland	Leader forming, pruning, re-spacing	General Management	Forest Management	As required	Y	Annual

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## Appendix III: Tolerance Table

	<b>Adjustment to felling coupe boundaries</b>	<b>Timing of restocking</b>	<b>Change to species</b>	<b>Windthrow response</b>	<b>Adjustment to road lines</b>
<b>FC Approval not normally required (record and notify FC)</b>	<10% of coupe size.	Up to 5 planting seasons after felling (allowing fallow periods for <i>hylobius</i> ).	Change within species group E.g. Scots pine to birch,  Non-native conifers e.g. Sitka spruce to Douglas fir,  Non-native to native species (allowing for changes to facilitate Ancient Woodland policy).	<b>Low sensitivity area</b> Where windthrow represents more than 60% of the crop the area including standing trees may be felled plus up to 5Ha beyond in order to seek a windfirm edge.	<b>Low sensitivity area</b> Creation of turning points/ loading bays. Deviation of <100m either side of the predicted centre line of the road/ track.  <b>High sensitivity area</b> Deviation <75m in either direction from centre of road/track.
<b>Approval by exchange of letters and map</b>	10-15% of coupe size.	5 years +	Change of coupe objective that is likely to be consistent with current policy (e.g. from productive to open, open to native species).	<b>Low sensitivity area</b> As above to include 5-10 Ha of standing crop to seek a windfirm edge. Areas where windthrow represents <60%.  <b>High sensitivity area</b> Areas where windthrow represents <60%.	<b>Low sensitivity area</b> Deviation of 100-150m in either direction from centre of road/track.  <b>High sensitivity area</b> Deviation of 75-100m in either direction from centre of road/track.
<b>Approval by formal plan amendment</b>	>15% of coupe size.		Major change of objective likely to be contrary to policy, E.g. native to non-native species, open to non-native,	<b>Low sensitivity area</b> As above. Windblown area + an area>10 Ha to find a windfirm edge.  <b>High sensitivity area</b> Felling of standing trees beyond the area of windblow.	Deviations exceeding the above.

## Appendix IV: Management Plan Brief

# Woodgreen

## Land Management Plan Brief

### Contents

1. Key Background Information
2. Strategic Priorities
3. Key Drivers & Draft Management Objectives

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## 1. Key Background Information

- Woodgreen covers just over 30 hectares of formerly agricultural grazing land situated to the north east of the town of Kilwinning in North Ayrshire.
- This is a new management plan which will establish and deliver management objectives that relate to the Scottish Lowlands Forest District Strategic Plan.
- Elevation ranges from ~9m Above Sea Level (ASL) where the site runs by Garvoe River to the west up to ~43m ASL near to Blair Road which bisects the site. The soils found within the site are predominantly surface-water gleys [FC soil code: 7] as well as more alluvial soils [FC soil code: 1] along the river.
- The prevailing warm, moist climate is conducive to the continued potential for good growth of a wide variety of tree species, aided by the topography providing a reasonably sheltered site. Climate change predictions suggest that the climate will become generally warmer, with drier summers and wetter winters which should be borne in mind.
- Other than some remnant shrub hedgerows and some trees along the river bank, the site is unplanted.
- There is currently no formalised public access to the site. Access to the site is via the field gates on either side of Blair Road. There is also a field gate underneath the viaduct which leads to the river bank. There is a palisade metal fence blocking access along the former rail line as it travels underneath Blair Road however we do have a right of access through here. As it currently stands, the site does not provide suitable access for either recreational or operational use.
- It is thought that the site is not widely used by the local community of Kilwinning for recreation, other than for fishing on the banks of the Garvoe River.
- Landscape design will be an important consideration as any new woodland would present a visual change to the views of the site from the immediate surrounds; particularly from the housing on the north eastern edge of Kilwinning and for users of the Sustrans link as it crosses the viaduct. Any planting design would need to be sensitive to the surrounding land character.
- There are no known significant heritage features within the site other than the remnants of the former railway line. A desk based survey and a walkover survey was sufficient as per the guidance on Pre-Forestry establishment on improved ground in the guidance note '*Planning and the Local Authority Archaeology Service (2014)*'.
- The site's network of remnant hedgerows, comprised mostly of hawthorn, provide an important habitat for native wildlife which may include some of the following species:

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- Insects and arachnids such as Hawthorn Shield Beetle (*Acanthosoma haemorrhoidale*), Earwig (*Forficula auricularia*), Common Flower Beetle (*Anthocoris nemorum*), Bumblebees, Cockchafers (*Melolontha melolontha*), Devil's coach horse beetle (*Ocypus olens*), Violet ground beetle (*Carabus violaceus*), Harvestman, Garden spider, Peacock butterflies (*Inachis io*), Lacewing, Ladybird.
- Birds such as Wren, Blue tit (*Cyanistes caeruleus*), Blackbirds (*Turdus merula*) and other thrushes (including Song thrush (*Turdus philomelos*), Redwings (*Turdus iliacus*) and Fieldfares (*Turdus pilaris*)), Greenfinches (*Chloris chloris*), Yellowhammers (*Emberiza citronella*), Chaffinches (*Fringilla coelebs*), Starlings (*Sturnus vulgaris*) and Robin (*Erithacus rubecula*).
- Reptiles such as the Slow worm (*Anguis fragilis*).
- Amphibians such as the Common toad (*Bufo bufo*).
- Mammals such as the Wood mouse (*Apodemus sylvaticus*).

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## 2. Strategic Priorities

The work of FES is guided by the Scottish Forestry Strategy 2006, which set out seven Key Themes:

- *Climate Change*
- *Timber*
- *Business Development*
- *Community Development*
- *Access & Health*
- *Environmental Quality*
- *Biodiversity*

Since 2006 the purpose of the estate has evolved slightly and has been re-characterised in: [The Role of Scotland's National Forest Estate and Strategic Directions 2013 – 2016](#), which sets out six aspirations that the National Forest Estate is:

- **Healthy** - achieving good environmental and silvicultural condition in a changing climate
- **Productive** - providing sustainable economic benefits from the land
- **Treasured**- as a multi-purpose resource that sustains livelihoods, improves quality of life, and offers involvement and enjoyment
- **Accessible** - local woodlands and national treasures that are well promoted, welcoming and open for all
- **Cared for** - working with nature and respecting landscapes, natural and cultural heritage
- **Good value** - exemplary, effective and efficient delivery of public benefits

In light of the new national strategic directions, Scottish Lowlands Forest District revised the District Strategic Plan, producing the [Scottish Lowlands Forest District Strategic Plan \(2014-2017\)](#), which draws on the six aspirations and sets out the key national commitments and what district specific actions are to be taken to achieve them.

In preparing the Brief and Objectives for this Land Management Plan (LMP), issues were considered against these revised 'Key Commitments' and assessed for their importance. Those most relevant to Woodgreen are set out below.

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## 3. Key Drivers & Draft Management Objectives

On the basis of the key information, and given the considerations outlined above, a series of drivers have been identified in order to produce the management objectives proposed for Woodgreen.

### Key Aspiration – Healthy

In order to help tackle greenhouse gas emissions and as part of the national policy of reducing CO<sub>2</sub> in the atmosphere, woodland contributes to this objective by way of the carbon already stored in existing woodland and from sequestering further carbon into existing and new woodlands which creates social benefits by keeping that carbon out of the atmosphere.

Woodland also contributes to sustainable flood management, protecting both soil and water resources.

#### Management Objectives:

- Establish new woodland using various site suitable species which will provide resilience to the possible effects of predicted climate change, the potential threats from pests and disease as well as helping to protect river bank slope soils from erosion and run off into the wider water catchment.*

### Key Aspiration – Productive

Woodland contributes to and underpins a sustainable forest products industry providing consistent and reliable timber supply for timber processing and wood fuel investments.

#### Management Objectives:

- Establish woodland of broadleaved species to be managed productively which will provide timber suitable for niche markets through appropriate silviculture and tending as well as the firewood market.*
- Provide suitable operational access by creating a new forest road with turning area and provision for future roadside timber stacking.*
- Provide suitable crop protection from likely herbivore damage.*

### Key Aspirations – Treasured and Accessible

Welcoming and well-managed woodlands provide benefits in and around communities and

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where health and community need is greatest. New woodland can help support rural development and local businesses.

## **Management Objectives:**

- *Develop contacts within, and involvement of, the local communities, schools and businesses in developing opportunities such as promoting volunteering and skills opportunities and exploring potential partnership ventures.*
- *Consult with the local community on what recreational provision they would wish to have within the site.*
- *New planting design will include rides facilitating informal visitor movement within the site and providing future options for a more formal path network.*

## **Key Aspiration – Cared for**

Woodland can enhance urban areas by improving landscapes such as diversifying farmed landscapes.

## **Management Objectives:**

- *Create woodland sympathetic to the local character of the surrounding landscape providing visual and textural diversity.*
- *Where practical preserve views enjoyed by neighbouring properties and using good design create interesting transitions and views through and out with the new woodland to the surrounding landscape.*
- *Retain the habitat network of hedgerows and integrate these into a more organic, less geometric planting design.*

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## Appendix V: Objective Appraisal, Monitoring & Evaluation

The table below helps determine and communicate how to appraise the Land Management Plan Proposals and how to monitor the progress of the Land Management Plan as the proposals are implemented as forest operations on the ground.

