280000 280500 281000

635000

634500

125 124 123 122 121 120 119 118 117 116 115 114 113 112

Legend:
- Allignment
- Structure
- 250m Buffer
- Standing Water
- Swamp
- Running Water
- Ditch

GWDTE Category
- Class 1 - High Dependency
- Class 2 - Moderate Dependency
- Class 2/3 - Moderate / Little Dependency

Rev	Date	Description	Dm	Chk	App
00	17/02/2021	2480372	RG	SP	RM

Kennoxhead OHL

RSK biocensus
EXPERTS IN ECOLOGY

Figure 2
Groundwater Dependent Terrestrial Ecosystems (GWDTE)
Map 9 of 11

0 100 200
Metres
SCALE: 1:5,000 @ A3

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126
Coalburn Moss SAC
Coalburn Moss SSSI

Legend:
- Allignment
- Structure
- 250m Buffer
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Standing Water
- Swamp
- Running Water
- Ditch

GWDTE Category
- Class 1 - High Dependency
- Class 2 - Moderate Dependency

Rev	Date	Description	Dm	Chk	App
00	17/02/2021	2480372	RG	SP	RM

Kennoxhead OHL

RSK biocensus
EXPERTS IN ECOLOGY

Figure 2
Groundwater Dependent Terrestrial Ecosystems (GWDTE)
Map 10 of 11

0 100 200
Metres
SCALE: 1:5,000 @ A3

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149 148 147 146 145 144 143 142 141

Coalburn Moss SAC

Coalburn Moss SSSI

Legend:

- Allignment
- Structure
- Coalburn Collector Substation
- 250m Buffer
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Standing Water
- Swamp
- Ditch

GWDTE Category

- Class 1 - High Dependency
- Class 2 - Moderate Dependency

Rev	Date	Description	Dm	Chk	App
00	17/02/2021	2480372	RG	SP	RM

Kennoxhead OHL

RSK biocensus
EXPERTS IN ECOLOGY

Figure 2
Groundwater Dependent Terrestrial Ecosystems (GWDTE)
Map 11 of 11

0 100 200
Metres
SCALE: 1:5,000 @ A3

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APPENDIX A- NVC COMMUNITY DESCRIPTIONS

M6 *Carex echinata-Sphagnum recurvum/auriculatum* mire

5.1.7 M6 mires include a range of communities in which there is a consistent assemblage of Flat-topped Bog-moss (***Sphagnum fallax***), Blunt-leaved Bog-moss (***S. palustre***), Haircap moss (***Polytrichum*** commune) and vascular plants such as Tormentil (***Potentilla erecta***) and Marsh Violet (***Viola palustris***) under a sward of sedges or rushes.

5.1.8 This mire is the major soligenous community of peats and peaty gleys irrigated by base poor waters in the sub-montane zone of northern and western Britain. It typically occurs as small stands among other mire communities, grasslands and heaths, and is sometimes found with swamp and spring vegetation. It is commonly found in tracts of unenclosed pasture on upland fringes, particularly between 200 m and 400 m (although it may also be found much higher) and is ubiquitous in the upland fringes of Britain (Rodwell et al., 1991; Elkington et al., 2001). The M6 community has a distinct general character but includes a wide variation in species composition, expressed as four sub-communities (two of which are visually similar to the M23 community). It is essentially a poor- fen with small sedges or rushes dominating over a carpet of oligotrophic and base-intolerant ***Sphagna*** (Rodwell et al., 1991; Elkington et al., 2001).

5.1.9 M6 is localised within the study area, present mostly as small flushes, runnels or soakways, and along and within occluding ditches and around minor watercourses; however, it also occurs as a notable component of the habitats forming mosaics with other mires and wetland communities, in particular M23 and M25.

M6c *Carex echinata-Sphagnum recurvum/auriculatum* mire, *Juncus effusus* sub-community

5.1.10 This is tall rush mire in which tussocks of Soft rush (Juncus effusus) grow abundantly among lower carpets of the mosses Flat-topped Bog-moss (***S. fallax***), Blunt-leaved Bog-moss (***S. palustre***), Compact Bog-moss (***S. compactum***), Fat Bog-moss (***S. papillosum***) and), Haircap moss (***P. commune***). Other species include Tormentil (***P. erecta***), Heath bedstraw (***Galium saxatile***), Marsh thistle (***Cirsium palustre***), Star sedge (***Carex echinata***), Marsh violet (***Viola palustris***), Sheeps fescue (***Festuca ovina***), Heath-plait moss (***Hypnum jutlandicum***) and Purple-Moor grass (***Molinia caerulea***). This habitat can be found along wet hollows, flushes seepage lines, dips and gullies. This community is found in association with M23, M25 and M6d habitats.

