

Durham Coastal Grasslands Restoration Project

- Further monitoring to assess the feasibility and effectiveness of seed transfer**

2014



Produced by Andy Mclay

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Background

Herb-rich coastal grasslands were known to be a feature of the Durham coastline north of Crimdon Dene and particularly around the Blackhall area until c.1960 when conversion to arable production took place. These grasslands were also known to support the last remaining populations of green-winged orchid (*Orchis morio*) in County Durham but sadly this species was last recorded in 1954. Thereafter the coastal fields were intensively ploughed almost down to the cliff edges. Many of the coastal fields between Crimdon and Hawthorn Hive were subsequently managed for arable crop production until the 1990's.

Turning The Tide, a partnership project set up in 1997 aimed to regenerate the Durham coastal environment following the collapse of the coal mining industry. The partnership purchased a substantial area of coastal arable grassland with the intention of re-creating herb-rich grassland habitat for nature conservation. A total of 225 hectares of arable land was sown with a neutral grassland wild flower mix, typically containing large quantities of seed from leguminous plant species such as clovers, birdsfoot trefoil and meadow vetchling together with herb species including yellow rattle, wild carrot and common knapweed. The majority of those areas sown have been annually managed by hay-cropping up till the present time.

Introduction

The current *Limestone Landscapes Project* partnership recognised that there was further scope for improving the floristic diversity of the conversion grasslands by a combination of livestock grazing implementation and additional seed transfer from the existing local seed bank. A survey exercise carried out in 2011/2012 (**Mclay 2012**) aimed to identify those remaining areas of semi-natural grassland where seed collection might be feasible by mechanical and/or manual means and additionally to identify suitable receptor sites for future seed transfer. The study further aimed to highlight the suitability of specific grassland plant species relative to grassland locations and to identify key indicator species which may be used in future to monitor the effectiveness of seed transfer. In 2014 this exercise was repeated and the findings are detailed within this report.

Soil sampling first carried out in 1999 and again in 2007 has shown that the majority of fields where arable conversion has taken place are now sufficiently depleted of nutrients to allow the successful re-establishment of herb species. Regular annual cropping for hay since 1999 appears to have steadily reduced levels of dissolved phosphorus in the majority of grasslands to below the recognised 10mg/l threshold. Counts of less than 10 mg/l would be expected for semi-natural neutral grasslands. The reduced nutrient status of the soils is further confirmed on the ground where a widespread but slow natural recruitment of herb species from adjacent unimproved semi-natural grassland sites has occurred.

All of the land within the current project area is either owned or leased to one of the following organisations:

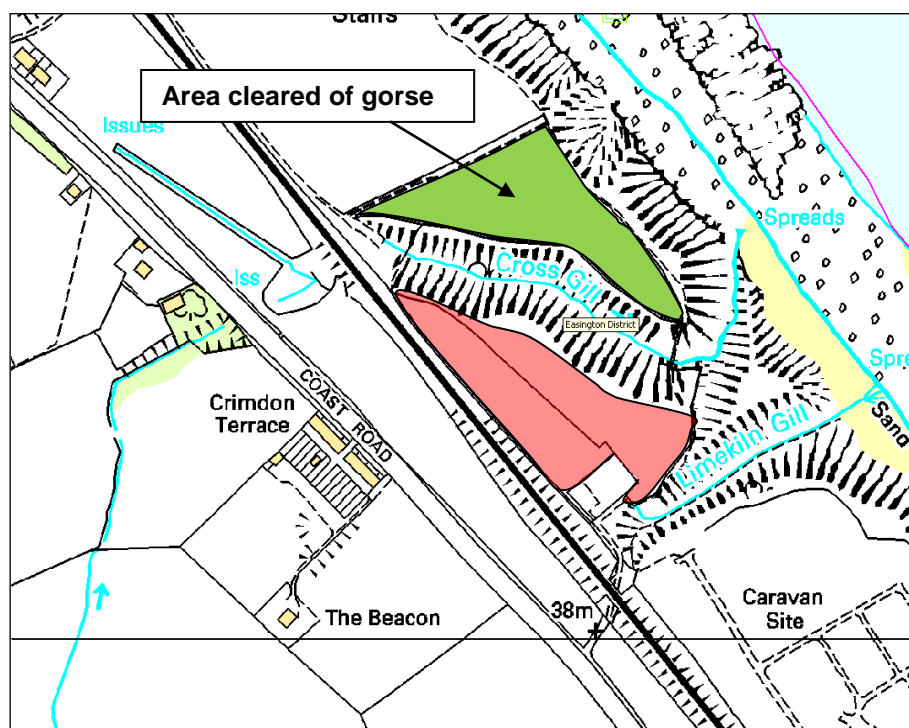
- Durham County Council
- Durham Wildlife Trust
- National Trust
- Grassland Trust

The fieldwork was carried out on June 24th and July 8th 2014 by Andy Mclay.

Summary of findings

There are a number of herb-rich unimproved grasslands along this section of the Durham coast which have fortunately survived to the present day and thus have much potential as future donor sites for wildflower seed collection. The following key grasslands were identified in 2011 as having potential suitability for some mechanical and / or hand-collection of wildflower seed;

1. Cross Gill (Grassland Trust), NZ475382



In 2011 an area of unimproved neutral to calcareous grassland south of Cross Gill was identified as having high potential as a donor site. A wealth of positive grassland indicator species were recorded such as pepper saxifrage (*Silene acaulis*), devilsbit scabious (*Succisa pratensis*), yellow rattle (*Rhinanthus minor*), betony (*Stachys officinalis*), common knapweed (*Centaurea nigra*) and zigzag clover (*Trifolium medium*) to name a few. Small quantities of ling (*Calluna vulgaris*) were also present with other normally calcifugous species

such as tormentil (*Potentilla erecta*), heath groundsel (*Senecio sylvaticus*) and gorse (*Ulex europaeus*). The grassland was also seen to display the rigg and furrow pattern which is often indicative of old permanent pastures.

However in 2014 it was apparent that this important grassland area was no longer in favourable condition due to a lack of recent management which has allowed the spread of insipient low gorse throughout. Coarse grasses such as Yorkshire fog (*Holcus lanatus*) and cocksfoot (*Dactylis glomerata*) now occupy a large part of the sward and there was also increasing amounts of hogweed (*Heracleum sphondylium*), field horsetail (*Equisetum arvense*) and dog rose (*Rosa canina* agg.) present. Many of the previously recorded grassland indicator species were still found to be present but in reduced quantity. Two additional indicator species were however newly recorded in 2014 – bloody cranesbill (*Geranium sanguineum*) and tufted vetch (*Vicia cracca*).

Unless favourable condition status can be restored it would currently be unwise to collect seed from this grassland using a mechanical brush harvester. Seed collection by hand would of course still be feasible and would reduce the risk of harvesting undesirable species. At this early stage in succession the grassland condition could be restored relatively quickly by either grazing or regular cutting and raking.

On a more positive note it was pleasing to see that active management works have recently taken place on the north side of Cross Gill. In 2011 the grassland area here was blanketed with dense gorse scrub and only isolated pockets of herb-rich calcareous grassland could be seen around the margins. A major programme of scrub clearance has removed much of the gorse and the site has recently also been re-fenced to facilitate conservation grazing. A large number of key indicator species have already re-appeared in quantity, including betony, tormentil, rough hawkbit (*Leontodon hispidus*), devilsbit scabious and glaucous sedge (*Carex flacca*). Several grasses confined to nutrient-poor swards are also present such as heath grass (*Danthonia decumbens*), downy oat-grass (*Helictotrichon pubescens*) and quaking grass (*Briza media*). Most significantly there are populations of two of the Durham Coast's notable plant species, namely flea sedge (*Carex pulicaris*) and pale St.John's wort (*Hypericum montanum*).

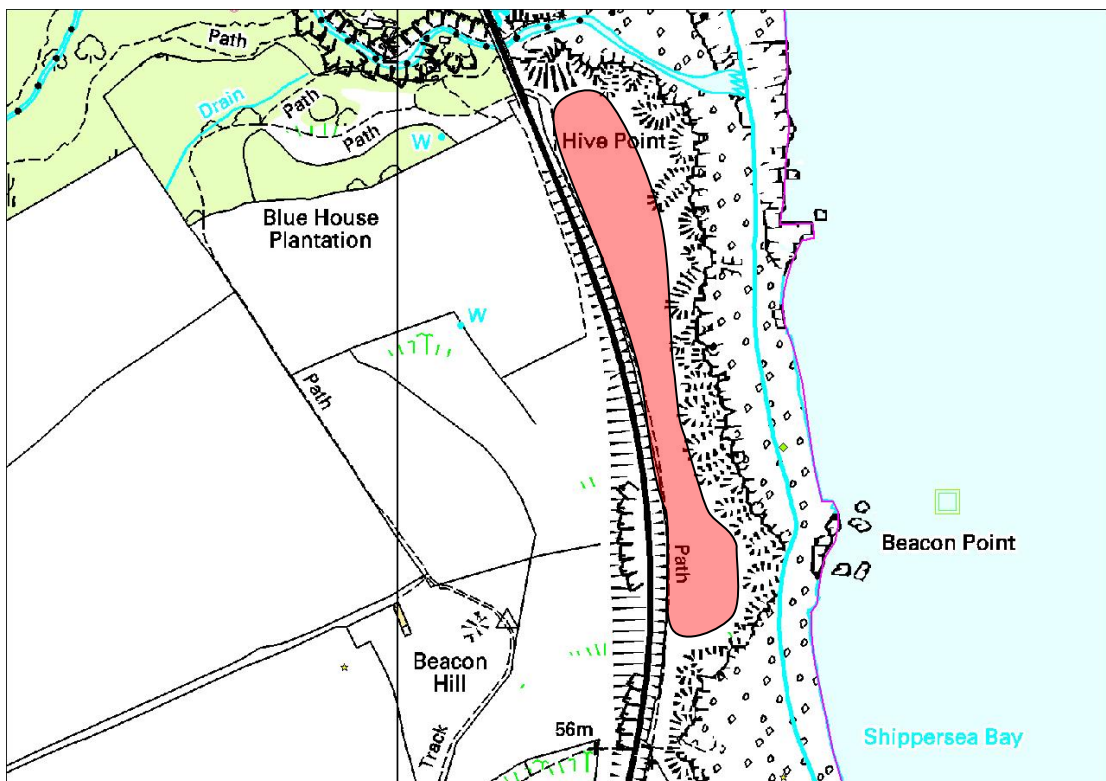
This area would already prove suitable for small-scale seed collection by hand and in future should lend itself to harvesting mechanically.

Optimal time for seed collection – August / early September.