Key Aspiration	Objective	Assessable Criteria	Appraisal Method	Monitoring Method	Monitor Where	Monitor When	Monitor Who	Record Monitoring Where	Evaluation. How does the Appraisal and Monitoring method inform current & future proposals? If you cannot answer this question then the methods may not be appropriate.
Healthy	Establish new woodland using various site suitable species which will provide resilience to the possible effects of predicted climate change, the potential threats from pests and disease as well as helping to protect river bank slope soils from erosion and run off into the wider water catchment.	Establishment and Species mix	Species types, proportions & distributions	Site survey SCDB Query	Onsite SCDB	After operations and at appropriate intervals e.g. mid-term and 10 year reviews	Planning Forester	Against the LMP	Monitoring the establishment success, species proportions and distributions will inform the planning forester as to whether the plan is working and whether adjustments are required allowing the district to adjust expectations and business plan for alternative management methods.
Productive	Establish woodland of broadleaved species to be managed productively which will provide timber suitable for niche markets through appropriate silviculture and tending as well as the firewood market.	Timber production	Production Forecast	Record post thin figures	Onsite Sales Recording Package	After operations and at appropriate intervals e.g. mid-term and 10 year reviews	FM WIAT Forester	Against the LMP	Monitoring the volumes and quality of timber produced and levels of income received will allow the FM WIAT Forester to gauge what returns might be expected from future interventions and which customers would most likely be interested. This monitoring also allows the FM WIAT Forester and Planning Forester to gauge the quality of conditions and whether future crops might fetch improved revenues if managed correctly.

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Productive	Provide suitable operational access by creating a new forest road with turning area and provision for future roadside timber stacking.	Access Road	Creation of new road and associated turning & stacking area	Road inspection	Onsite	After operations and at appropriate intervals e.g. mid-term and 10 year reviews	Planning Forester	Against the LMP & Forester Roads Module	By monitoring whether road infrastructure has been created the Planning Forester can demonstrate to stakeholders that the plan is delivering the desired outcomes and if not allow the Planning Forester to take the necessary steps to achieve the desired outcome.
Productive	Provide suitable crop protection from likely herbivore damage.	Establishment Deer Population	Leader Browning	Site survey SCDB Query Deer Pop Survey Thermal Imaging Survey	Onsite SCDB Impact monitoring form	After operations and at appropriate intervals e.g. mid-term and 10 year reviews	FM WIAT Forester Wildlife Manager	SLFD Deer Overview Map Thermal Imaging Po Spread-sheet NNR Survey by SCL Impact monitoring form	Monitoring leader browsing by deer allows the FM WIAT Forester and Wildlife Manager to establish whether establishment is likely to be successful or whether further methods of protection are required and therefore factored in to business planning.
Treasured and Accessible	Develop contacts within, and involvement of, the local communities, schools and businesses in developing opportunities such as promoting volunteering and skills opportunities and exploring potential partnership ventures.	Local community involvement	Contact lists numbers. Event & Project activity	Contact list check, number of events / projects progressing	Within the local community	On-going engagement with local stakeholders	Recreation Manager/ Beat Forester	Against the LMP & Site contact list	By monitoring when and who we have contacted as well as what events and projects are being progressed the CRT Manager can evaluate how active we have been in engaging with local community as well as being better able to plan budgets for upcoming events/projects.
Treasured and Accessible	Consult with the local community on what recreational provision they would wish to have within the site.	Visitor & Public Opinion	Survey users	Visitor survey(s)	Onsite Online In community	On-going engagement with communities and at appropriate intervals and mid-term and 10 year review	Recreation Manager	Evaluation Feedback Forms folders in CRT2 folder within Management unit folders	By seeking visitor feedback on the woods the recreation manager has the opportunity to learn where further improvements can be made and if necessary factored in to future business plans.

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Treasured and Accessible	New planting design will include rides facilitating informal visitor movement within the site and providing future options for a more formal path network.	Visitors & Public Opinion	Visitor numbers Survey users	Gate counters Visitor survey(s)	Onsite Online In community	On-going engagement with communities and at appropriate intervals for gate counts and mid-term and 10 year review	Recreation Manager	People counter data & Evaluation Feedback Forms folders in CRT2 folder within Management unit folders	By monitoring visitor numbers and seeking their feedback on the woods the recreation manager can evaluate whether numbers are increasing and if so if those increased numbers can be confidently attributed to improvements made to the visitor experience of the woods. Visitor feedback will also allow for opportunity to learn where further improvements can be made and if necessary factored in to future business plans.
Cared for	Create woodland sympathetic to the local character of the surrounding landscape providing visual and textural diversity.	Species	Species types & distributions	Site survey SCDB Query	Onsite SCDB	After operations and at appropriate intervals e.g. mid-term and 10 year reviews	Planning Forester	Against the LMP	Monitoring the diversity of will allow for comparisons to be made with surrounding landscape and will inform the planning forester as to whether the plan is working and whether adjustments are required allowing the district to adjust expectations and business plan for alternative management methods.
Cared for	Where practical preserve views enjoyed by neighbouring properties and using good design create interesting transitions and views through and out with the new woodland to the surrounding landscape.	Landscape	Survey users	Visitor survey	Onsite Online In community	At mid-term and 10 year review	Recreation Manager	Evaluation Feedback Forms folders in CRT2 folder within Management unit folders	By seeking visitor feedback on the woods the recreation manager can evaluate what affect over time the development of the crop has on visitor appreciation of the sites and also learn where further improvements can be made and if necessary factored in to future business plans.
Cared for	Retain the habitat network of hedgerows and integrate these into a more organic, less geometric planting design.	Species, Open Space & Habitat	Changes in land use over time	Site survey SCDB Query Forester Conservation Module Query	Onsite Aerial photos	At mid-term and 10 year review	Environment & Heritage Manager	Forester Conservation Module	By monitoring any changes in land use it can be determined whether there have been any unforeseen impacts from implementation of the plan e.g. have increased visitor numbers/ infrastructure had a detrimental effect on habitats or species or have operations damaged habitats.

# Woodgreen Management Plan 2016 - 2026

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## Appendix VI: Maps

The table below lists the maps which support and form part of this Land Management Plan.

- 1 – Location
- 2 - Context
- 3a – Soils
- 3b – Climatic Conditions
- 4a – Survey & Key Features
- 4b – Concept
- 5a – Planting Design & Species
- 5b – Operational & Recreational Access

## Appendix VII: Related Documents\*

In addition to those already referenced within the main text the following key policy or guidance documents which have influenced this plan are listed here:

- UK Forestry Standard (3rd Edition)
- UK Woodland Assurance Standard 3.1
- Scottish Forestry Strategy 2006
- Scottish Lowlands Forest District Strategic Plan 2014 – 2017
- Ayrshire and Arran Forest and Woodland Strategy 2014
- Ayrshire Local Biodiversity Action Plan
- Ayrshire Green Network Partnership Vision
- Central Scotland Green Network Vision
- SNH Landscape Character Assessments for Ayrshire 1998
- North Ayrshire Council Local Development Plan Adopted 20 May 2014
- North Ayrshire Outdoor Access Strategy
- North Ayrshire Core Paths Plan Document 2009
- Forestry Commission Bulletin 62 – Silviculture of Broadleaved Woodland
- Scottish Lowlands Forest District Deer Management Strategy

*\*Most of the documents listed are available online through their respective sources but are also available on request from SLFD.*

# Woodgreen Management Plan 2016 - 2026

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## Appendix VIII: NVC Survey

# **VEGETATION SURVEY OF LAND AT WOODGREEN, NORTH AYRSHIRE, IN NOVEMBER 2015**



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**December 2015**

**A survey commissioned by Forest Enterprise Scotland**

Scottish Lowlands Forest District, Five Sisters House, Five Sisters Business Park,  
West Calder, West Lothian, EH55 8PN

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## 1 INTRODUCTION

This survey was commissioned by Forest Commission Scotland (FCS), in order to map and describe the vegetation of three small areas of land at Woodgreen, NE of Kilwinning, North Ayrshire, Scotland. Their combined area is about 7 hectares. They are situated on level to moderately sloping lowland terrain between 15 and 40 m above sea level, and their vegetation is mainly a mixture of grassland and rush pasture.

The bedrock belongs mostly is sedimentary rock of Carboniferous age, belonging to the Clackmannan Group of sandstone/siltstone/mudstone/limestone/coal (British Geological Survey 2007).

The climate is mild and moist by general British standards. The following information is based on recent climate maps published on the Meteorological Office website ([www.metoffice.gov.uk](http://www.metoffice.gov.uk)) and is for the period 1981-2010. This area has annual rainfall of about 125 cm and an annual average of about 180 days with  $\geq 1$  mm of rain (wet days). Winters are mild, with a December/January/February mean daily temperature of about 4°C, and summers are warm, with a July mean daily temperature of about 14-15°C.

Most of the land shows evidence of having been grazed by livestock in the past, and sheep were present in the west at the time of survey. The land will also be accessible to deer.

Nomenclature in this report follows Stace (2010) for vascular plants, Atherton *et al* (2010) for bryophytes and Purvis *et al.* (1992) for lichens.

## 2 METHODS

The fieldwork for this survey was carried out on 25<sup>th</sup> November 2015. Vegetation boundaries were mapped onto a base map and their vegetation was classified using the National Vegetation Classification (NVC) (Rodwell 1991 *et seq.*). Many areas are complex mosaics of two or more vegetation types, too complex for each individual patch of vegetation to be mapped out individually. These areas were labelled with an estimated percentage cover value for each of the individual vegetation types present.

Representative 2 m x 2 m quadrat samples were recorded in most of the vegetation types found in this survey (i.e. in all types except for W21 hawthorn scrub and W24 bramble underscrub). Quadrats were recorded mainly in grasslands (7 quadrats in MG5, and 5 quadrats in MG6) and rush-pasture (5 quadrats). In each quadrat the cover of each species was recorded using the DOMIN scale (Dahl & Hadac 1941 in Rodwell 1991 *et seq.*). This scale is a quantitative measure of the percentage of the quadrat covered by the aerial parts of each species. Each DOMIN figure represents a range of percentages:

1 = <4% cover (few individuals)	6 = 26-33% cover
2 = <4% cover (several individuals)	7 = 34-50% cover
3 = <4% cover (many individuals)	8 = 51-75% cover
4 = 4-10% cover	9 = 76-90% cover
5 = 11-25% cover	10 = 91-100% cover

A list was made of all plant species found during this survey, including an indication of the approximate quantity (within the site) of each species using four categories: rare; occasional; frequent; abundant.