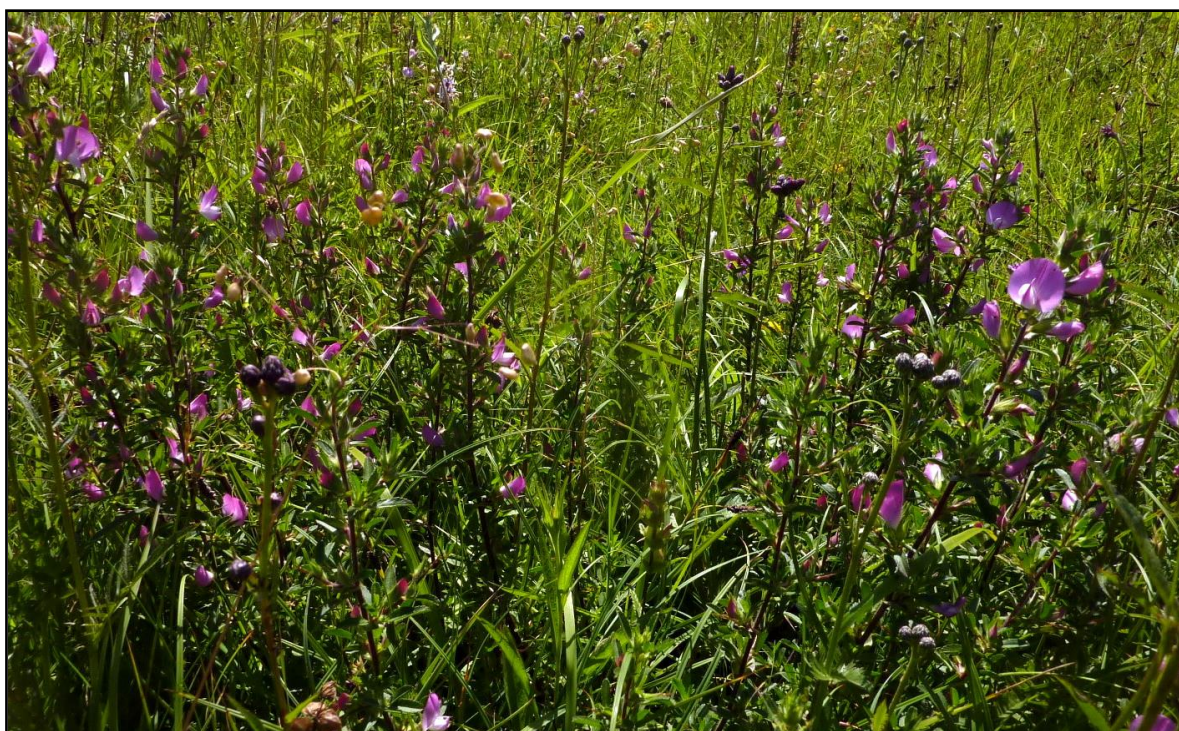
Tormentil flowering after gorse removal

2. Beacon Point to Hive Point (National Trust), NZ443454



As previously noted this exceptional area of unimproved coastal grassland represents one of the most floristically-spectacular meadow swards in the

region. The majority of key indicator species recorded in 2011 were still seen to be present, including the uncommon saw-wort (*Serratula tinctoria*) which has its largest population in County Durham here. Several other noteworthy plant species also occur such as dyer's greenweed (*Genista tinctoria*), flea sedge, spiny restharrow (*Ononis spinosa*), fragrant orchid (*Gymnadenia conopsea*), lesser meadow-rue (*Thalictrum minus*) and pepper saxifrage. A long list of more widespread calcicolous and neutral grassland species would include agrimony (*Agrimonia eupatoria*), greater knapweed (*Centaurea scabiosa*), Common twayblade (*Neottia ovata*), wild marjoram (*Origanum vulgare*), burnet saxifrage (*Pimpinella saxifraga*), yellow-wort (*Blackstonia perfoliata*), meadow oat-grass (*Helictotrichon pratense*), bloody cranesbill and many more.



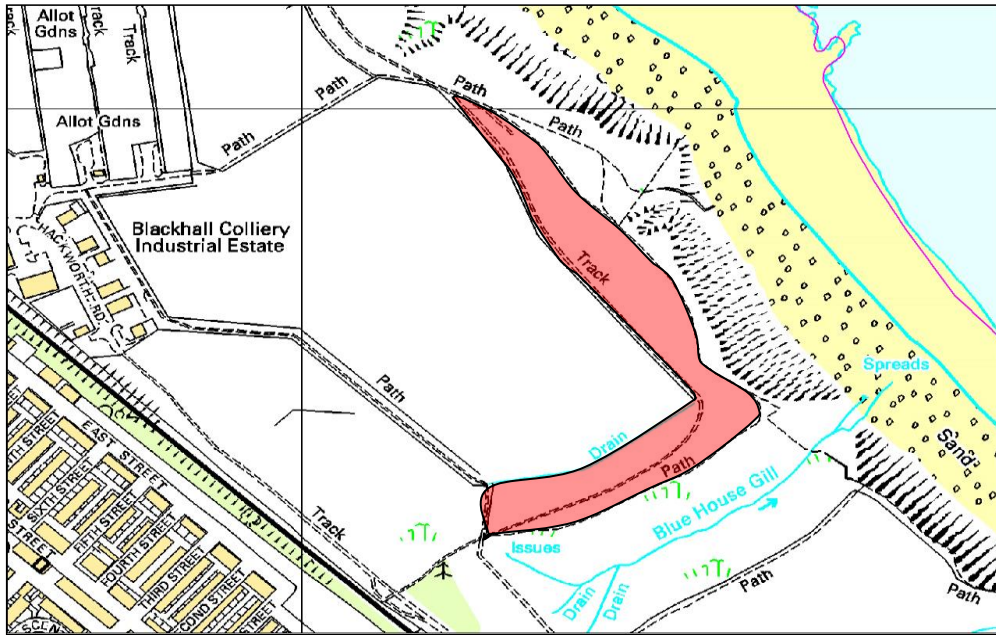
Spiny restharrow (*Ononis spinosa*)

The grassland has recently been managed by annual mowing and raking but not all of the meadow is cut at any one time. Bracken encroachment is a particular problem and will spread rapidly without control. There are also some woody stands of burnet rose (*Rosa pimpinellifolia*) which are beginning to form scrub, although this is a notable species itself. The presence of 9 species of waxcap fungi recorded here in 2008 fruiting within the aftermath thatch is a strong confirmation of the very low nutrient levels within the soil.

The level grassland could be accessed relatively easily by a mechanical brush harvester to obtain wild flower seed.

Optimal time for seed collection – August / early September.

3. Blackhall Rocks Nature Reserve (DWT), NZ464396



This fine Magnesian limestone grassland is actively managed by Durham Wildlife Trust and was seen to be a blaze of colour at the time of this visit. The previous surveys in 2011 and 2012 were carried out in May and August and although a large number of herb species were then recorded, some notable components of the grassland such as orchid species were overlooked. The present visit coincided with a fine display of flowering pyramidal orchids (*Anacamptis pyramidalis*) growing together with bee orchid (*Ophrys apifera*), common twayblade, northern marsh orchid (*Dactylorhiza purpurella*) and common spotted orchid (*Dactylorhiza fuchsii*). The persistent dead seed heads of early purple orchid (*Orchis mascula*) were also noted.



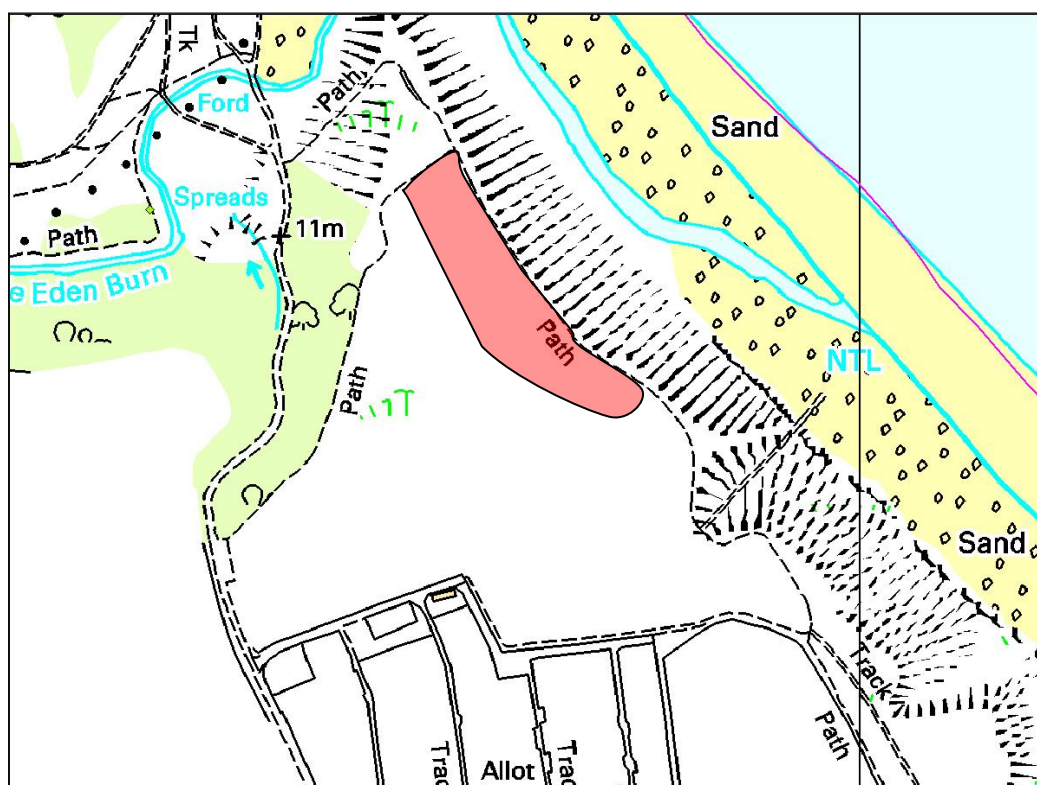
Herb-rich Magnesian limestone grassland

The sward is notably sparse throughout much of the grassland and is at least partially developed over former coal workings. Numerous other calcicoles are present in large quantity such as hoary plantain (*Plantago media*), small scabious (*Scabiosa columbaria*), cowslip (*Primula veris*), yellow-wort, carline thistle (*Carlina vulgaris*), common restharrow (*Ononis repens*), fairy flax (*Linum catharticum*), common milkwort (*Polygala vulgaris*) and lady's bedstraw (*Galium verum*). The large recently established population of horseshoe vetch (*Hippocrepis comosa*) continues to expand and this low-growing species seems to be an effective coloniser of bare colliery spoil. Viper's bugloss (*Echium vulgare*) was newly recorded in 2014.

The grasslands are situated on more or less level ground and would be accessible for a mechanical brush harvester or simple hand collecting of seed. The brush harvester cutting bar should be set low to maximise the short sward on this grassland.

Optimal time for seed collection – late June/July or August/early September

4. Blackhall Rocks Nature Reserve (DWT), NZ457405



This part of the DWT reserve is an interesting mosaic of damp unimproved neutral grassland, calcareous grassland and scrub. The wettest areas support sedge and rush populations including common sedge (*Carex nigra*), false fox-sedge (*Carex otrubae*), jointed rush (*Juncus articulatus*) and hard rush (*Juncus inflexus*). Damp grassland herbs like sneezewort (*Achillea ptarmica*), wild angelica (*Angelica sylvestris*), bugle (*Ajuga reptans*), northern marsh orchid, hemp agrimony (*Eupatorium cannabinum*), meadowsweet (*Filipendula ulmaria*) and common fleabane (*Pulicaria dysenterica*) are also present with

marsh arrowgrass (*Triglochin palustre*), a declining species of grazed base-rich wetlands. Many typical calcicoles also occur in the better-drained grassland areas and hairy St. John's wort (*Hypericum hirsutum*) is associated with the scrubrier gorse-dominated sections.