The weather here at the time of survey was mild and dry.

### **3 DESCRIPTIONS OF VEGETATION TYPES**

A total of nine vegetation types was found in this survey:

- W21 *Crataegus monogyna-Hedera helix* scrub
- W24 *Rubus fruticosus-Hedera helix* underscrub
- M27 *Filipendula ulmaria-Angelica sylvestris* tall herb fen
- MG5 *Cynosurus cristatus-Centaurea nigra* meadow and pasture
- MG6a *Lolium perenne-Cynosurus cristatus* pasture, Typical sub-community
- MG10a *Holcus lanatus-Juncus effusus* rush-pasture, Typical sub-community
- S12 *Typha latifolia* swamp
- OV26 *Epilobium hirsutum* community
- OV27 *Chamerion angustifolium* community

These vegetation types are described below. The quadrat data are in Appendix 1 and the vegetation map is in Appendix 4

#### **W21 *Crataegus monogyna-Hedera helix* scrub**

This is scrub dominated by hawthorn *Crataegus monogyna* with ground vegetation dominated by dense tangles of *Rubus fruticosus* mixed with smaller amounts of other species including *Dryopteris dilatata* and *D. filix-mas*. There is also a little *Rosa canina* among the brambly scrambling layer. This W21 occurs on a SSE-facing slope on the NNW side of the old railway cutting. It is only small in extent.

There is more W21 scrub, of hawthorn with some blackthorn, gorse, ash, rose and bramble, on a steep NNW-facing bank in the NW of the site, but this is just outside the NVC survey area (it is in the narrow area of non-survey land jutting into the site in the NW).

#### **W24 *Rubus fruticosus-Hedera helix* underscrub**

This is weedy underscrub vegetation dominated by a dense prickly tangle of *Rubus fruticosus* up to about 1.5 m tall, mixed with smaller amounts of *Rosa canina*, *Crataegus monogyna*, *Chamerion angustifolium*, *Urtica dioica*, *Galium aparine*, *Filipendula ulmaria*, *Dryopteris dilatata*, *D. filix-mas*, *Centaurea nigra*, *Lotus pedunculatus*, *Heracleum sphondylium*, *Cirsium arvense*, *Rumex obtusifolius*, *Juncus effusus*, *Arrhenatherum elatius*, *Dactylis glomerata* and *Deschampsia cespitosa*. W24 occupies NNW-facing banks on the SSE side of the old railway line in the small central survey block.

#### **M27 *Filipendula ulmaria-Angelica sylvestris* tall herb fen**

This vegetation consists mainly of tall (40-70 cm), dense growths of *Filipendula ulmaria*, the meadowsweet accompanied by smaller amount of other species including *Angelica sylvestris*, *Lotus pedunculatus*, *Carex flacca*, *C. hirta*, *Centaurea nigra*, *Epilobium hirsutum*, *Rubus fruticosus*, *Deschampsia cespitosa*, *Vicia cracca* and the mosses *Calliergonella cuspidata*, *Brachythecium rutabulum* and *Thuidium tamariscinum*. There is a small area of this M27 fen on damp to wet, level ground in the bottom of the old railway line.

#### **MG5 *Cynosurus cristatus-Centaurea nigra* meadow and pasture**

This is herb-rich neutral grassland of medium height (25-30 cm), consisting mainly of swards of *Agrostis capillaris*, *Cynosurus cristatus*, *Festuca rubra* and *Carex flacca*. *F. arundinacea* is scattered commonly in the sward on the SW-facing slopes in the SW of the site. Herbs are common in this vegetation, and among them the tall stems of *Centaurea nigra* are particularly conspicuous. On closer inspection other, lower grown herbs can be found, including *Plantago lanceolata*, *Rhinanthus minor*, *Potentilla erecta*, *Lotus corniculatus*,

*Trifolium pratense*, *Ranunculus acris*, *R. repens* and *Cerastium fontanum*. This type of grassland occurs here mainly on sloping ground in the SW of the site, with smaller outliers on flatter to gently sloping ground further north within that same western survey area and also on flattish ground along the old railway line.

#### **MG6a *Lolium perenne*-*Cynosurus cristatus* pasture, Typical sub-community**

This is short to medium height (20-30 cm) grassland on level to gently sloping ground, with swards consisting mainly of *Agrostis capillaris*, *A. stolonifera*, *Cynosurus cristatus*, *Holcus lanatus* and *Lolium perenne*. Some of the herbs of MG5 also occur here – mainly *Plantago lanceolata*, *Ranunculus repens*, *Cerastium fontanum* and, locally, *Centaurea nigra* (common in the large area of MG6s in the SW, giving something of the appearance of MG5 but with the associated flora found in this survey to be less species-rich and a better fit for MG6). *Trifolium repens* is common but sparse. The vegetation is less species-rich than the MG5 at this site. This MG6 has evidently been subjected to agricultural improvement: reseeding and/or application of fertiliser.

#### **MG10a *Holcus lanatus*-*Juncus effusus* rush-pasture, Typical sub-community**

This vegetation is conspicuous on account of the abundance or even dominance of tall (mostly >60 cm) tussocks of the rush *Juncus effusus*. Growing lower among these tussocks are the grasses *Agrostis capillaris*, *A. stolonifera*, *Cynosurus cristatus* and *Holcus lanatus*, the sedge *Carex flacca*, a sparse scatter of herbs such as *Prunella vulgaris*, *Cardamine pratensis*, *Lotus pedunculatus*, and patches of mosses including *Calliergonella cuspidata*. MG10a is common here on damp to wet, level to gently sloping ground in the main western part of the site and also on level wet ground in the eastern field where it contains much *Carex hirta* and, locally, *C. nigra* and *Glyceria fluitans*. Where MG10a rushy vegetation occurs in mosaics with other vegetation at this site generally, the other vegetation is most commonly MG6a improved grassland.

#### **S12 *Typha latifolia* swamp**

This wetland vegetation is very distinctive because of the abundance of *Typha latifolia*. The tall reedmace plants are accompanied here by *Juncus articulatus*, *Filipendula ulmaria* and thinly scattered plants of *Hippuris vulgaris*, *Epilobium hirsutum* and *Deschampsia cespitosa*. There is a small patch of this vegetation in the wettest part of the bottom of the old railway line; at the time of survey some of the ground here was covered by water.

#### **OV26 *Epilobium hirsutum* community**

This vegetation consists mainly of a tall (80-90 cm), dense sward of *Epilobium hirsutum*. Other species, present in smaller quantity, include *Filipendula ulmaria*, *Lotus pedunculatus*, *Centaurea nigra*, *Rubus fruticosus*, *Deschampsia cespitosa* and the mosses *Brachythecium rutabulum*, *Kindbergia praelonga* and *Thuidium tamariscinum*. There are small areas of this weedy vegetation on damp, level ground in the bottom of the old railway line.

#### **OV27 *Chamerion angustifolium* community**

This vegetation is unmistakeable on account of the dominant tall (80-90 cm)swards of *Chamerion angustifolium*. Other species are present in smaller quantity, including *Filipendula ulmaria*, *Cirsium arvense*, *Galium aparine*, *Centaurea nigra*, *Rubus fruticosus* and the moss *Brachythecium rutabulum*. This tall, weedy vegetation occupies parts of the SSE-facing banks on the NNW side of the old railway line.

#### **4 EVALUATION OF BOTANICAL INTEREST**

From the findings of this survey, this site has a low diversity of vegetation types but a reasonably rich total flora with 69 vascular plant species and 18 bryophyte species recorded in this survey. The actual vascular species total is expected to be higher than this because at the late season when surveyed, much of the vegetation had died back to such a degree that some species could have been present but no longer detectable. This might apply especially to the areas of herb-rich MG5 grassland, but potentially also to any or all of the other vegetation types here.

Most of the vegetation here is MG6 improved grassland and MG10 rush-pasture - plant communities which are generally of low botanical interest and of a low level of naturalness. The vegetation of highest botanical/ecological interest here is mainly the MG5 neutral grassland. This is a herb-rich community of unimproved grasslands on neutral soils, and it has declined greatly in Britain since the mid twentieth century as a result of agricultural treatment (application of fertiliser, and also ploughing and reseeding) leading to conversion of former MG5 to the relatively species-poor MG6 and MG7 improved grassland communities which now predominate through much of the British lowlands.

The natural vegetation here would be broadleaved woodland, probably more or less equating with the NVC woodland communities W6 (*Alnus-Urtica*), W7 (*alnus-Fraxinus-Lysimachia*) and W10 (*Quercus-Pteridium-Rubus*), the first two on wetter ground (currently MG10) and the latter on drier ground (currently MG5 and MG6 grasslands).

All of the vegetation types found in this survey are common in the British lowlands. Two of the vegetation types here belong to UK Biodiversity Action Plan Priority Habitats:

<b>NVC</b>	<b>UK BAP Priority Habitat</b>
M27 <i>Filipendula-Angelica</i> fen	Lowland fen
MG5 <i>Cynosurus-Centaurea</i> grassland	Lowland meadow

The W21, W24, MG6, MG10, S12, OV26 and OV27 communities are of generally lower botanical interest but collectively they do contribute significantly to the total variation in habitat. In terms of overall conservation value, MG6 improved grassland could be seen as the least valuable habitat here. The MG10 rush-pasture areas are not particularly species-rich but have slightly higher botanical diversity than some MG10 as found commonly at other sites; their flora includes some species found more commonly in M23 *Juncus-Galium* rush-pasture which is a community of wetter ground than MG10. In this respect the MG10 here shows a slight floristic leaning toward M23, probably influenced by the ground being wetter than in MG10 at many other sites.