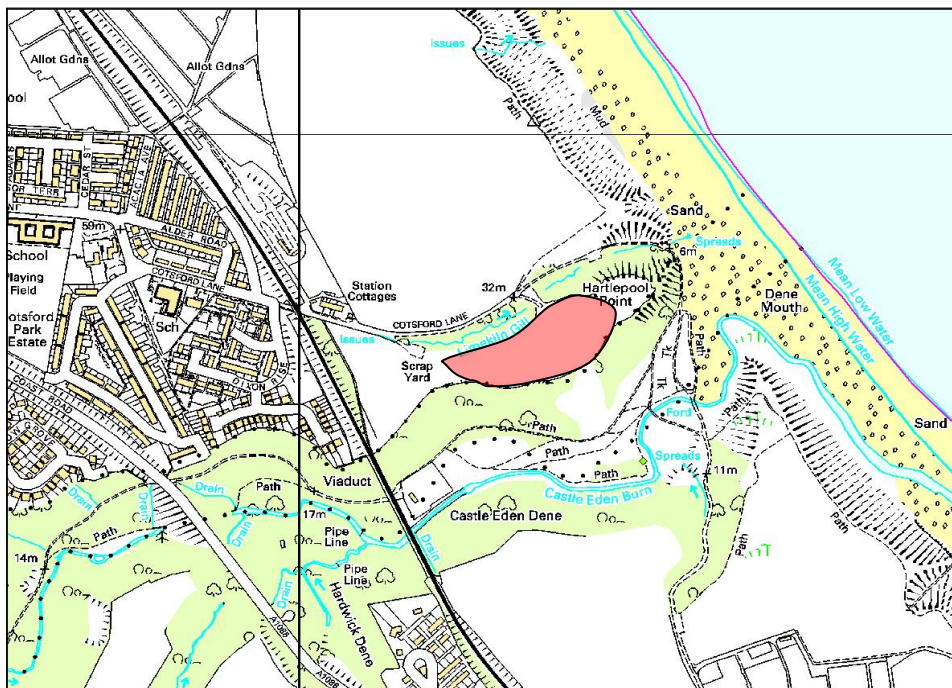


Damp unimproved neutral grassland

The grasslands are situated on more or less level ground and would be accessible for a mechanical brush harvester or simple hand collecting of seed.

Optimal time for seed collection – late July to early September

4. Land between Limekiln Gill and Denemouth (DCC), NZ454406



This area of former grazing pasture is situated on an elevated ridge between two wooded denes. The 2011 survey highlighted the botanical significance of this grassland and recorded a large population of adderstongue fern (*Ophioglossum vulgatum*) here. It was noted at the time that the grassland had recently been re-fenced to presumably facilitate future grazing, but there was little indication during the present survey that any recent grazing had taken place. Despite the fact that almost all of the key neutral grassland indicator species previously recorded were still present in similar quantities, the pasture has become visibly more grass-dominated and Yorkshire fog was noted as being frequent throughout. It was evident that the grassland is now at the early stage of habitat deterioration which is likely to continue apace without urgent management intervention.

The previously mentioned mesotrophic grassland assemblage includes zigzag clover, pignut (*Conopodium majus*), meadow cranesbill (*Geranium pratense*), agrimony, common knapweed, birdfoot trefoil (*Lotus corniculatus*), northern marsh orchid and common spotted orchid. Notably all three species of lowland ladies mantles also occur (*Alchemilla filicaulis* ssp. *vestita*, *glabra* and *xanthochlora*). The usual interesting Durham coast mixture of calcicolous and calcifugous species is also found here and there are quantities of ling growing with hoary plantain, common restharrow, fairy flax and bloody cranesbill.

The potentiality of this grassland as a future donor site will be dependent upon the establishment of an appropriate grazing regime (i.e. livestock excluded April to August to allow seed development). It should be stressed that this is an existing semi-natural grassland site of considerable conservation value and should **under no circumstances** be used as a receptor site for future seed transfer.

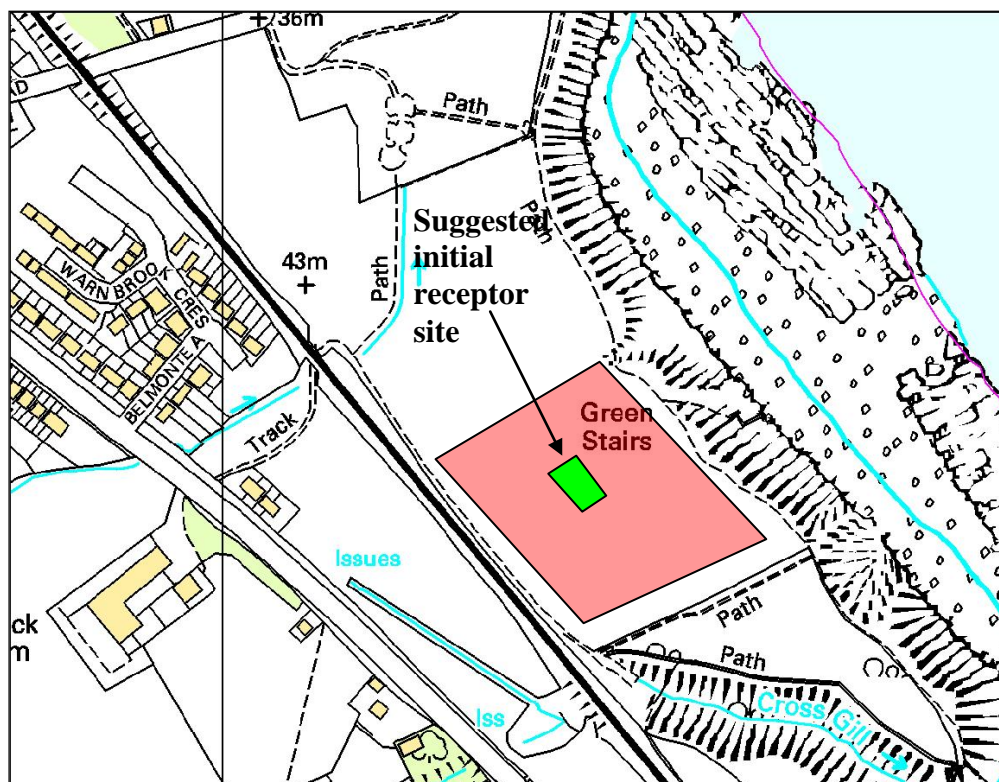
The grassland is undulating in places but could be accessed relatively easily by a mechanical brush harvester. However it would currently be advisable to delay seed harvesting on this site until favourable condition status of the grassland has been restored by positive management.

Optimal time for seed collection – late July to late August

Potential receptor sites

Although all of the potential receptor sites display a certain degree of uniformity due to their former land use and proximity, each site also displays subtle individual facets which may influence and help direct future grassland restoration works. The principal receptor sites identified are detailed below.

1. Fields 0369, 2653 (DCC), NZ473384

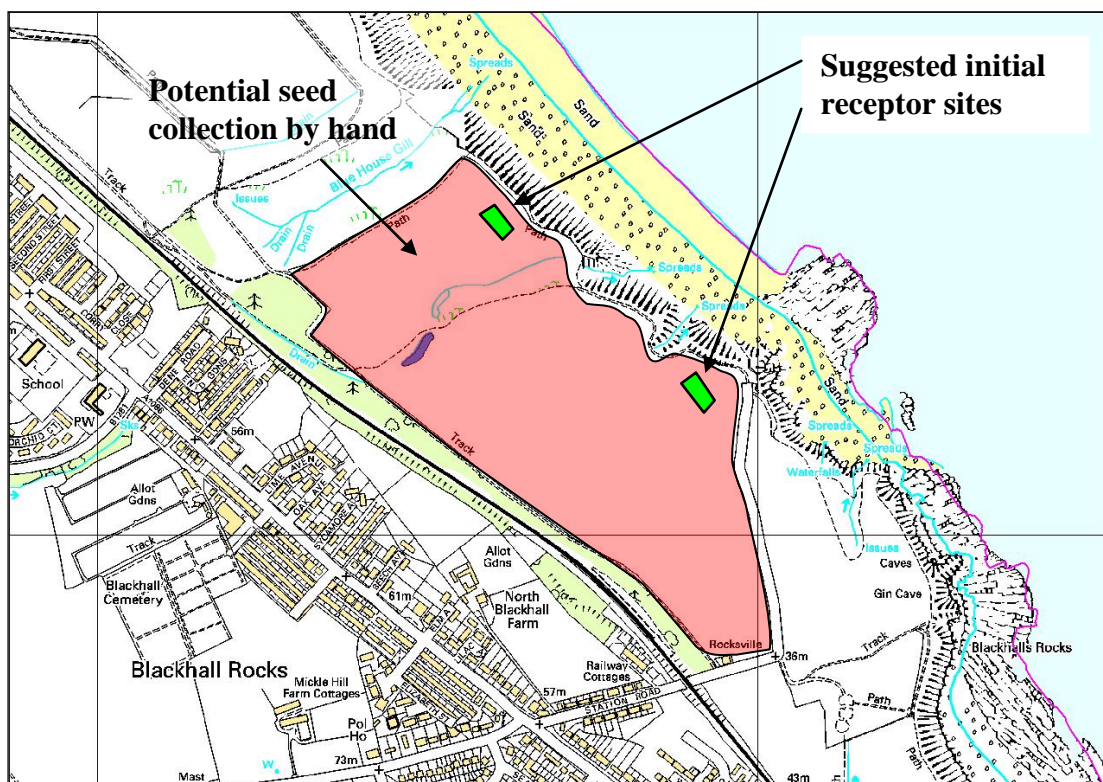


A large area of this former arable field was recently fenced to facilitate future grazing management. The field was previously re-sown with a standard neutral grassland wildflower mix which typically contained large amounts of leguminous forbs such as white clover (*Trifolium repens*), red clover (*Trifolium pratense*) and a tall upright form of birdsfoot trefoil (*Lotus corniculatus* ssp. *sativa*). These species remain common throughout and the field also contains lesser amounts of yellow rattle, meadow vetchling, glaucous sedge, common knapweed, rough hawkbit, zigzag clover and tufted vetch. Common fleabane was seen to have increased in frequency since the previous survey and negative indicator species such as common hogweed, false oat-grass (*Arrhenatherum elatius*), cocksfoot and perennial rye-grass (*Lolium perenne*) are now of mostly rare occurrence. New recruits noted during the present survey include both northern marsh and common spotted orchids, meadowsweet, hoary ragwort (*Senecio erucifolius*) and yellow oat-grass (*Trisetum flavescens*).

Recent management activity is not detailed but winter grazing has evidently taken place here and in future should continue to floristically diversify and improve the grassland sward.

Recommended donor site: - Cross Gill
Method of seed collection – brush harvester

2. Fields 5141, 7309 (DCC), NZ465393



This huge field south east of Blue House Gill was similarly formerly sown with a standard wildflower mix widely used on mesotrophic grassland sites. Clovers and the cultivated form of birdsfoot trefoil remain abundant here and the dominant grassy sward is occupied by Yorkshire fog, sweet vernal grass (*Anthoxanthum odoratum*), creeping bent (*Agrostis stolonifera*), common bent (*Agrostis capillaris*), cocksfoot and crested dogstail (*Cynosurus cristatus*). The tall swathes of sown grassland display few signs of diversification since the previous survey and large areas of the grassland remain heavily-dominated by grass species, white clover and increasingly by common hogweed. Small numbers of desirable herb species remain present at low frequencies, including great burnet (*Sanguisorba officinalis*), cowslip, tufted vetch, yellow-wort and common spotted orchid. Yellow rattle was however seen to be present in increased quantity. Perhaps one of the more natural-looking developments within the field is the localised establishment of damp pockets of marshy vegetation containing marsh thistle (*Cirsium palustre*), compact rush (*Juncus conglomeratus*), meadowsweet and common fleabane.