No nationally uncommon plant species were found in this survey, but several species recorded in this survey are found in Britain mainly in semi-natural habitats in good condition:

- Carex flacca* – widespread here in MG5 grassland and MG10 rush-pasture
- Carex hirta* – in M27 fen along old railway line and in MG10 rush-pasture in E
- Carex nigra* – in MG10 rush-pasture in E of site
- Filipendula ulmaria* – in M27, OV26, OV27 and S12 along old railway line
- Glyceria fluitans* – in MG10 rush-pasture in E of site
- Hippuris vulgaris* – in S12 along old railway line
- Juncus acutiflorus* – in MG10 rush-pasture in W
- Linum catharticum* – in MG5 grassland S12 along old railway line
- Lotus corniculatus* – widespread here in MG5 grassland
- Lotus pedunculatus* – widespread here in MG10 rush-pasture
- Rhinanthus minor* – widespread here in MG5 grassland
- Succisa pratensis* – in MG5 grassland S12 along old railway line

The greatest concentration of these species is in the MG5 grasslands, along the old railway line and (*Carex hirta* and *Glyceria fluitans*) in the MG10 rush-pasture in the east of the site.

The following notes on vegetation condition are based on a much more general assessment than that which is used for Site Condition Monitoring on designated sites.

The grasslands are evidently maintained by grazing, and this allows the MG5 areas to be in good condition in having a good abundance and reasonable diversity of herbs and a sward that is not too strongly dominated by one or two tall or very densely-grown species (as would be the case if these grasslands were less grazed and became MG1 *Arrhenatherum* or *Dactylis*-dominated swards).

The grazing also allows a reasonable botanical diversity to be present in the areas of MG10 rush-pasture, though it also appears that inflow of nutrients from adjacent MG6 improved grasslands leads to a high abundance of certain species such as *Ranunculus repens*, possibly limiting overall botanical diversity. However, as said above, the diversity here is better than in many areas of MG10 at other sites (especially MG10 on ground which is not quite as wet as that here).

Retention of stock-grazing should help to maintain the existing botanical diversity in the MG5 grasslands. A reduction in or removal of grazing would lead to taller vegetation (MG5 and MG6 likely to develop into MG1 *Arrhenatherum elatius* coarse, species-poor neutral grassland). However, the areas of MG6 and MG10 are not of such high botanical interest that retention of grazing is essential from a conservation viewpoint; reduced or removed grazing as a means of achieving young tree growth for new woodland is something which can be considered here without serious concern for the existing botanical interest.

If planting of new woodland is a desired objective at this site, this seems best focused on the areas of MG6 improved grassland and, to a lesser extent, the areas of MG10 rush-pasture.

The tall vegetation (M27, W24, OV26 and OV27) along the old railway line already has some shrubs within it (as well as the adjacent patch of W21 hawthorn scrub), so even with no change in management tree and shrub growth might well develop further here in future.

If any other parts of the site are to be left open and unplanted, it is the areas of MG5 grassland which come to mind, and (as said above) for this community continued stock grazing would also be ideal.

Table 1 (below) presents a summary of suggested tree and shrub species to plant or encourage through natural regeneration in the different non-woodland habitats at this site.

**Table 1 Summary of suggested tree/shrub species to plant or encourage through natural regeneration in non-woodland habitats at Woodgreen, N Ayrshire, Scotland**

NVC code	Potential woodland NVC type(s) and tree/shrub species
W21	W8/W10 (birch, oak, ash, wych elm, sycamore, aspen, rowan, hazel, holly, wild cherry, goat willow, hawthorn, elder) but probably best left out of tree-planting because (1) access can be difficult among dense hawthorn and bramble, and (2) this W21 could develop into woodland on its own anyway
W24	W8/W10 (birch, oak, ash, wych elm, sycamore, aspen, rowan, hazel, holly, wild cherry, goat willow, hawthorn, elder) but probably best left out of tree-planting because (1) access can be difficult among bramble, and (2) this W21 could develop into woodland on its own anyway

NVC code	Potential woodland NVC type(s) and tree/shrub species
MG5	W8/W10 (birch, oak, ash, wych elm, sycamore, aspen, rowan, hazel, holly, wild cherry, goat willow, hawthorn, elder), but probably best left largely or entirely unplanted in order to retain habitat diversity
MG6	W8/10 (birch, oak, ash, wych elm, sycamore, aspen, rowan, hazel, holly, wild cherry, goat willow, hawthorn, elder).
MG10	W6/7 (alder, ash, rowan, downy birch, bird cherry, eared, grey or goat willows).
M27	W6/7 (alder, ash, rowan, downy birch, bird cherry, eared, grey or goat willows).
S12	W6/7 (alder, ash, rowan, downy birch, bird cherry, eared, grey or goat willows).
OV26/27	W8/10 (birch, oak, ash, wych elm, sycamore, aspen, rowan, hazel, holly, wild cherry, goat willow, hawthorn, elder).

## 5 ACKNOWLEDGMENTS

Emma Stewart (FCS Environment Forester, Forest Enterprise Scotland, West Calder) commissioned me to carry out this survey. The digitising of maps and data was carried out by Alastair Dargie of Boreas Technologies, Aviemore.

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**APPENDIX 1 – QUADRATS RECORDED BY BEN AVERIS AT  
WOODGREEN, NEAR KILWINNING, N AYRSHIRE, ON  
25/11/2015** (quadrat locations shown in Map 3 in Appendix 4)

Species cover values are those of the DOMIN scale: 1 = <4% cover (few individuals), 2 = <4% cover (several individuals), 3 = <4% cover (many individuals), 4 = 4-10% cover, 5 = 11-25% cover, 6 = 26-33% cover, 7 = 34-50% cover, 8 = 51-75% cover, 9 = 76-90% cover, 10 = 91-100% cover.

**MG5 unimproved neutral grassland quadrats**

Code no.	Q01	Q02	Q03	Q04	Q05	Q06	Q07
Site (W or E)	W	W	W	W	W	W	W
100 km square	NS						
Easting	3039 1	30351	3032 0	3029 6	30250	3035 5	3071 5
Northing	4445 0	44495	4454 2	4457 6	44671	4484 9	4462 1
Altitude (m)	17	17	17	17	17	15	35
Slope gradient (deg)	12	12	12	20	15	0	0
Slope aspect	SW	SW	SW	WSW	WSW	-	-
Date	25/11/ 2015	25/11/ 2015	25/11/ 2015	25/11/ 2015	25/11/2 015	25/11/ 2015	25/11/ 2015
NVC type	MG5						
Vegetation height (cm)	25	25	25	25	30	25	20
<i>Agrostis capillaris</i>	8	7	7	7	7	7	5
<i>Cardamine pratensis</i>		1					
<i>Carex flacca</i>		3	3	5	5		4
<i>Centaurea nigra</i>	5	5	5	6	5	6	4
<i>Cerastium fontanum</i>						3	3
<i>Cynosurus cristatus</i>	3			2	2	7	6
<i>Ctenidium molluscum</i>							1
<i>Dactylis glomerata</i>							1
<i>Festuca arundinacea</i>	1	5	1	4			
<i>Festuca rubra</i>							6
<i>Filipendula ulmaria</i>							3
<i>Holcus lanatus</i>						4	
<i>Linum catharticum</i>							1
<i>Lotus corniculatus</i>		1		1	2		3
<i>Odontites vernus</i>							3
<i>Plantago lanceolata</i>	4	3	3	4	3	4	5
<i>Poa pratensis</i>							2
<i>Potentilla erecta</i>	3	3	3		3		3
<i>Prunella vulgaris</i>						4	
<i>Pseudoscleropodium purum</i>							1
<i>Ranunculus acris</i>					2		2
<i>Ranunculus repens</i>	1	3	3	2	2	3	
<i>Rhinanthus minor</i>		5	3	4			3
<i>Rhytidadelphus squarrosus</i>							2
<i>Senecio jacobaea</i>			1				
<i>Taraxacum agg.</i>			1				
<i>Trifolium pratense</i>				2	3		3
<i>Trifolium repens</i>							2
<i>Viola riviniana</i>							1

## MG6 improved neutral grassland quadrats

Code no.	Q08	Q09	Q10	Q11	Q12
Site (W or E)	W	W	W	W	W
100 km square	NS	NS	NS	NS	NS
Easting	30355	30364	30329	30243	30919
Northing	44626	44605	44636	44770	44500
Altitude (m)	30	30	30	14	30
Slope gradient (deg)	1	1	1	0	0
Slope aspect	NS	NS	NS	-	-
Date	25/11/ 2015	25/11/2 015	25/11/2 015	25/11/2 015	25/11/2 015
NVC type	MG6	MG6	MG6	MG6	MG6
Vegetation height (cm)	20	20	25	30	20
<i>Agrostis capillaris</i>		5	5	7	7
<i>Agrostis stolonifera</i>	7	6			
<i>Cardamine pratensis</i>			1	1	2
<i>Centaurea nigra</i>	3	3			
<i>Cerastium fontanum</i>	3	3	3		1
<i>Cynosurus cristatus</i>	5		8	7	5
<i>Dactylis glomerata</i>			1		
<i>Holcus lanatus</i>	5	5	3	5	7
<i>Lolium perenne</i>			1	5	3
<i>Plantago lanceolata</i>	2	2		2	1
<i>Prunella vulgaris</i>				1	
<i>Ranunculus acris</i>				1	
<i>Ranunculus repens</i>	5	5	5	4	3
<i>Senecio jacobaea</i>			1		
<i>Taraxacum agg.</i>					3
<i>Trifolium repens</i>					2