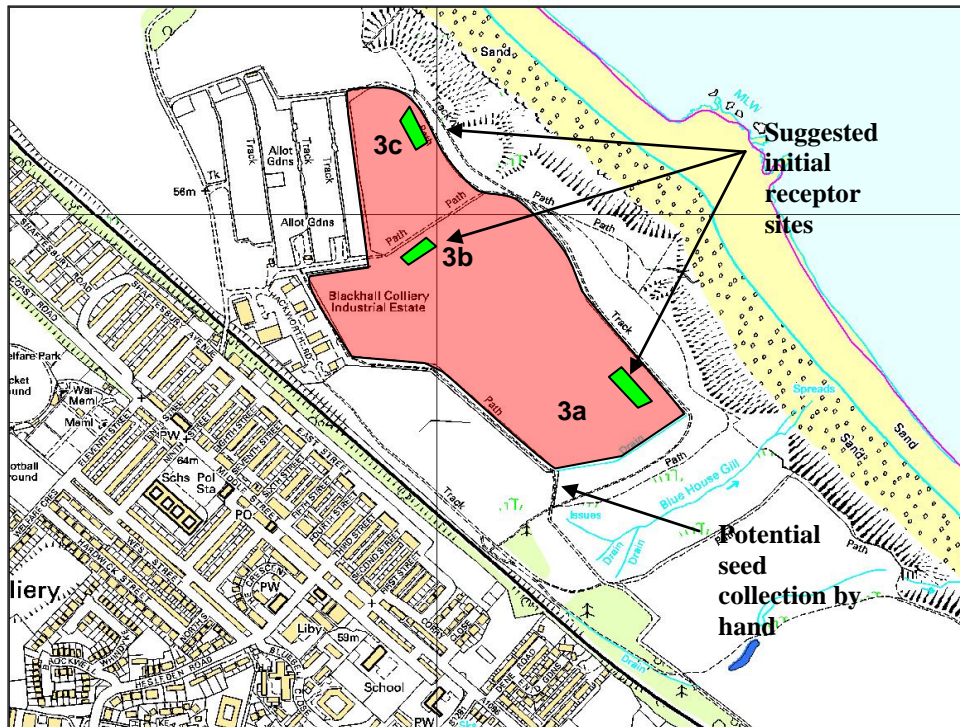
Recommended donor site: - Cross Gill

Method of seed collection – brush harvester

*Additional seed collection by hand from areas shown on plan **

** See Appendix 1 for targeted list of recommended species*

3. Fields 9508, 1187 (DCC), NZ462396



The fields have been divided up into three units for future grazing management;

3a. The southernmost field lies adjacent to Blue House Gill and is situated close to the key areas of Magnesian limestone grassland managed by DWT. In 2011 this field was seen to contain a much sparser and more diverse sward than the other former arable fields on the Durham Coast. The present survey found evident further signs of improvement and this field unit is now beginning to display facets of a semi-natural calcareous to neutral grassland community.

Birdsfoot trefoil (native form), glaucous sedge and quaking grass are all frequent and the grassland also supports fairy flax, lady's bedstraw, oxeye daisy (*Leucanthemum vulgare*), rough hawkbit, common spotted orchid, northern marsh orchid, kidney vetch (*Anthyllis vulneraria*), yellow-wort and cowslip. It was particularly pleasing to find 5 flowering spikes of pyramidal orchid present. As previously mentioned this species has a notably large population on the adjacent areas of Magnesian limestone grassland beside Blue House Gill. Parts of the grassland also still contain a rank component where tall fescue (*Festuca arundinacea*) and cocksfoot are most frequent.

Conservation grazing has clearly taken place in this field but it is unknown whether any recent seed introduction from adjacent grasslands has been carried out.

Recommended donor site: - Blackhall Rocks NR (Site 3)

Method of seed collection – brush harvester

*Additional seed collection by hand from areas shown on plan **

* See Appendix 1 for targeted list of recommended species



Pyramidal orchid (*Anacamptis pyramidalis*)

3b and 3c. These two field units share a number of common species with the above but are both much ranker and far more grass-dominated. 3c in particular was noted to be heavily infested with tussocky swards of tall fescue and false oat-grass and displayed little evidence of recent grazing.

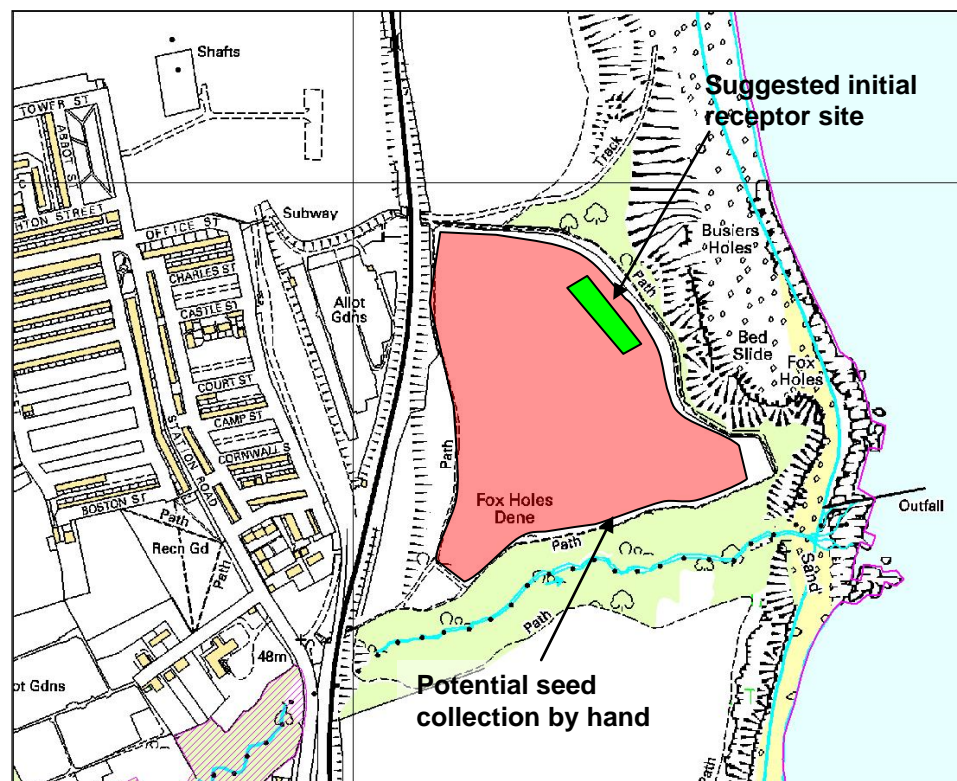
Recommended donor site: - Blackhall Rocks NR (Site 4)

Method of seed collection – brush harvester

*Additional seed collection by hand from areas shown on plan **

* See Appendix 1 for targeted list of recommended species

4. Field north of Foxholes Dene (NT), NZ443438



A large former arable field between Foxholes Dene and Busier's Hole. This field is cropped annually for hay but is not used for grazing. In 2012 the sward was found to be heavily-dominated by coarse grasses including Yorkshire fog, cocksfoot, tall fescue and false oat-grass. The present survey still recorded a predominantly grass-dominated sward but the quantities of these grass species was visibly less by comparison, with the exception of Yorkshire fog. The sward was also noticeably shorter than previous and perhaps most notably a good list of previously unrecorded plant species were found, albeit in small quantity. These included some key grassland indicators such as devilsbit scabious, yellow rattle, meadow vetchling, common centaury (*Centaurea erythraea*), yellow-wort, glaucous sedge and slender St.John's wort (*Hypericum pulchrum*). Common catsear (*Hypochaeris radicata*) was also present in good numbers and a localised damp grassland community appears to be developing, with hard rush, compact rush, meadowsweet, marsh thistle and common fleabane.

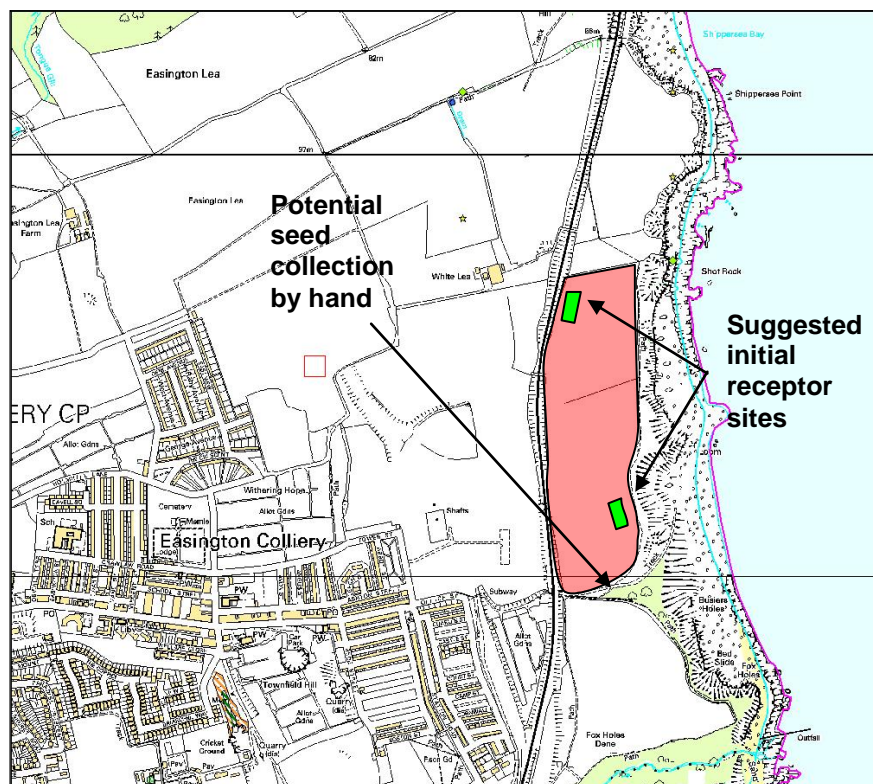
Recommended donor site: - Beacon Point to Hive Point

Method of seed collection – brush harvester

*Additional seed collection by hand from areas shown on plan **

** See Appendix 1 for targeted list of recommended species*

5. Field north of Busier's Hole (NT), NZ442442



This large field is managed in the same manner as the above and is floristically similar. Coarse grass content was also visibly less here than

previously recorded and herb species such as birdsfoot trefoil and common catsear have increased in quantity. Additional species found this year include kidney vetch, yellow-wort, oxeye daisy and common centaury.

Busier's Hole directly to the south of the field supports a good number of Magnesian limestone grassland species, including fragrant orchid and would be suitable for small-scale seed collection by hand.

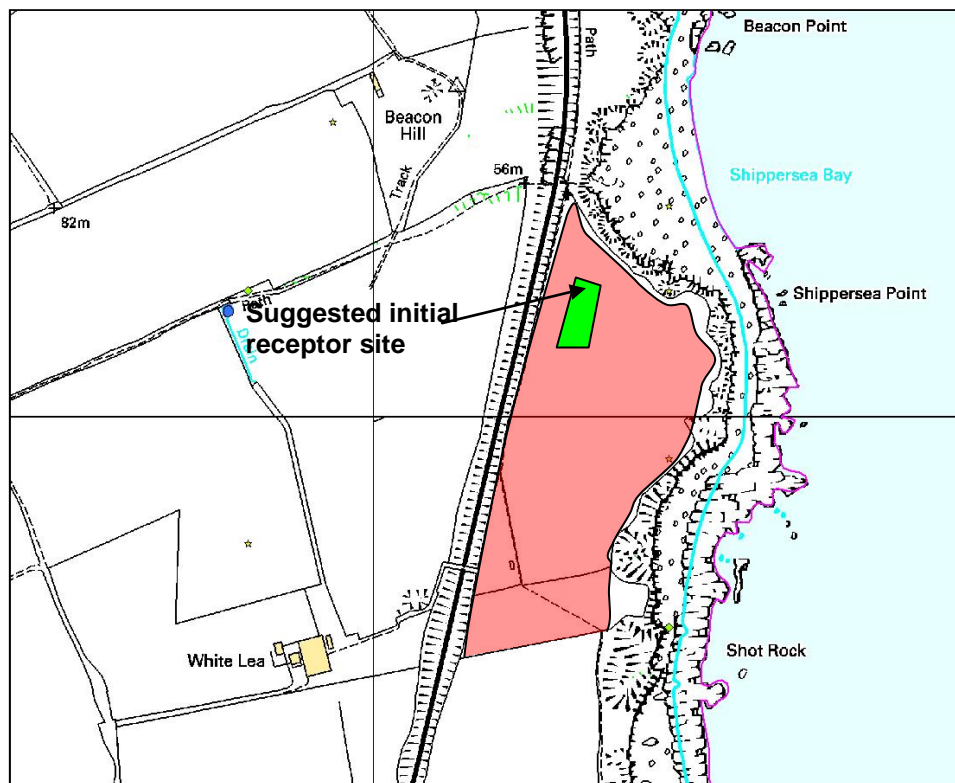
Recommended donor site: - Beacon Point to Hive Point

Method of seed collection – brush harvester

*Additional seed collection by hand from areas shown on plan **

** See Appendix 1 for targeted list of recommended species*

6. Field south of Shippersea Point (NT), NZ443450



The extract below is reproduced from the previous report in 2012;

Aug 2011 - “A large grazed improved pasture dominated by perennial rye grass (*Lolium perenne*) and white clover. Although the current herb content is low, there is evidence of a slow recovery and recruitment of semi-natural neutral grassland species such as red fescue, birdsfoot trefoil, smooth hawksbeard, red clover, rough hawkbit and common catsear.”

“In June 2012 the pasture was found to be ungrazed and contained a species-poor tall sward dominated by coarse grass species.”

In 2014 the pasture was found to have been recently cut for hay at the time of visit (July 8th) and was therefore not investigated. This management practice is unlikely to improve floristic diversity in the near future.

Recommended donor site: - Beacon Point to Hive Point
Method of seed collection – brush harvester

Discussion

In 2014 it was encouraging to see apparent increased floristic diversity in several of the identified receptor fields formerly used for arable production. As previously mentioned, the reversion to herb-rich grasslands from former arable is a long-term challenge which in some cases may take many years to accomplish. However with positive management intervention this process can be assisted and the findings of this survey have demonstrated that change can sometimes occur over small timescales in response to management activity (or lack of). It is clear that the majority of fields are now sufficiently depleted of nutrients to allow at least some re-establishment of herb species but successful seed transfer in future will be dependent upon the creation of suitable conditions within the grasslands. Sowing seed directly into tall dense grassy swards is unproductive and costly. Even if some seedling establishment takes place the plants are unlikely to survive for long in this shaded environment. Grazing management in future will be integral in creating or maintaining the necessary open conditions needed for herb-rich grassland development.

Habitat deterioration can sometimes also occur quite rapidly in response to management change. This was demonstrated clearly at two of the previously identified herb-rich grassland donor sites at Cross Gill and Limekiln Gill where an absence of recent management has allowed the development of coarse vegetation and scrub to encroach upon the core areas of grassland. The success of the current project will be dependent upon the retention of existing adjacent high quality semi-natural grassland sites such as these. Furthermore, given the rarity of unimproved lowland meadows and especially Magnesian limestone grasslands in the UK it could be argued that the retention of these grasslands should even be given priority status over grassland creation.

As mentioned in a previous report, an attempt was made to identify field edge communities consisting of grassland herbs which in many cases might be representative of the former vegetation. Such species are likely to have been eradicated from the main field but have continued to persist along unploughed field margins and track sides. In such cases hand collection of seed has been recommended.

All of the recommended potential donor sites are situated on either level or gently undulating ground in order to facilitate access by machinery, e.g. a brush harvester. For this reason the abundant herb-rich grasslands of the sea

cliffs and steep slopes of the gills have been omitted. The recommendations for hand collection of seed have similarly avoided these areas for safety reasons.

Appendix 1 below lists those key regional grassland indicator species most appropriate for seed transfer and identifies suitable times for seed harvesting. It will be seen that there are two clearly defined periods of seed maturity, the first in late June for those spring flowering species and the second in late Aug/early September for summer grassland flowers. The list is not exhaustive but could be augmented by reference to the site descriptions and species lists contained within this report. Those species highlighted in blue have been selected as most appropriate for monitoring the success of seed transfer in future. For this purpose an attempt was made to select grassland indicator species that would be most easily recognisable in the field, e.g. cowslip. Additionally the species chosen are all relatively widespread within the donor sites outlined above and have all been used in successful seed transfer projects elsewhere in the region.



Magnesian limestone grassland at Blackhall Rocks

Appendices

Appendix 1. Table showing target grassland species with optimum time for seed collection.

Species - latin	Species - English	Seed ripe	Site
<i>Achillea ptarmica</i>	Sneezewort	Aug/early Sep	Blackhall Rocks
<i>Agrimonia eupatoria</i>	Common Agrimony	Aug/early Sep	All
<i>Anthyllis vulneraria</i>	Kidney Vetch	Late June >	All
<i>Carex flacca</i>	Glaucous Sedge	Late June >	All
<i>Centaurea nigra</i>	Common Knapweed	Aug/early Sep	All
<i>Dactylorhiza fuchsii</i>	Common Spotted Orchid	Aug/early Sep	All
<i>Dactylorhiza purpurella</i>	Northern Marsh Orchid	Late June >	All
<i>Gentianella amarella</i>	Autumn Gentian	Late Aug/Sept	Blackhall Rocks
<i>Geranium pratense</i>	Meadow Cranesbill	Aug/early Sep	All
<i>Knautia arvensis</i>	Field Scabious	Aug/early Sep	All
<i>Lathyrus pratensis</i>	Meadow Vetchling	Late June >	All
<i>Leontodon hispidus</i>	Rough Hawkbit	Late June >	All
<i>Lotus corniculatus</i>	Common Birdsfoot Trefoil	Late June >	All
<i>Orchis mascula</i>	Early Purple Orchid	Late June >	Cross Gill, Blackhall Rocks
<i>Origanum vulgare</i>	Wild Marjoram	Aug/early Sep	Beacon Point
<i>Pimpinella saxifraga</i>	Burnet saxifrage	Aug/early Sep	All
<i>Primula veris</i>	Cowslip	Late June >	All
<i>Rhinanthus minor</i>	Yellow Rattle	Mid July >	All
<i>Scabiosa columbaria</i>	Small Scabious	Aug/early Sep	Blackhall Rocks, Beacon Point
<i>Serratua tinctoria</i>	Saw-wort	Aug/early Sep	Beacon Point
<i>Silene acaulis</i>	Pepper saxifrage	Aug/early Sep	Cross Gill, Beacon Point
<i>Stachys officinalis</i>	Betony	Aug/early Sep	Cross Gill, Beacon Point
<i>Succisa pratensis</i>	Devil'sbit Scabious	Aug/early Sep	All
<i>Trifolium medium</i>	Zigzag Clover	Aug/early Sep	All

Appendix 2. Site species data

Donor site 1 (Cross Gill) NZ475382

<i>Achillea millefolium</i>	Yarrow	Rare	24-June-14
<i>Agrostis capillaris</i>	Common Bent	Frequent	24-June-14
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Frequent	24-June-14
<i>Arrhenatherum elatius</i>	False Oat-grass	Rare	24-June-14
<i>Calluna vulgaris</i>	Heather	Rare	24-June-14
<i>Campanula rotundifolia</i>	Harebell	Rare	24-June-14
<i>Carex flacca</i>	Glaucous Sedge	Occasional	24-June-14
<i>Centaurea nigra</i>	Common Knapweed	Abundant	24-June-14
<i>Cerastium fontanum</i>	Common Mouse ear	Rare	24-June-14
<i>Cynosurus cristatus</i>	Crested Dogstail	Rare	24-June-14
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	Occasional	24-June-14
<i>Dactylis glomerata</i>	Cocksfoot	Occasional	24-June-14
<i>Daucus carota</i>	Carrot	Occasional	24-June-14
<i>Equisetum arvense</i>	Field Horsetail	Occasional	24-June-14
<i>Eupatorium cannabinum</i>	Hemp Agrimony	Rare	24-June-14
<i>Festuca rubra</i>	Red Fescue	Frequent	24-June-14
<i>Filipendula ulmaria</i>	Meadowsweet	Rare	24-June-14
<i>Fragaria vesca</i>	Wild Strawberry	Rare	24-June-14
<i>Geranium sanguineum</i>	Bloody Cranesbill	Rare	24-June-14
<i>Hieracium</i> agg.	Hawkweed	Rare	24-June-14
<i>Heracleum sphondylium</i>	Common Hogweed	Occasional	24-June-14
<i>Holcus lanatus</i>	Yorkshire Fog	Frequent	24-June-14
<i>Hypericum pulchrum</i>	Slender St. John's Wort	Rare	24-June-14
<i>Hypochaeris radicata</i>	Cat's-ear	Occasional	24-June-14
<i>Leontodon autumnalis</i>	Autumn Hawkbit	Rare	24-June-14
<i>Leontodon hispidus</i>	Rough Hawkbit	Frequent	24-June-14
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Rare	24-June-14
<i>Linum catharticum</i>	Fairy Flax	Rare	24-June-14
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	Occasional	24-June-14
<i>Luzula campestris</i>	Field Woodrush	Occasional	24-June-14
<i>Orchis mascula</i>	Early Puple Orchid	Rare	24-June-14
<i>Pimpinella saxifraga</i>	Burnet-saxifrage	Frequent	24-June-14
<i>Plantago lanceolata</i>	Ribwort Plantain	Frequent	24-June-14
<i>Poa trivialis</i>	Rough Meadow-grass	Occasional	24-June-14
<i>Polygala vulgaris</i>	Common Milkwort	Rare	24-June-14
<i>Potentilla erecta</i>	Tormentil	Occasional	24-June-14
<i>Primula veris</i>	Cowslip	Occasional	24-June-14
<i>Prunella vulgaris</i>	Self-heal	Rare	24-June-14
<i>Pulicaria dysenterica</i>	Common Fleabane	Rare	24-June-14
<i>Rhinanthus minor</i>	Yellow-rattle	Frequent	24-June-14
<i>Rosa canina</i> agg.	Dog Rose	Occasional	24-June-14
<i>Rubus fruticosus</i> agg.	Bramble	Occasional	24-June-14
<i>Rumex acetosa</i>	Common Sorrel	Rare	24-June-14
<i>Senecio erucifolius</i>	Hoary Ragwort	Occasional	24-June-14
<i>Senecio jacobaea</i>	Common Ragwort	Rare	24-June-14
<i>Senecio sylvaticus</i>	Heath Groundsel	Rare	24-June-14
<i>Silaum silaus</i>	Pepper-saxifrage	Occasional	24-June-14
<i>Stachys officinalis</i>	Betony	Frequent	24-June-14
<i>Succisa pratensis</i>	Devil's-bit Scabious	Occasional	24-June-14
<i>Trifolium medium</i>	Zigzag Clover	Occasional	24-June-14

<i>Trifolium pratense</i>	Red Clover	Occasional	24-June-14
<i>Trisetum flavescens</i>	Yellow Oat-grass	Rare	24-June-14
<i>Ulex europaeus</i>	Gorse	Frequent	24-June-14
<i>Vicia cracca</i>	Tufted Vetch	Rare	24-June-14
<i>Viola riviniana</i>	Common Dog-violet	Occasional	24-June-14

Donor site 2 (Beacon Point to Hive Point)