## MG10a rush-pasture quadrats

Code no.	Q13	Q14	Q15	Q16	Q17
Site (W or E)	W	W	W	W	W
100 km square	NS	NS	NS	NS	NS
Easting	30440	30263	30285	30358	31079
Northing	44789	44738	44726	44695	44574
Altitude (m)	30	17	18	24	28
Slope gradient (deg)	0	1	2	5	0
Slope aspect	-	NW	NW	NW	-
Date	25/11/2 015	25/11/20 15	25/11/20 15	25/11/2 015	25/11/20 15
NVC type	MG10a	MG10a	MG10a	MG10a	MG10a
Vegetation height (cm)	70	40	45	40	80
<i>Agrostis capillaris</i>			5	6	
<i>Agrostis stolonifera</i>	5				5
<i>Brachythecium rivulare</i>	3				
<i>Calliergonella cuspidata</i>	6	3	2		
<i>Cardamine pratensis</i>	1	1		1	3
<i>Carex flacca</i>		5	5	3	
<i>Carex hirta</i>					3
<i>Cerastium fontanum</i>			1		
<i>Cynosurus cristatus</i>	5	5	5	6	
<i>Festuca arundinacea</i>	1				
<i>Holcus lanatus</i>			3		4
<i>Juncus articulatus</i>	2	2	5	2	
<i>Juncus effusus</i>	8	7	6	6	9
<i>Lolium perenne</i>		1	3	2	
<i>Lotus pedunculatus</i>	4	4		3	
<i>Myosotis scorpioides</i>	1				
<i>Poa trivialis</i>				4	
<i>Prunella vulgaris</i>		2	4	2	
<i>Ranunculus acris</i>			1		
<i>Ranunculus repens</i>	4	5	5	4	3
<i>Trifolium repens</i>	2			1	

**M27 meadowsweet fen, OV26/27 willowherb vegetation and S12 reedmace swamp along old railway line**

Code no.	Q18	Q19	Q20	Q21	Q22	Q23
Site (W or E)	E	E	E	E	E	E
100 km square	NS	NS	NS	NS	NS	NS
Easting	30752	30762	30765	30739	30710	30772
Northing	44642	44648	44650	44637	44626	44653
Altitude (m)	35	35	35	35	36	35
Slope gradient (deg)	0	0	0	0	15	0
Slope aspect	-	-	-	-	SSE	-
Date	25/11/20 15	25/11/2 015	25/11/2 015	25/11/2 015	25/11/2 015	25/11/2 015
NVC type	M27	M27	M27	OV26	OV27	S12
Vegetation height (cm)	40	70	60	90	80	60
Open water (DOMIN)						5
<i>Angelica sylvestris</i>		4				
<i>Brachythecium rutabulum</i>	2	5	3	3	2	
<i>Calliergonella cuspidata</i>	5	2	1			5
<i>Carex flacca</i>	8	2	1			
<i>Carex hirta</i>	4					
<i>Centaurea nigra</i>	5	2		2		
<i>Chamerion angustifolium</i>					9	
<i>Cirsium arvense</i>					2	
<i>Deschampsia cespitosa</i>	1			4		1
<i>Epilobium hirsutum</i>			1	9		1
<i>Festuca rubra</i>	2					
<i>Filipendula ulmaria</i>	8	10	10	5	3	4
<i>Galium aparine</i>			1		2	
<i>Hippuris vulgaris</i>						3
<i>Juncus articulatus</i>						7
<i>Kindbergia praelonga</i>				1		
<i>Lotus pedunculatus</i>	3			2		
<i>Plagiomnium undulatum</i>				3		
<i>Plantago lanceolata</i>	2			1		
<i>Potentilla erecta</i>				2		
<i>Rosa canina</i>				4		
<i>Rubus fruticosus</i>	1		2	2	5	
<i>Thuidium tamariscinum</i>	3			3		
<i>Typha latifolia</i>			7			7
<i>Vicia cracca</i>			1			
<i>Viola riviniana</i>				1	1	

## **APPENDIX 2 LIST OF ALL PLANT SPECIES FOUND IN THIS SURVEY AT WOODGREEN, NORTH AYRSHIRE, ON 25<sup>th</sup> NOVEMBER 2015**

Quadrat locations are shown in Map 3 in Appendix 4

**Quantity column** = abundance (as seen at this site in this survey):

1 = rare; 2 = occasional; 3 = frequent; 4 = abundant

**Phyt column** = European phytogeographical classes following the classifications by Preston & Hill (1997) for vascular plants and Hill & Preston (1998) for bryophytes:

- 11 Oceanic Arctic-montane
- 12 Suboceanic Arctic-montane
- 13 European Arctic-montane
- 14 Eurosiberian Arctic-montane
- 15 Eurasian Arctic-montane
- 16 Circumpolar Arctic-montane
- 21 Oceanic Boreo-arctic Montane
- 22 Suboceanic Boreo-arctic Montane
- 23 European Boreo-arctic Montane
- 24 Eurosiberian Boreo-arctic Montane
- 26 Circumpolar Boreo-arctic Montane
- 32 Suboceanic Wide-boreal
- 34 Eurosiberian Wide-boreal
- 35 Eurasian Wide-boreal
- 36 Circumpolar Wide-boreal
- 41 Oceanic Boreal-montane
- 42 Suboceanic Boreal-montane
- 43 European Boreal-montane
- 44 Eurosiberian Boreal-montane
- 45 Eurasian Boreal-montane
- 46 Circumpolar Boreal-montane
- 51 Oceanic Boreo-temperate
- 52 Suboceanic Boreo-temperate
- 53 European Boreo-temperate
- 54 Eurosiberian Boreo-temperate
- 55 Eurasian Boreo-temperate
- 56 Circumpolar Boreo-temperate
- 63 European Wide-temperate
- 64 Eurosiberian Wide-temperate
- 65 Eurasian Wide-temperate
- 66 Circumpolar Wide-temperate
- 70 Hyperoceanic Temperate
- 71 Oceanic Temperate
- 72 Suboceanic Temperate
- 73 European Temperate
- 74 Eurosiberian Temperate
- 75 Eurasian Temperate
- 76 Circumpolar Temperate
- 80 Hyperoceanic Southern-temperate
- 81 Oceanic Southern-temperate
- 82 Suboceanic Southern-temperate
- 83 European Southern-temperate
- 84 Eurosiberian Southern-temperate
- 85 Eurasian Southern-temperate
- 86 Circumpolar Southern-temperate
- 91 Mediterranean-Atlantic
- 92 Submediterranean-Subatlantic
- 93 Mediterranean-montane
- i Introduced

Species	Quantity	Phyt
VASCULAR PLANTS		
<i>Achillea millefolium</i>	2	55
<i>Agrostis capillaris</i>	4	54
<i>Agrostis stolonifera</i>	4	66
<i>Alnus glutinosa</i>	1	74
<i>Angelica sylvestris</i>	1	54
<i>Arrhenatherum elatius</i>	2	73
<i>Bellis perennis</i>	1	73
<i>Cardamine pratensis</i>	3	36
<i>Carex flacca</i>	3	83
<i>Carex hirta</i>	2	73
<i>Carex leporina</i>	1	54
<i>Carex nigra</i>	1	54
<i>Carex viridula</i>	1	56
<i>Centaurea nigra</i>	4	72
<i>Cerastium fontanum</i>	3	54
<i>Chamerion angustifolium</i>	2	56
<i>Cirsium arvense</i>	2	75
<i>Cirsium palustre</i>	1	54
<i>Crataegus monogyna</i>	2	73
<i>Cynosurus cristatus</i>	4	73
<i>Dactylis glomerata</i>	2	84
<i>Deschampsia cespitosa</i>	2	36
<i>Dryopteris dilatata</i>	1	73
<i>Dryopteris filix-mas</i>	1	76
<i>Epilobium hirsutum</i>	2	85
<i>Epilobium obscurum</i>	1	73
<i>Festuca arundinacea</i>	2	84
<i>Festuca rubra</i>	2	36
<i>Filipendula ulmaria</i>	2	55
<i>Fraxinus excelsior</i>	1	73
<i>Galium aparine</i>	1	73
<i>Glyceria fluitans</i>	2	73
<i>Heracleum sphondylium</i>	1	55
<i>Hippuris vulgaris</i>	1	56
<i>Holcus lanatus</i>	4	83
<i>Juncus acutiflorus</i>	1	73
<i>Juncus articulatus</i>	2	84
<i>Juncus effusus</i>	4	83
<i>Linum catharticum</i>	1	73
<i>Lolium perenne</i>	4	83
<i>Lotus corniculatus</i>	2	85
<i>Lotus pedunculatus</i>	2	73
<i>Myosotis scorpioides</i>	1	74
<i>Odontites vernus</i>	1	75
<i>Plantago lanceolata</i>	4	84
<i>Poa pratensis</i>	2	66