NZ443454

<i>Achillea millefolium</i>	Yarrow	Rare	08-July-14
<i>Agrimonia eupatoria</i>	Agrimony	Occasional	08-July-14
<i>Agrostis capillaris</i>	Common Bent	Occasional	08-July-14
<i>Agrostis stolonifera</i>	Creeping Bent	Occasional	08-July-14
<i>Angelica sylvestris</i>	Wild Angelica	Occasional	08-July-14
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Rare	08-July-14
<i>Anthyllis vulneraria</i>	Kidney Vetch	Rare	08-July-14
<i>Arrhenatherum elatius</i>	False Oat-Grass	Occasional	08-July-14
<i>Blackstonia perfoliata</i>	Yellow-wort	Rare	08-July-14
<i>Brachypodium sylvaticum</i>	False-brome	Rare	08-July-14
<i>Briza media</i>	Quaking-grass	Frequent	08-July-14
<i>Carex flacca</i>	Glaucous Sedge	Frequent	08-July-14
<i>Carex pulicaris</i>	Flea Sedge	Rare	08-July-14
<i>Centaurea nigra</i>	Common Knapweed	Frequent	08-July-14
<i>Centaurea scabiosa</i>	Greater Knapweed	Rare	08-July-14
<i>Centaureum erythraea</i>	Common Centaury	Rare	08-July-14
<i>Dactylis glomerata</i>	Cock's-foot	Rare	08-July-14
<i>Dactylorhiza fuchsii</i>	Common Spotted Orchid	Occasional	08-July-14
<i>Danthonia decumbens</i>	Heath Grass	Rare	08-July-14
<i>Daucus carota</i>	Carrot	Rare	08-July-14
<i>Equisetum arvense</i>	Field Horsetail	Occasional	08-July-14
<i>Euphrasia officinalis</i> agg.	Eyebright	Rare	08-July-14
<i>Festuca arundinacea</i>	Tall Fescue	Occasional	08-July-14
<i>Festuca rubra</i>	Red Fescue	Occasional	08-July-14
<i>Filipendula ulmaria</i>	Meadowsweet	Frequent	08-July-14
<i>Galium verum</i>	Lady's Bedstraw	Occasional	08-July-14
<i>Geranium sanguineum</i>	Bloody Crane's-bill	Frequent	08-July-14
<i>Genista tinctoria</i>	Dyer's Greenweed	Rare	08-July-14
<i>Gymnadenia conopsea</i>	Fragrant Orchid	Rare	08-July-14
<i>Helictotrichon pratense</i>	Meadow Oat-grass	Occasional	08-July-14
<i>Helictotrichon pubescens</i>	Downy Oat-grass	Rare	08-July-14
<i>Heracleum sphondylium</i>	Common Hogweed	Rare	08-July-14
<i>Hieracium</i> agg.	Hawkweed	Rare	08-July-14
<i>Holcus lanatus</i>	Yorkshire Fog	Occasional	08-July-14
<i>Hypericum pulchrum</i>	Slender St John's-wort	Rare	08-July-14
<i>Lathyrus pratensis</i>	Meadow Vetchling	Rare	08-July-14
<i>Leontodon hispidus</i>	Rough Hawkbit	Frequent	08-July-14
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Occasional	08-July-14
<i>Linum catharticum</i>	Fairy Flax	Occasional	08-July-14
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	Frequent	08-July-14
<i>Neottia ovata</i>	Common Twayblade	Rare	08-July-14
<i>Ononis spinosa</i>	Spiny Restharrow	Occasional	08-July-14
<i>Origanum vulgare</i>	Wild Marjoram	Rare	08-July-14
<i>Pimpinella saxifraga</i>	Burnet-saxifrage	Occasional	08-July-14
<i>Plantago lanceolata</i>	Ribwort Plantain	Frequent	08-July-14
<i>Plantago maritima</i>	Sea Plantain	Rare	08-July-14

<i>Potentilla erecta</i>	Tormentil	Occasional	08-July-14
<i>Potentilla reptans</i>	Creeping Cinquefoil	Rare	08-July-14
<i>Primula veris</i>	Cowslip	Occasional	08-July-14
<i>Prunella vulgaris</i>	Self-heal	Rare	08-July-14
<i>Pteridium aquilinum</i>	Bracken	Locally frequent	08-July-14
<i>Rhinanthus minor</i>	Yellow-rattle	Frequent	08-July-14
<i>Rosa canina</i> agg.	Dog-rose	Rare	08-July-14
<i>Rosa pimpinellifolia</i>	Burnet Rose	Rare	08-July-14
<i>Rubus fruticosus</i> agg.	Bramble	Occasional	08-July-14
<i>Serratula tinctoria</i>	Saw-wort	Abundant	08-July-14
<i>Stachys officinalis</i>	Betony	Frequent	08-July-14
<i>Succisa pratensis</i>	Devil's-bit Scabious	Frequent	08-July-14
<i>Trifolium medium</i>	Zigzag Clover	Occasional	08-July-14
<i>Tussilago farfara</i>	Colt's-foot	Rare	08-July-14
<i>Ulex europaeus</i>	Gorse	Rare	08-July-14
<i>Vicia cracca</i>	Tufted Vetch	Rare	08-July-14

Donor site 3 (Blackhall Rocks NR) NZ464396

<i>Agrostis stolonifera</i>	Creeping Bent	Abundant	24-June-14
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid	Occasional	24-June-14
<i>Anthyllis vulneraria</i>	Kidney Vetch	Frequent	24-June-14
<i>Arrhenatherum elatius</i>	False Oat-grass	Rare	24-June-14
<i>Blackstonia perfoliata</i>	Yellow-wort	Occasional	24-June-14
<i>Brachypodium sylvaticum</i>	False-brome	Occasional	24-June-14
<i>Campanula glomerata</i>	Clustered Bellflower	Rare	24-June-14
<i>Campanula rotundifolia</i>	Harebell	Rare	24-June-14
<i>Carex flacca</i>	Glaucous Sedge	Occasional	24-June-14
<i>Carlina vulgaris</i>	Carline Thistle	Rare	24-June-14
<i>Centaurea nigra</i>	Common Knapweed	Occasional	24-June-14
<i>Centaurea scabiosa</i>	Greater Knapweed	Occasional	24-June-14
<i>Centaureum erythraea</i>	Common Centaury	Occasional	24-June-14
<i>Clinopodium vulgare</i>	Wild Basil	Occasional	24-June-14
<i>Dactylorhiza fuchsii</i>	Common Spotted Orchid	Occasional	24-June-14
<i>Dactylorhiza purpurella</i>	Northern Marsh Orchid	Occasional	24-June-14
<i>Daucus carota</i>	Carrot	Occasional	24-June-14
<i>Echium vulgare</i>	Viper's Bugloss	Rare	24-June-14
<i>Euphrasia officinalis</i> agg.	Eyebright	Occasional	24-June-14
<i>Festuca ovina</i>	Sheep's Fescue	Occasional	24-June-14
<i>Galium verum</i>	Lady's Bedstraw	Occasional	24-June-14
<i>Gentianella amarella</i>	Autumn Gentian	Occasional	24-June-14
<i>Geranium sanguineum</i>	Bloody Crane's-bill	Rare	24-June-14
<i>Hippocrepis comosa</i>	Horseshoe Vetch	Abundant	24-June-14
<i>Holcus lanatus</i>	Yorkshire Fog	Locally abundant	24-June-14
<i>Hypochaeris radicata</i>	Cat's-ear	Rare	24-June-14
<i>Juncus articulatus</i>	Jointed Rush	Rare	24-June-14
<i>Leontodon hispidus</i>	Rough Hawkbit	Frequent	24-June-14
<i>Leontodon saxatilis</i>	Lesser Hawkbit	Occasional	24-June-14
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Rare	24-June-14
<i>Linum catharticum</i>	Fairy Flax	Occasional	24-June-14
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	Abundant	24-June-14
<i>Medicago lupulina</i>	Black Medick	Occasional	24-June-14
<i>Neottia ovata</i>	Common Twayblade	Rare	24-June-14

<i>Ononis repens</i>	Common Restharrow	Occasional	24-June-14
<i>Ophrys apifera</i>	Bee Orchid	Rare	24-June-14
<i>Pilosella officinarum</i>	Mouse-ear-hawkweed	Rare	24-June-14
<i>Pimpinella saxifraga</i>	Burnet-saxifrage	Rare	24-June-14
<i>Plantago maritima</i>	Sea Plantain	Occasional	24-June-14
<i>Plantago media</i>	Hoary Plantain	Frequent	24-June-14
<i>Polygala vulgaris</i>	Common Milkwort	Occasional	24-June-14
<i>Primula veris</i>	Cowslip	Frequent	24-June-14
<i>Rhinanthus minor</i>	Yellow-rattle	Frequent	24-June-14
<i>Scabiosa columbaria</i>	Small Scabious	Locally frequent	24-June-14
<i>Succisa pratensis</i>	Devil's-bit Scabious	Rare	24-June-14
<i>Trifolium dubium</i>	Lesser Trefoil	Rare	24-June-14
<i>Trisetum flavescens</i>	Yellow Oat-grass	Occasional	24-June-14

Donor site 4 (Blackhall Rocks NR) NZ457405

<i>Agrostis stolonifera</i>	Creeping Bent	Frequent	24-June-14
<i>Ajuga reptans</i>	Bugle	Rare	24-June-14
<i>Angelica sylvestris</i>	Wild Angelica	Occasional	24-June-14
<i>Anthyllis vulneraria</i>	Kidney Vetch	Rare	24-June-14
<i>Blackstonia perfoliata</i>	Yellow-wort	Occasional	24-June-14
<i>Brachythecium sylvaticum</i>	Wood False-brome	Occasional	24-June-14
<i>Briza media</i>	Quaking-grass	Rare	24-June-14
<i>Carex flacca</i>	Glaucous Sedge	Frequent	24-June-14
<i>Carex nigra</i>	Common Sedge	Locally frequent	24-June-14
<i>Carex otrubae</i>	False Fox-sedge	Rare	24-June-14
<i>Centaurea nigra</i>	Common Knapweed	Occasional	24-June-14
<i>Centaureum erythraea</i>	Common Centaury	Rare	24-June-14
<i>Crepis capillaris</i>	Smooth Hawksbeard	Rare	24-June-14
<i>Cruciata laevipes</i>	Crosswort	Rare	24-June-14
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	Occasional	24-June-14
<i>Dactylorhiza purpurella</i>	Northern Marsh-orchid	Rare	24-June-14
<i>Danthonia decumbens</i>	Heath-grass	Rare	24-June-14
<i>Eupatorium cannabinum</i>	Hemp-agrimony	Rare	24-June-14
<i>Euphrasia officinalis agg.</i>	Eyebright	Rare	24-June-14
<i>Festuca rubra</i>	Red Fescue	Occasional	24-June-14
<i>Filipendula ulmaria</i>	Meadowsweet	Rare	24-June-14
<i>Galium verum</i>	Lady's Bedstraw	Rare	24-June-14
<i>Holcus lanatus</i>	Yorkshire Fog	Occasional	24-June-14
<i>Hypericum hirsutum</i>	Hairy St John's-wort	Rare	24-June-14
<i>Juncus articulatus</i>	Jointed Rush	Frequent	24-June-14
<i>Juncus conglomeratus</i>	Compact Rush	Occasional	24-June-14
<i>Juncus effusus</i>	Soft-rush	Rare	24-June-14
<i>Juncus inflexus</i>	Hard Rush	Occasional	24-June-14
<i>Lathyrus pratensis</i>	Meadow Vetchling	Occasional	24-June-14
<i>Leontodon hispidus</i>	Rough Hawkbit	Rare	24-June-14
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Occasional	24-June-14
<i>Linum catharticum</i>	Fairy Flax	Occasional	24-June-14
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	Frequent	24-June-14
<i>Luzula campestris</i>	Field Woodrush	Rare	24-June-14
<i>Medicago lupulina</i>	Black Medick	Rare	24-June-14
<i>Ononis repens</i>	Common Restharrow	Occasional	24-June-14
<i>Petasites hybridus</i>	Butterbur	Locally abundant	24-June-14

<i>Pilosella officinarum</i>	Mouse-ear Hawkweed	Rare	24-June-14
<i>Plantago lanceolata</i>	Ribwort Plantain	Frequent	24-June-14
<i>Plantago maritima</i>	Sea Plantain	Rare	24-June-14
<i>Polygala vulgaris</i>	Common Milkwort	Rare	24-June-14
<i>Potentilla reptans</i>	Creeping Cinquefoil	Occasional	24-June-14
<i>Primula veris</i>	Cowslip	Occasional	24-June-14
<i>Prunella vulgaris</i>	Self-heal	Occasional	24-June-14
<i>Pulicaria dysenterica</i>	Common Fleabane	Rare	24-June-14
<i>Rhinanthus minor</i>	Yellow-rattle	Occasional	24-June-14
<i>Stachys officinalis</i>	Betony	Rare	24-June-14
<i>Succisa pratensis</i>	Devil's-bit Scabious	Occasional	24-June-14
<i>Trifolium campestre</i>	Hop Trefoil	Rare	24-June-14
<i>Trifolium dubium</i>	Lesser trefoil	Rare	24-June-14
<i>Trifolium medium</i>	Zigzag Clover	Occasional	24-June-14
<i>Trifolium pratense</i>	Red Clover	Occasional	24-June-14
<i>Triglochin palustre</i>	Marsh Arrowgrass	Rare	24-June-14
<i>Ulex europaeus</i>	Gorse	Locally abundant	24-June-14
<i>Veronica chamaedrys</i>	Germander Speedwell	Rare	24-June-14
<i>Vicia cracca</i>	Tufted Vetch	Occasional	24-June-14

Donor site 5 (land between Limekiln Gill and Denemouth) NZ454406

<i>Agrimonia eupatoria</i>	Agrimony	Rare	24-June-14
<i>Agrostis capillaris</i>	Common Bent	Abundant	24-June-14
<i>Alchemilla filicaulis</i>	Common Lady's mantle	Rare	24-June-14
<i>Alchemilla glabra</i>	Hairless Lady's mantle	Rare	24-June-14
<i>Alchemilla xanthochlora</i>	Pale Lady's mantle	Rare	24-June-14
<i>Angelica sylvestris</i>	Wild Angelica	Occasional	24-June-14
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Abundant	24-June-14
<i>Brachythecium sylvaticum</i>	Wood False-brome	Rare	24-June-14
<i>Carex flacca</i>	Glaucous Sedge	Frequent	24-June-14
<i>Centaurea nigra</i>	Common Knapweed	Occasional	24-June-14
<i>Chamerion angustifolium</i>	Rosebay Willowherb	Locally abundant	24-June-14
<i>Cirsium arvense</i>	Creeping Thistle	Occasional	24-June-14
<i>Cirsium palustre</i>	Marsh Thistle	Rare	24-June-14
<i>Conopodium majus</i>	Pignut	Rare	24-June-14
<i>Cynosurus cristatus</i>	Crested Dog's-tail	Occasional	24-June-14
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	Occasional	24-June-14
<i>Dactylorhiza purpurella</i>	Northern Marsh-orchid	Rare	24-June-14
<i>Equisetum arvense</i>	Field Horsetail	Occasional	24-June-14
<i>Euphrasia officinalis agg.</i>	Eyebright	Occasional	24-June-14
<i>Festuca arundinacea</i>	Tall Fescue	Rare	24-June-14
<i>Festuca rubra</i>	Red Fescue	Frequent	24-June-14
<i>Filipendula ulmaria</i>	Meadowsweet	Rare	24-June-14
<i>Geranium pratense</i>	Meadow Crane's-bill	Rare	24-June-14
<i>Geranium sanguineum</i>	Bloody Crane's-bill	Rare	24-June-14
<i>Holcus lanatus</i>	Yorkshire Fog	Frequent	24-June-14
<i>Hypericum pulchrum</i>	Slender St. John's Wort	Rare	24-June-14
<i>Hypericum tetrapterum</i>	Square-stalked St John's-wort	Rare	24-June-14
<i>Hypochaeris radicata</i>	Common Catsear	Rare	24-June-14
<i>Juncus conglomeratus</i>	Compact Rush	Rare	24-June-14
<i>Lathyrus pratensis</i>	Meadow Vetchling	Occasional	24-June-14
<i>Linum catharticum</i>	Fairy Flax	Rare	24-June-14

<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	Frequent	24-June-14
<i>Luzula acmpestris</i>	Field Woodrush	Rare	24-June-14
<i>Ononis repens</i>	Common Restharrow	Rare	24-June-14
<i>Ophioglossum vulgatum</i>	Adderstongue Fern	Occasional	24-June-14
<i>Plantago lanceolata</i>	Ribwort Plantain	Frequent	24-June-14
<i>Potentilla anserina</i>	Silverweed	Occasional	24-June-14
<i>Potentilla erecta</i>	Tormentil	Occasional	24-June-14
<i>Potentilla reptans</i>	Creeping Cinquefoil	Occasional	24-June-14
<i>Prunella vulgaris</i>	Self-heal	Rare	24-June-14
<i>Ranunculus acris</i>	Meadow Buttercup	Frequent	24-June-14
<i>Ranunculus repens</i>	Creeping Buttercup	Occasional	24-June-14
<i>Rhinanthus minor</i>	Yellow-rattle	Frequent	24-June-14
<i>Rubus fruticosus agg.</i>	Bramble	Occasional	24-June-14
<i>Rumex acetosa</i>	Common Sorrel	Occasional	24-June-14
<i>Rumex obtusifolius</i>	Broad-leaved Dock	Rare	24-June-14
<i>Senecio erucifolius</i>	Hoary Ragwort	Occasional	24-June-14
<i>Senecio jacobaea</i>	Common Ragwort	Rare	24-June-14
<i>Trifolium medium</i>	Zigzag Clover	Occasional	24-June-14
<i>Trifolium pratense</i>	Red Clover	Occasional	24-June-14
<i>Trifolium repens</i>	White Clover	Occasional	24-June-14
<i>Veronica chamaedrys</i>	Germander Speedwell	Rare	24-June-14
<i>Vicia cracca</i>	Tufted Vetch	Rare	24-June-14
<i>Vicia tetrasperma</i>	Smooth Tare	Rare	24-June-14
<i>Viola riviniana</i>	Common Dog Violet	Rare	24-June-14

Receptor site 1 (DCC fields 0369, 2653) NZ473384

<i>Agrostis capillaris</i>	Common Bent	Occasional	24-June-14
<i>Agrostis stolonifera</i>	Creeping Bent	Abundant	24-June-14
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass	Rare	24-June-14
<i>Arrhenatherum elatius</i>	False Oat-Grass	Rare	24-June-14
<i>Carex flacca</i>	Glaucous Sedge	Occasional	24-June-14
<i>Centaurea nigra</i>	Common Knapweed	Occasional	24-June-14
<i>Cerastium fontanum</i>	Common Mouse-ear	Rare	24-June-14
<i>Cirsium arvense</i>	Creeping Thistle	Occasional	24-June-14
<i>Cynosurus cristatus</i>	Crested Dog's-tail	Occasional	24-June-14
<i>Dactylis glomerata</i>	Cock's-foot	Occasional	24-June-14
<i>Dactylorhiza fuchsii</i>	Common Spotted Orchid	Rare	24-June-14
<i>Dactylorhiza purpurella</i>	Northern Marsh Orchid	Rare	24-June-14
<i>Epilobium hirsutum</i>	Great Willowherb	Rare	24-June-14
<i>Festuca rubra</i>	Red Fescue	Frequent	24-June-14
<i>Filipendula ulmaria</i>	Meadowsweet	Rare	24-June-14
<i>Heracleum sphondylium</i>	Common Hogweed	Rare	24-June-14
<i>Holcus lanatus</i>	Yorkshire-fog	Frequent	24-June-14
<i>Hypochaeris radicata</i>	Cat's-ear	Rare	24-June-14
<i>Lathyrus pratensis</i>	Meadow Vetchling	Occasional	24-June-14
<i>Leontodon hispidus</i>	Rough Hawkbit	Rare	24-June-14
<i>Lotus corniculatus var. sat</i>	Birdsfoot Trefoil	Abundant	24-June-14
<i>Medicago lupulina</i>	Black Medick	Rare	24-June-14
<i>Odontites vernus</i>	Red Bartsia	Rare	24-June-14
<i>Plantago lanceolata</i>	Ribwort Plantain	Occasional	24-June-14
<i>Poa trivialis</i>	Rough Meadow-grass	Frequent	24-June-14
<i>Pulicaria dysenterica</i>	Common Fleabane	Occasional	24-June-14

<i>Rhinanthus minor</i>	Yellow-rattle	Frequent	24-June-14
<i>Rumex crispus</i>	Curled Dock	Rare	24-June-14
<i>Salix caprea</i>	Goat Willow	Rare	24-June-14
<i>Senecio erucifolius</i>	Hoary Ragwort	Rare	24-June-14
<i>Taraxacum officinale</i>	Dandelion	Frequent	24-June-14
<i>Trifolium dubium</i>	Lesser Trefoil	Rare	24-June-14
<i>Trifolium medium</i>	Zigzag Clover	Rare	24-June-14
<i>Trifolium pratense</i>	Red Clover	Frequent	24-June-14
<i>Trifolium repens</i>	White Clover	Abundant	24-June-14
<i>Trisetum flavescens</i>	Yellow Oat-grass	Rare	24-June-14
<i>Vicia cracca</i>	Tufted Vetch	Occasional	24-June-14
<i>Vicia sativa</i>	Common Vetch	Occasional	24-June-14
<i>Vicia tetrasperma</i>	Smooth Tare	Rare	24-June-14

Receptor site 2 (DCC fields 5141, 7309) NZ465393

<i>Agrostis capillaris</i>	Common Bent	Occasional	24-June-14
<i>Agrostis stolonifera</i>	Creeping Bent	Frequent	24-June-14
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass	Abundant	24-June-14
<i>Anthyllis vulneraria</i>	Kidney Vetch	Rare	24-June-14
<i>Blackstonia perfoliata</i>	Yellow-wort	Rare	24-June-14
<i>Carex flacca</i>	Glaucous Sedge	Rare	24-June-14
<i>Centaurea nigra</i>	Common Knapweed	Rare	24-June-14
<i>Cirsium palustre</i>	Marsh Thistle	Rare	24-June-14
<i>Cynosurus cristatus</i>	Crested Dogstail	Occasional	24-June-14
<i>Dactylorhiza fuchsii</i>	Common Spotted Orchid	Rare	24-June-14
<i>Dactylis glomerata</i>	Cocksfoot	Frequent	24-June-14
<i>Daucus carota</i>	Wild Carrot	Rare	24-June-14
<i>Euphrasia officinalis</i> agg.	Eyebright	Rare	24-June-14
<i>Filipendula ulmaria</i>	Meadowsweet	Rare	24-June-14
<i>Galium verum</i>	Lady's Bedstraw	Rare	24-June-14
<i>Heracleum sphondylium</i>	Common Hogweed	Locally abundant	24-June-14
<i>Holcus lanatus</i>	Yorkshire Fog	Abundant	24-June-14
<i>Hypochaeris radicata</i>	Cat's-ear	Rare	24-June-14
<i>Juncus conglomeratus</i>	Compact Rush	Rare	24-June-14
<i>Leontodon hispidus</i>	Rough Hawkbit	Rare	24-June-14
<i>Lotus corniculatus</i> var. <i>sativus</i>	Birdsfoot Trefoil	Frequent	24-June-14
<i>Medicago lupulina</i>	Black Medick	Occasional	24-June-14
<i>Melilotus altissimus</i>	Tall Melilot	Occasional	24-June-14
<i>Odontites vernus</i>	Red Bartsia	Rare	24-June-14
<i>Plantago lanceolata</i>	Ribwort Plantain	Frequent	24-June-14
<i>Primula veris</i>	Cowslip	Occasional	24-June-14
<i>Pulicaria dysenterica</i>	Common Fleabane	Occasional	24-June-14
<i>Ranunculus acris</i>	Meadow Buttercup	Occasional	24-June-14
<i>Rhinanthus minor</i>	Yellow-rattle	Frequent	24-June-14
<i>Rumex acetosa</i>	Common Sorrel	Rare	24-June-14
<i>Sanguisorba officinalis</i>	Great Burnet	Rare	24-June-14
<i>Senecio erucifolius</i>	Hoary Ragwort	Rare	24-June-14
<i>Trifolium pratense</i>	Red Clover	Abundant	24-June-14
<i>Trifolium repens</i>	White Clover	Abundant	24-June-14
<i>Trisetum flavescens</i>	Yellow Oat-grass	Occasional	24-June-14
<i>Vicia cracca</i>	Tufted Vetch	Occasional	24-June-14
<i>Vicia hirsuta</i>	Hairy Tare	Occasional	24-June-14