<b>Species</b>	<b>Quantity</b>	<b>Phyt</b>
<b>VASCULAR PLANTS</b>		
<i>Poa trivialis</i>	2	64
<i>Potentilla erecta</i>	2	54
<i>Prunella vulgaris</i>	3	66
<i>Prunus spinosa</i>	1	73
<i>Ranunculus acris</i>	3	35
<i>Ranunculus repens</i>	4	55
<i>Rhinanthus minor</i>	2	53
<i>Rosa canina</i>	1	73
<i>Rubus fruticosus</i>	2	83
<i>Rumex obtusifolius</i>	1	73
<i>Salix cinerea</i>	1	54
<i>Senecio jacobaea</i>	2	74
<i>Silene dioica</i>	1	53
<i>Succisa pratensis</i>	1	74
<i>Taraxacum officinale agg.</i>	1	66
<i>Trifolium medium</i>	1	54
<i>Trifolium pratense</i>	2	74
<i>Trifolium repens</i>	2	54
<i>Typha latifolia</i>	1	86
<i>Ulex europaeus</i>	1	71
<i>Urtica dioica</i>	1	54
<i>Vicia cracca</i>	1	55
<i>Viola riviniana</i>	2	73
<b>MOSSES</b>		
<i>Atrichum undulatum</i>	1	56
<i>Brachythecium rivulare</i>	2	56
<i>Brachythecium rutabulum</i>	2	73
<i>Calliergonella cuspidata</i>	3	76
<i>Ctenidium molluscum</i>	1	53
<i>Dicranum scoparium</i>	1	36
<i>Fissidens adianthoides</i>	1	56
<i>Hypnum cupressiforme</i>	1	66
<i>Kindbergia praelonga</i>	2	73
<i>Mnium hornum</i>	1	73
<i>Orthotrichum affine</i>	1	53
<i>Plagiomnium undulatum</i>	1	73
<i>Pseudoscleropodium purum</i>	1	73
<i>Rhytidadelphus squarrosus</i>	2	53
<i>Thuidium tamariscinum</i>	1	73
<b>LIVERWORTS</b>		
<i>Lophocolea bidentata</i>	1	73
<i>Metzgeria furcata</i>	1	53
<i>Plagiochila asplenoides</i>	1	73

## APPENDIX 3 – PHOTOGRAPHS

Examples of vegetation types at Woodgreen, N Ayrshire (25/11/2015).

Photograph 1. MG5 neutral grassland in SW of site.



Photograph 2. MG5 neutral grassland in NW of site.



Photograph 3. MG5 neutral grassland in old railway line.



Photograph 4. MG6 improved grassland in SW of site



Photograph 5. MG6 improved grassland in E of site



Photograph 6. MG10a rush-pasture in W of site



Photograph 7. MG10a rush-pasture in EW of site.



Photograph 8. M27 meadowsweet fen in old railway line.



Photograph 9. OV26 willowherb vegetation in old railway line.



Photograph 10. OV27 willowherb vegetation in old railway line.



Photograph 11. S12 swamp in old railway line...

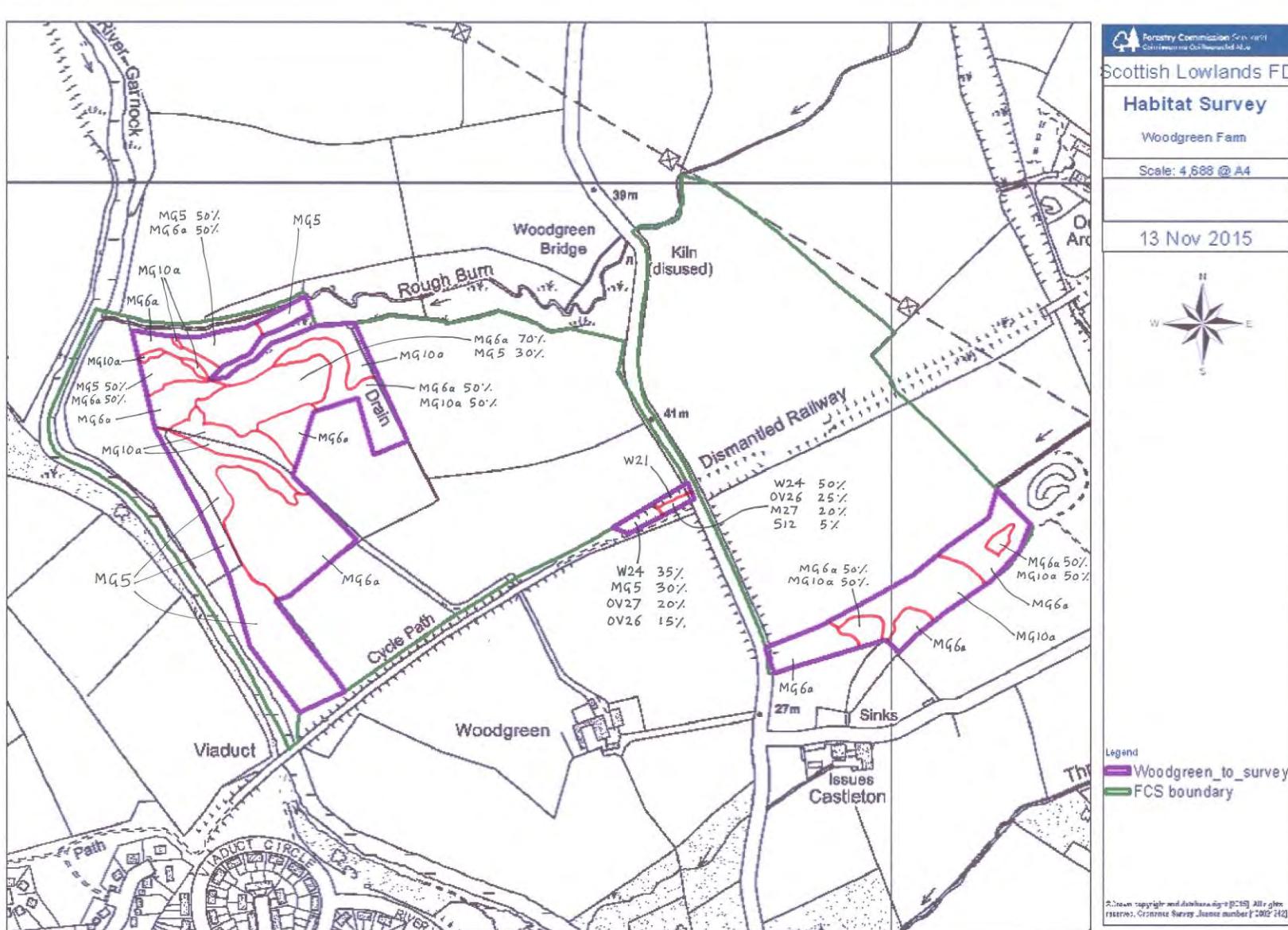


Photograph 12. *Carex hirta* in MG10a rush-pasture in E of site

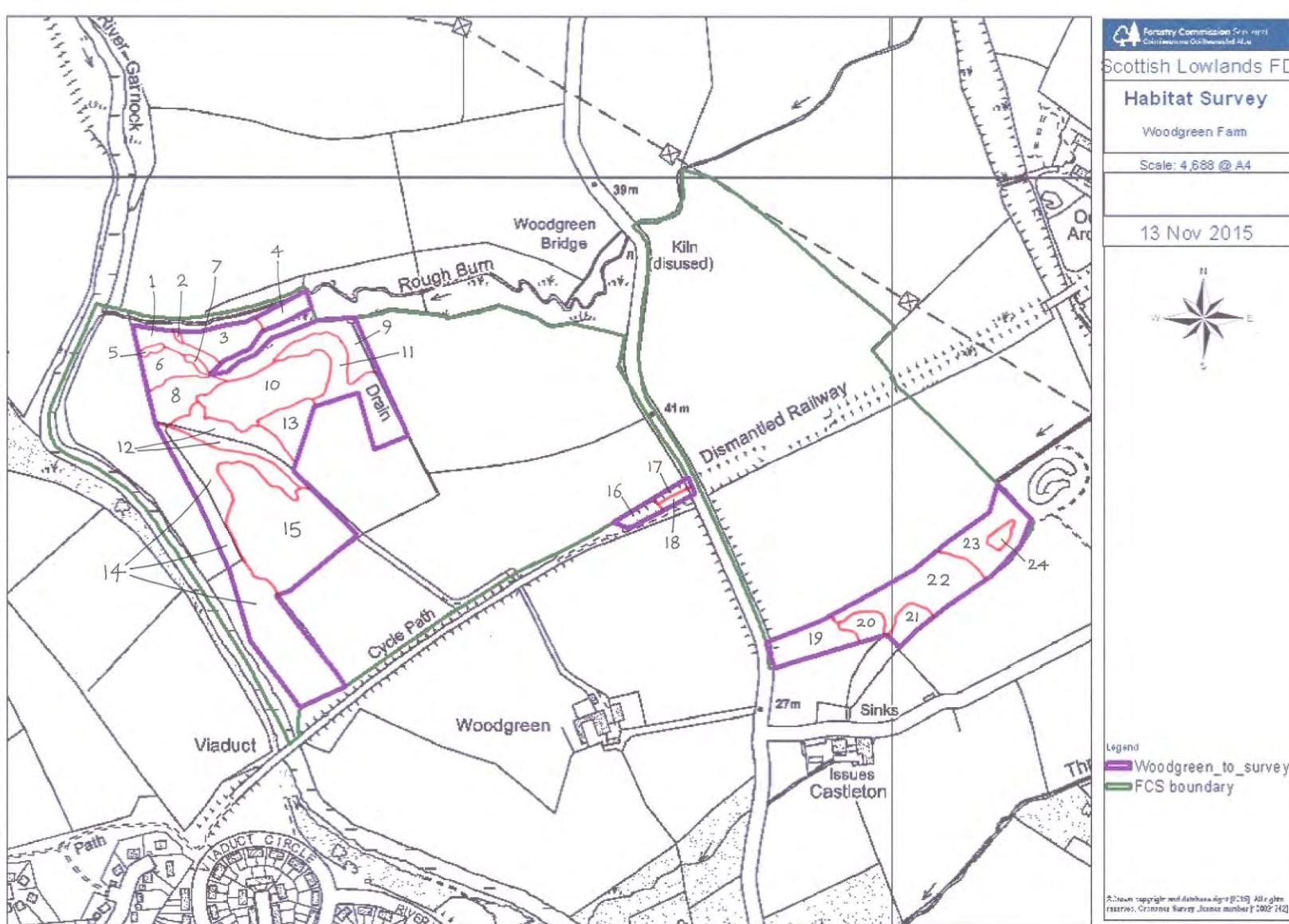


## **APPENDIX 4 – Maps**

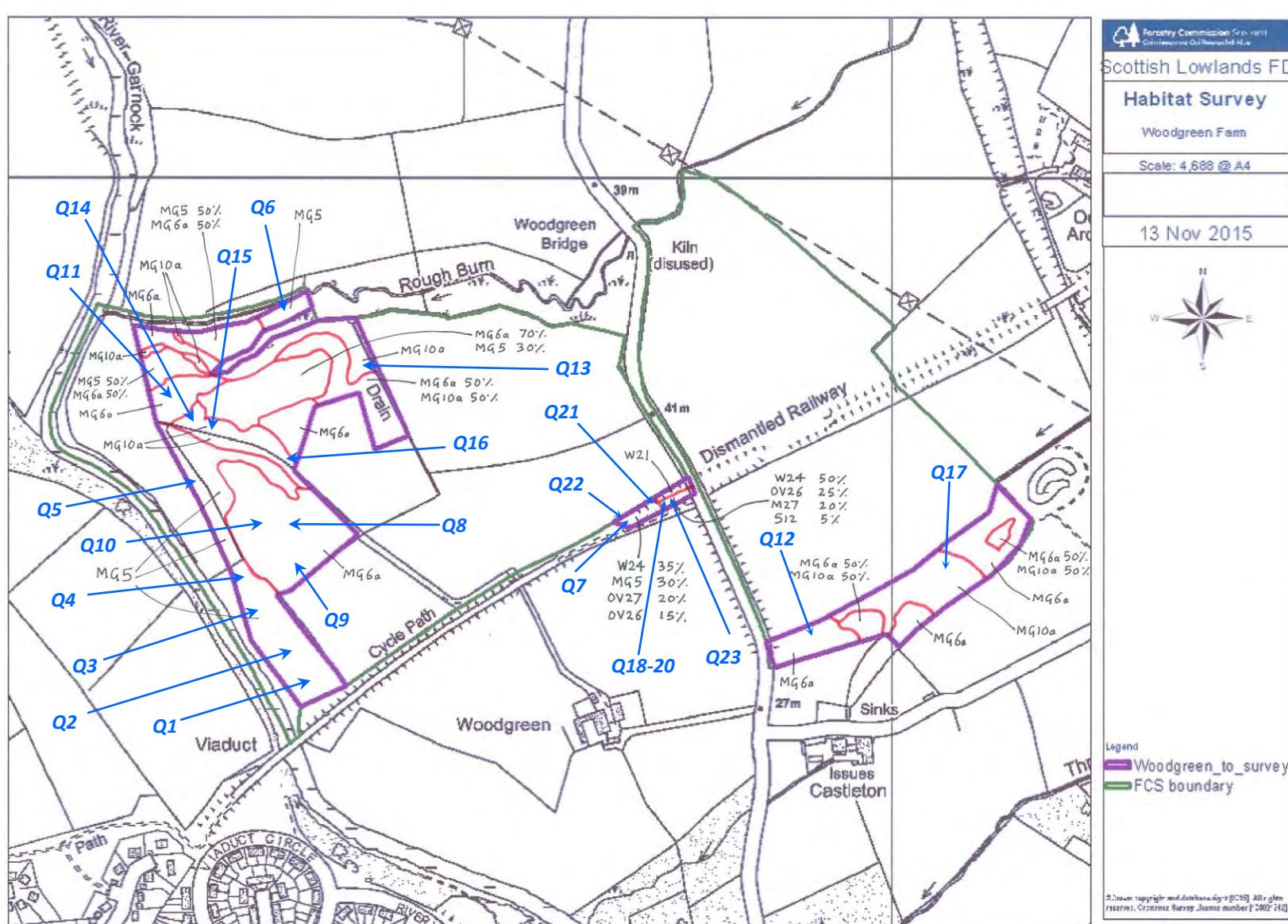
**Map 1 – Vegetation map of land at Woodgreen, N Ayrshire.** Mapped by Ben Averis on 25/11/2015 using the NVC. Q1, Q2, etc = quadrat locations.



**Map 2 – NVC polygon numbers (as in digitised version of vegetation map) at Woodgreen, N Ayrshire.** Mapped by Ben Averis on 25/11/2015 using the NVC.



Map 3 – Locations of NVC quadrats (Q1, Q2, Q3, etc) recorded at Woodgreen, N Ayrshire. Recorded by Ben Averis on 25/11/2015.