<i>Vicia sepium</i>	Bush Vetch	Rare	24-June-14
<i>Vicia tetrasperma</i>	Smooth Tare	Occasional	24-June-14

Receptor site 3 (DCC fields 9508, 1187) NZ462396

<i>Agrostis stolonifera</i>	Creeping Bent	Abundant	24-June-14
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid	Rare	24-June-14
<i>Anthyllis vulneraria</i>	Kidney Vetch	Occasional	24-June-14
<i>Arrhenatherum elatius</i>	False Oat-grass	Locally abundant	24-June-14
<i>Blackstonia perfoliata</i>	Yellow-wort	Rare	24-June-14
<i>Briza media</i>	Quaking Grass	Frequent	24-June-14
<i>Carex flacca</i>	Glaucous Sedge	Abundant	24-June-14
<i>Centaurea nigra</i>	Common Knapweed	Rare	24-June-14
<i>Cirsium palustre</i>	Marsh Thistle	Rare	24-June-14
<i>Cynosurus cristatus</i>	Crested Dogstail	Occasional	24-June-14
<i>Dactylorhiza fuchsii</i>	Common Spotted orchid	Occasional	24-June-14
<i>Dactylorhiza purpurella</i>	Northern Marsh Orchid	Rare	24-June-14
<i>Dactylis glomerata</i>	Cocksfoot	Frequent	24-June-14
<i>Euphrasia officinalis agg.</i>	Eyebright	Rare	24-June-14
<i>Festuca arundinacea</i>	Tall Fescue	Abundant	24-June-14
<i>Festuca rubra</i>	Red Fescue	Frequent	24-June-14
<i>Galium verum</i>	Lady's Bedstraw	Rare	24-June-14
<i>Holcus lanatus</i>	Yorkshire Fog	Occasional	24-June-14
<i>Hypochaeris radicata</i>	Cat's-ear	Rare	24-June-14
<i>Lathyrus pratensis</i>	Meadow Vetchling	Occasional	24-June-14
<i>Leontodon hispidus</i>	Rough Hawkbit	Occasional	24-June-14
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Rare	24-June-14
<i>Linum catharticum</i>	Fairy Flax	Rare	24-June-14
<i>Lotus corniculatus</i>	Birdsfoot Trefoil	Frequent	24-June-14
<i>Medicago lupulina</i>	Black Medick	Frequent	24-June-14
<i>Odontites vernus</i>	Red Bartsia	Rare	24-June-14
<i>Primula veris</i>	Cowslip	Occasional	24-June-14
<i>Pulicaria dysenterica</i>	Common Fleabane	Rare	24-June-14
<i>Rhinanthus minor</i>	Yellow-rattle	Occasional	24-June-14
<i>Senecio erucifolius</i>	Hoary Ragwort	Occasional	24-June-14
<i>Trifolium campestre</i>	Hop Trefoil	Rare	24-June-14
<i>Trifolium dubium</i>	Lesser Trefoil	Rare	24-June-14
<i>Trifolium pratense</i>	Red Clover	Frequent	24-June-14
<i>Trifolium repens</i>	White Clover	Frequent	24-June-14
<i>Trisetum flavescens</i>	Yellow Oat-grass	Occasional	24-June-14
<i>Vicia cracca</i>	Tufted Vetch	Occasional	24-June-14
<i>Vicia hirsuta</i>	Hairy Tare	Rare	24-June-14
<i>Vicia sativa</i>	Common Vetch	Rare	24-June-14
<i>Vicia tetrasperma</i>	Smooth Tare	Rare	24-June-14

Receptor site 4 (NT field north of Foxholes Dene) NZ443438

<i>Agrostis capillaris</i>	Common Bent	Frequent	08-July-14
<i>Agrostis stolonifera</i>	Creeping Bent	Abundant	08-July-14
<i>Angelica sylvestris</i>	Wild Angelica	Rare	08-July-14
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass	Rare	08-July-14
<i>Arrhenatherum elatius</i>	False Oat-grass	Rare	08-July-14

<i>Blackstonia perfoliata</i>	Yellow-wort	Rare	08-July-14
<i>Carex flacca</i>	Glaucous Sedge	Rare	08-July-14
<i>Centaurea nigra</i>	Common Knapweed	Rare	08-July-14
<i>Centaureum erythraea</i>	Common Centaury	Rare	08-July-14
<i>Cerastium fontanum</i>	Common Mouse-ear	Rare	08-July-14
<i>Chamerion angustifolium</i>	Rosebay Willowherb	Rare	08-July-14
<i>Cirsium arvense</i>	Creeping Thistle	Occasional	08-July-14
<i>Cirsium palustre</i>	Marsh Thistle	Rare	08-July-14
<i>Cirsium vulgare</i>	Spear Thistle	Rare	08-July-14
<i>Cynosurus cristatus</i>	Crested Dogstail	Occasional	08-July-14
<i>Dactylis glomerata</i>	Cocksfoot	Frequent	08-July-14
<i>Dactylorhiza fuchsii</i>	Common Spotted Orchid	Occasional	08-July-14
<i>Daucus carota</i>	Wild Carrot	Rare	08-July-14
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	Rare	08-July-14
<i>Festuca arundinacea</i>	Tall Fescue	Occasional	08-July-14
<i>Festuca rubra</i>	Red Fescue	Occasional	08-July-14
<i>Filipendula ulmaria</i>	Meadowsweet	Rare	08-July-14
<i>Holcus lanatus</i>	Yorkshire Fog	Abundant	08-July-14
<i>Hypericum pulchrum</i>	Slender St John's-wort	Rare	08-July-14
<i>Hypochaeris radicata</i>	Cat's-ear	Frequent	08-July-14
<i>Juncus conglomeratus</i>	Compact Rush	Rare	08-July-14
<i>Juncus inflexus</i>	Hard Rush	Rare	08-July-14
<i>Lathyrus pratensis</i>	Meadow Vetchling	Rare	08-July-14
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	Occasional	08-July-14
<i>Medicago lupulina</i>	Black Medick	Rare	08-July-14
<i>Odontites vernus</i>	Red Bartsia	Rare	08-July-14
<i>Picris echioides</i>	Bristly Oxtongue	Rare	08-July-14
<i>Plantago lanceolata</i>	Ribwort Plantain	Rare	08-July-14
<i>Potentilla reptans</i>	Creeping Cinquefoil	Rare	08-July-14
<i>Prunella vulgaris</i>	Self-heal	Rare	08-July-14
<i>Pulicaria dysenterica</i>	Common Fleabane	Occasional	08-July-14
<i>Ranunculus acris</i>	Meadow Buttercup	Rare	08-July-14
<i>Ranunculus repens</i>	Creeping Buttercup	Occasional	08-July-14
<i>Rhinanthus minor</i>	Yellow Rattle	Rare	08-July-14
<i>Rubus fruticosus</i> agg.	Bramble	Rare	08-July-14
<i>Senecio erucifolius</i>	Hoary Ragwort	Occasional	08-July-14
<i>Senecio jacobaea</i>	Common Ragwort	Rare	08-July-14
<i>Succisa pratensis</i>	Devilsbit Scabious	Rare	08-July-14
<i>Trifolium campestre</i>	Hop Trefoil	Occasional	08-July-14
<i>Trifolium dubium</i>	Lesser Trefoil	Occasional	08-July-14
<i>Trifolium pratense</i>	Red Clover	Occasional	08-July-14
<i>Trifolium repens</i>	White Clover	Abundant	08-July-14
<i>Vicia cracca</i>	Tufted Vetch	Rare	08-July-14
<i>Vicia hirsuta</i>	Hairy Tare	Occasional	08-July-14
<i>Vicia tetrasperma</i>	Smooth Tare	Rare	08-July-14

Receptor site 5 (NT field north of Busier's Hole)

NZ442442

<i>Achillea millefolium</i>	Yarrow	Rare	08-July-14
<i>Agrostis capillaris</i>	Common Bent	Locally frequent	08-July-14
<i>Agrostis stolonifera</i>	Creeping Bent	Frequent	08-July-14
<i>Angelica sylvestris</i>	Wild Angelica	Rare	08-July-14
<i>Anthyllis vulneraria</i>	Kidney Vetch	Rare	08-July-14

<i>Arrhenatherum elatius</i>	False Oat-Grass	Occasional	08-July-14
<i>Blackstonia perfoliata</i>	Yellow-wort	Rare	08-July-14
<i>Carex flacca</i>	Glaucous Sedge	Occasional	08-July-14
<i>Centaurea nigra</i>	Common Knapweed	Rare	08-July-14
<i>Centaureum erythraea</i>	Common Centaury	Rare	08-July-14
<i>Cerastium fontanum</i>	Common Mouse-ear	Rare	08-July-14
<i>Cirsium arvense</i>	Creeping Thistle	Occasional	08-July-14
<i>Cirsium vulgare</i>	Spear Thistle	Occasional	08-July-14
<i>Crepis capillaris</i>	Smooth Hawk's-beard	Occasional	08-July-14
<i>Dactylis glomerata</i>	Cocksfoot	Frequent	08-July-14
<i>Daucus carota</i>	Wild Carrot	Rare	08-July-14
<i>Equisetum arvense</i>	Field Horsetail	Rare	08-July-14
<i>Festuca rubra</i>	Red Fescue	Occasional	08-July-14
<i>Festuca arundinacea</i>	Tall Fescue	Frequent	08-July-14
<i>Filipendula ulmaria</i>	Meadowsweet	Rare	08-July-14
<i>Heracleum sphondylium</i>	Common Hogweed	Occasional	08-July-14
<i>Holcus lanatus</i>	Yorkshire Fog	Abundant	08-July-14
<i>Hypochaeris radicata</i>	Cat's-ear	Locally frequent	08-July-14
<i>Lathyrus pratensis</i>	Meadow Vetchling	Rare	08-July-14
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Rare	08-July-14
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	Occasional	08-July-14
<i>Lolium perenne</i>	Perennial Rye-grass	Occasional	08-July-14
<i>Medicago lupulina</i>	Black Medick	Rare	08-July-14
<i>Odontites vernus</i>	Red Bartsia	Rare	08-July-14
<i>Picris echioides</i>	Bristly Oxtongue	Rare	08-July-14
<i>Pilosella aurantiaca</i>	Fox-and-cubs	Rare	08-July-14
<i>Plantago lanceolata</i>	Ribwort Plantain	Occasional	08-July-14
<i>Pulicaria dysenterica</i>	Common Fleabane	Occasional	08-July-14
<i>Ranunculus acris</i>	Meadow Buttercup	Rare	08-July-14
<i>Ranunculus repens</i>	Creeping Buttercup	Occasional	08-July-14
<i>Senecio erucifolius</i>	Hoary Ragwort	Occasional	08-July-14
<i>Tragopogon pratensis</i>	Goat's-beard	Rare	08-July-14
<i>Trifolium campestre</i>	Hop Trefoil	Occasional	08-July-14
<i>Trifolium medium</i>	Zigzag Clover	Rare	08-July-14
<i>Trifolium pratense</i>	Red Clover	Occasional	08-July-14
<i>Trifolium repens</i>	White Clover	Abundant	08-July-14
<i>Trisetum flavescens</i>	Yellow Oat-grass	Rare	08-July-14
<i>Tussilago farfara</i>	Colt's-foot	Rare	08-July-14
<i>Vicia cracca</i>	Tufted Vetch	Occasional	08-July-14
<i>Vicia hirsuta</i>	Hairy Tare	Occasional	08-July-14
<i>Vicia tetrasperma</i>	Smooth Tare	Rare	08-July-14