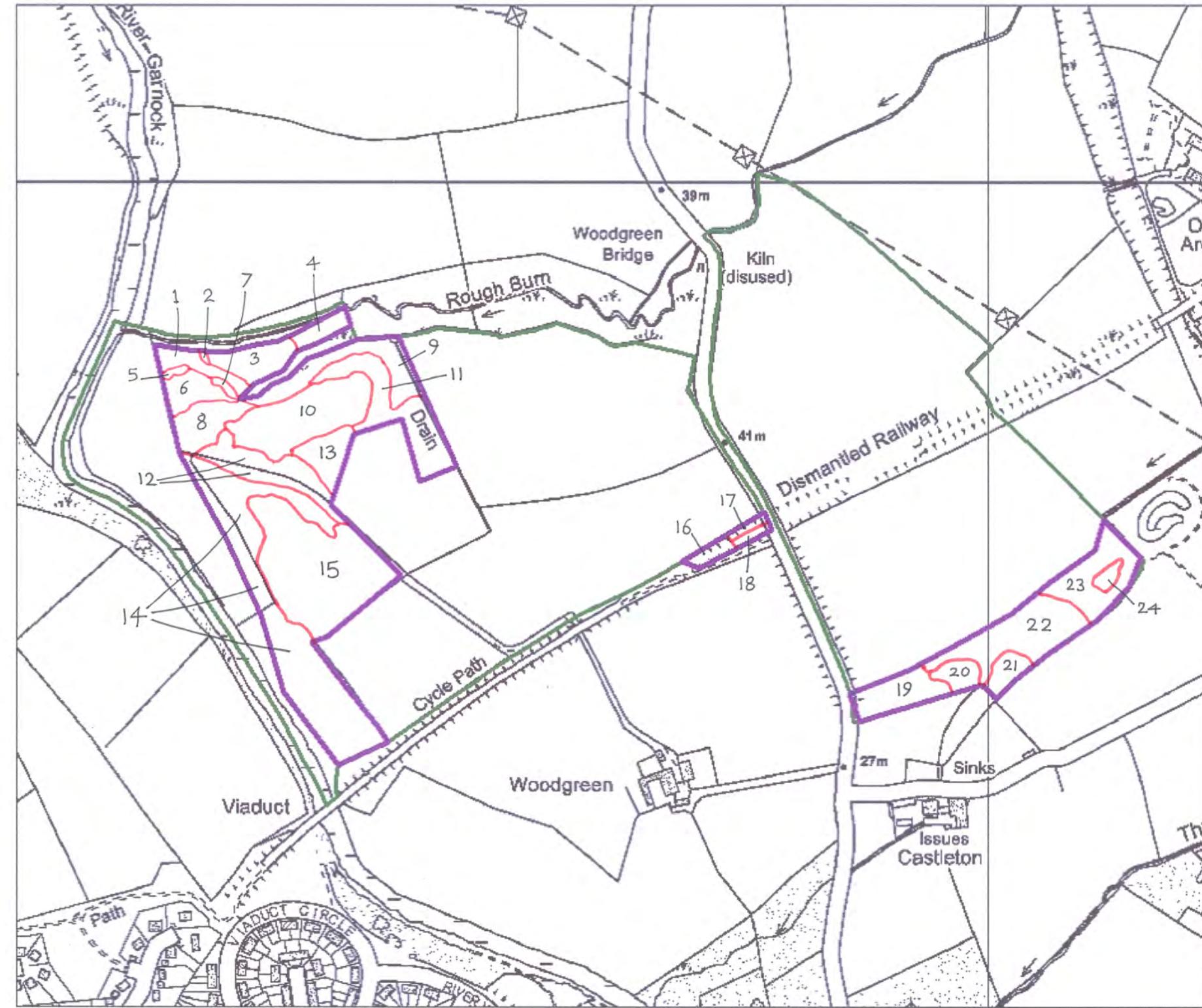


Habitat Survey

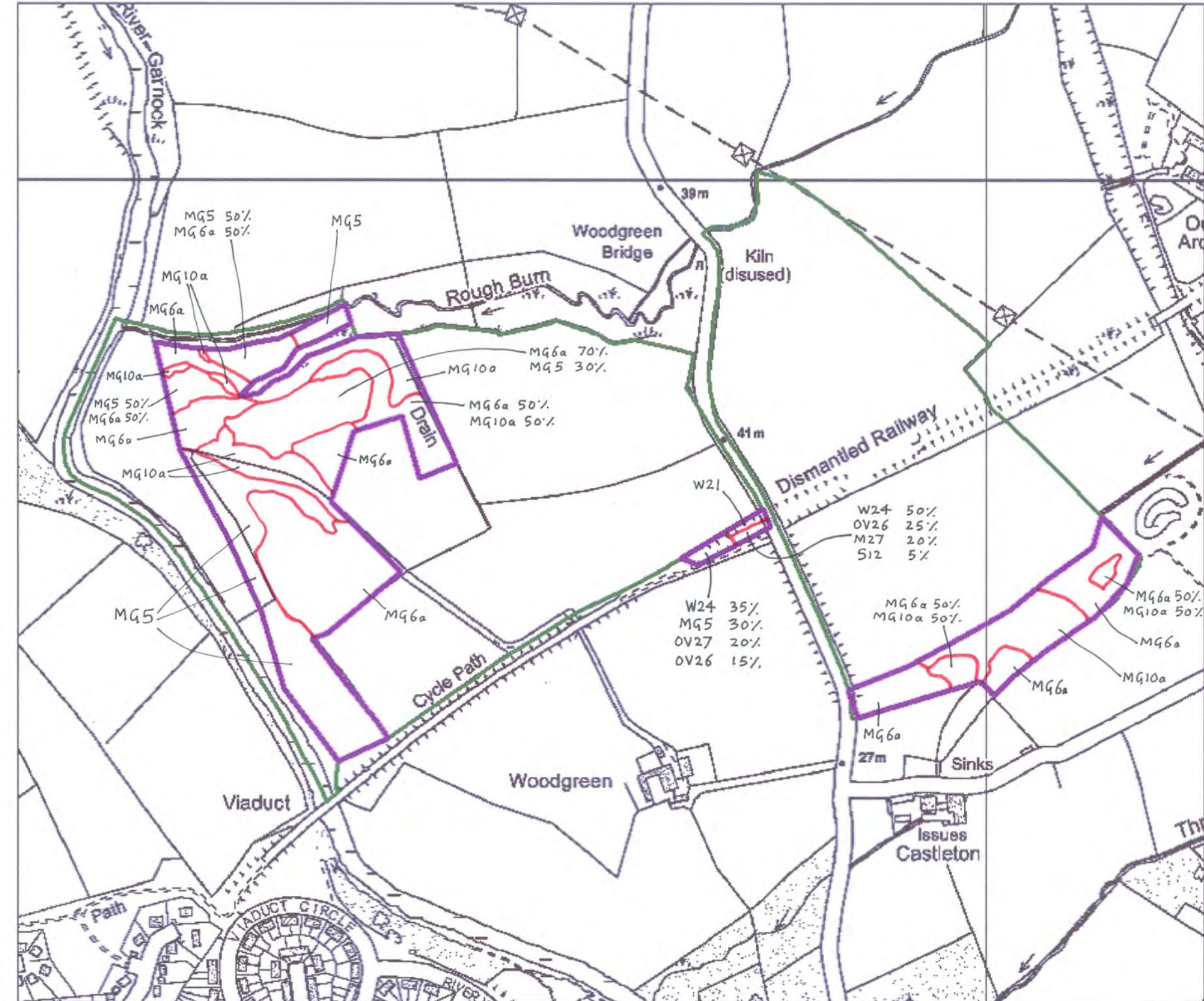
Woodgreen Farm

Scale: 4,688 @ A4

13 Nov 2015



Legend  
Woodgreen\_to\_survey  
FCS boundary



Scottish Lowlands FD

Woodgreen Farm

Scale: 4,688 @ A4

13 Nov 2015



Legend

Woodgreen species list

Plant species recorded by Ben Averis at Woodgreen, N Ayrshire, on 25/11/2015					
Species	Quantity	Phyt			
<i>Achillea millefolium</i>	2	55			
<i>Agrostis capillaris</i>	4	54			
<i>Agrostis stolonifera</i>	4	66			
<i>Alnus glutinosa</i>	1	74			
<i>Angelica sylvestris</i>	1	54			
<i>Arrhenatherum elatius</i>	2	73			
<i>Bellis perennis</i>	1	73			
<i>Cardamine pratensis</i>	3	36			
<i>Carex flacca</i>	3	83			
<i>Carex hirta</i>	2	73			
<i>Carex leporina</i>	1	54			
<i>Carex nigra</i>	1	54			
<i>Carex viridula</i>	1	56			
<i>Centaurea nigra</i>	4	72			
<i>Cerastium fontanum</i>	3	54			
<i>Chamerion angustifolium</i>	2	56			
<i>Cirsium arvense</i>	2	75			
<i>Cirsium palustre</i>	1	54			
<i>Crataegus monogyna</i>	2	73			
<i>Cynosurus cristatus</i>	4	73			
<i>Dactylis glomerata</i>	2	84			
<i>Deschampsia cespitosa</i>	2	36			
<i>Dryopteris dilatata</i>	1	73			
<i>Dryopteris filix-mas</i>	1	76			
<i>Epilobium hirsutum</i>	2	85			
<i>Epilobium obscurum</i>	1	73			
<i>Festuca arundinacea</i>	2	84			
<i>Festuca rubra</i>	2	36			
<i>Filipendula ulmaria</i>	2	55			
<i>Fraxinus excelsior</i>	1	73			
<i>Galium aparine</i>	1	73			
<i>Glyceria fluitans</i>	2	73			
<i>Heracleum sphondylium</i>	1	55			
<i>Hippuris vulgaris</i>	1	56			
<i>Holcus lanatus</i>	4	83			
<i>Juncus acutiflorus</i>	1	73			
<i>Juncus articulatus</i>	2	84			
<i>Juncus effusus</i>	4	83			
<i>Linum catharticum</i>	1	73			
<i>Lolium perenne</i>	4	83			
<i>Lotus corniculatus</i>	2	85			
<i>Lotus pedunculatus</i>	2	73			
<i>Myosotis scorpioides</i>	1	74			
<i>Odontites vernus</i>	1	75			
<i>Plantago lanceolata</i>	4	84			
<i>Poa pratensis</i>	2	66			
<i>Poa trivialis</i>	2	64			
<i>Potentilla erecta</i>	2	54			
<i>Prunella vulgaris</i>	3	66			
<i>Prunus spinosa</i>	1	73			
<i>Ranunculus acris</i>	3	35			
<i>Ranunculus repens</i>	4	55			

Woodgreen species list

<i>Rhinanthus minor</i>	2	53			
<i>Rosa canina</i>	1	73			
<i>Rubus fruticosus</i>	2	83			
<i>Rumex obtusifolius</i>	1	73			
<i>Salix cinerea</i>	1	54			
<i>Senecio jacobaea</i>	2	74			
<i>Silene dioica</i>	1	53			
<i>Succisa pratensis</i>	1	74			
<i>Taraxacum officinale agg.</i>	1	66			
<i>Trifolium medium</i>	1	54			
<i>Trifolium pratense</i>	2	74			
<i>Trifolium repens</i>	2	54			
<i>Typha latifolia</i>	1	86			
<i>Ulex europaeus</i>	1	71			
<i>Urtica dioica</i>	1	54			
<i>Vicia cracca</i>	1	55			
<i>Viola riviniana</i>	2	73			
<i>Atrichum undulatum</i>	1	56			
<i>Brachythecium rivulare</i>	2	56			
<i>Brachythecium rutabulum</i>	2	73			
<i>Calliergonella cuspidata</i>	3	76			
<i>Ctenidium molluscum</i>	1	53			
<i>Dicranum scoparium</i>	1	36			
<i>Fissidens adianthoides</i>	1	56			
<i>Hypnum cupressiforme</i>	1	66			
<i>Kindbergia praelonga</i>	2	73			
<i>Mnium hornum</i>	1	73			
<i>Orthotrichum affine</i>	1	53			
<i>Plagiomnium undulatum</i>	1	73			
<i>Pseudoscleropodium purum</i>	1	73			
<i>Rhytidadelphus squarrosum</i>	2	53			
<i>Thuidium tamariscinum</i>	1	73			
<i>Lophocolea bidentata</i>	1	73			
<i>Metzgeria furcata</i>	1	53			
<i>Plagiochila asplenoides</i>	1	73			
Phytogeographical groups:					
11 Oceanic Arctic-montane					
12 Suboceanic Arctic-montane					
13 European Arctic-montane					
14 Eurosiberian Arctic-montane					
15 Eurasian Arctic-montane					
16 Circumpolar Arctic-montane					
21 Oceanic Boreo-arctic Montane					
22 Suboceanic Boreo-arctic Montane					
23 European Boreo-arctic Montane					
24 Eurosiberian Boreo-arctic Montane					
26 Circumpolar Boreo-arctic Montane					
32 Suboceanic Wide-boreal					
34 Eurosiberian Wide-boreal					
35 Eurasian Wide-boreal					
36 Circumpolar Wide-boreal					
41 Oceanic Boreal-montane					

Woodgreen species list

42 Suboceanic Boreal-montane					
43 European Boreal-montane					
44 Eurosiberian Boreal-montane					
45 Eurasian Boreal-montane					
46 Circumpolar Boreal-montane					
51 Oceanic Boreo-temperate					
52 Suboceanic Boreo-temperate					
53 European Boreo-temperate					
54 Eurosiberian Boreo-temperate					
55 Eurasian Boreo-temperate					
56 Circumpolar Boreo-temperate					
63 European Wide-temperate					
64 Eurosiberian Wide-temperate					
65 Eurasian Wide-temperate					
66 Circumpolar Wide-temperate					
70 Hyperoceanic Temperate					
71 Oceanic Temperate					
72 Suboceanic Temperate					
73 European Temperate					
74 Eurosiberian Temperate					
75 Eurasian Temperate					
76 Circumpolar Temperate					
80 Hyperoceanic Southern-temperate					
81 Oceanic Southern-temperate					
82 Suboceanic Southern-temperate					
83 European Southern-temperate					
84 Eurosiberian Southern-temperate					
85 Eurasian Southern-temperate					
86 Circumpolar Southern-temperate					
91 Mediterranean-Atlantic					
92 Submediterranean-Subatlantic					
93 Mediterranean-montane					
References for phytogeographical classification of vascular plants and bryophytes:					
Preston, C.D. & Hill, M.O. (1997). The geographical relationships of British and Irish vascular plants. Botanical Journal of the Linnean Society, 124, 1-12.					
Hill, M.O. & Preston, C.D. (1998). The geographical relationships of British and Irish bryophytes. J.Bryol. 20, 127-226.					