M6d *Carex echinata-Sphagnum recurvum/auriculatum* mire, *Juncus acutiflorus* sub-community

5.1.11 This M6d community is characterised by the deep green sward of Sharp-flowered rush (***J. acutiflorus***) and the same herbs as in M6c are frequent. M6d can be found as a mosaic with M23b and M6c. It can also be found forming a mosaic community with M25. The M6 mires occur in wet hollows, seepage lines, flushes, shallow gullies and

along the margins of streams within expanses of blanket mire, dwarf shrub heath or acid grassland. Much of this habitat is located as described for M6c community.

M15 *Trichophorum cespitosum-Erica tetralix* wet heath

5.1.12 M15 is a wet heath community which consists of a mixture of Heather (***Calluna vulgaris***), Bell Heather (***Erica tetralix***), Cross-leaved Heather (***Erica tetralix***), Purple Moor-grass (***Molinia caerulea***) and Deergrass (***Trichophorum germanicum***), dotted with Tormentil (***Potentilla erecta***) and Bog asphodel (***Narthecium ossifragum***). There is a bryophyte layer of Acute-leaved bog-moss (***Sphagnum capillifolium***), Cow-horn bog-moss (***S. denticulatum***), Bristly Swan-neck Moss (***Campylopus atrovirens***) and, more locally, Golden-Head moss (***Breutelia chrysocoma***) and Purple Spoonwort (***Pleurozia purpurea***). This habitat was mainly associated with re-claimed mining areas with associated M15b and M15d sub communities in which various plant dominance was noted.

M15b *Trichophorum cespitosum-Erica tetralix* wet heath, typical sub community

5.1.13 This is wet heath vegetation ***c.***30 cm tall, consisting mainly of a mixture of Purple-Moor grass (***Molinia caerulea***), Cross-leaved-heath (***Erica tetralix***), Heather (***Calluna vulgaris***) and Bog myrtle (***Myrica gale***). This vegetation type has few constants leading to a wide variation in the pattern of plant dominance and its associated flora. ***Calluna vulgaris***, ***Erica tetralix, Molinia caerulea*** and with lesser of ***Myrica gale*** and it's the mixtures of these plant species that gives the vegetation its general character. This community also contains Blaeberry (***Vaccinium myrtillus***) but in a lower abundance. There are a variety of Sphagnum species present such as Blunt-leaved Bog-moss (***Sphagnum palustre***), Flat-topped Bog-moss (***Sphagnum fallax***), Compact Bog-moss (***Sphagnum compactum***) and Fat Bog-moss (***Sphagnum papillosum***) being dominant in some sections.

5.1.14 This habitat is generally associated with wet, but not waterlogged, conditions in areas of better-drained peat, thin peat or sloping ground (**Error! Reference source not found.**). and larger areas of the wet heath habitat forms mosaics with blanket bog and ***Molinea*** grassland.

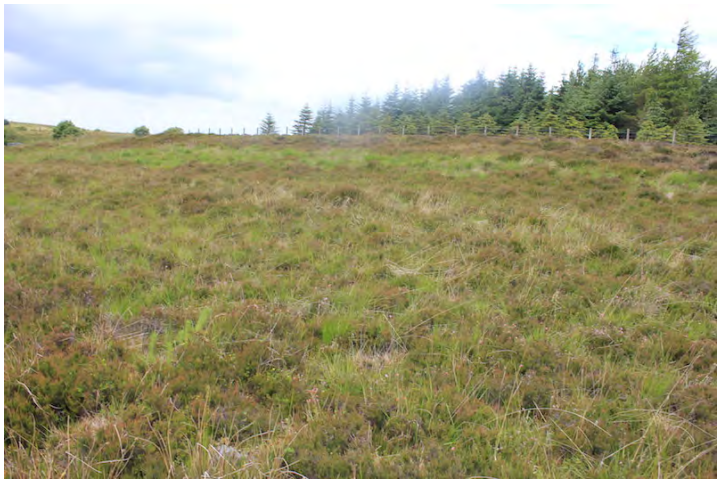

Photo 1: **Wet heath (M15b) on sloping ground near conifer plantation and within the open cast**

M15d *Trichophorum cespitosum-Erica tetralix* wet heath, *Vaccinium myrtillus* sub community

5.1.15 Areas of M15d were found in association within the overall M15 community and located in drier sections and in association with a more abundant grass assemblage. This was evident near the top of some slopes and where ground had been disturbed due to the mining habitat reclamation process and on some spoil heaps. Grasses were characterized by Mat grass (***Nardus stricta***) and Wavy hair-grass (***Deschampsia flexuosa***). The other floristics included Heath rush (***Juncus squarrosus***) and Blaeberry (***Vaccinium myrtillus***). M15d is the driest type of ***Trichophorum-Erica*** wet heath and has mosses such as Broom Fork-moss (***Dicranum scoparium***), Red-stemmed Feather-moss (***Pleurozium schreberi***) and Heath Plait-moss (***Hypnum jutlandicum***), rather than Sphagna.

M17 *Trichophorum germanicum – Eriophorum vaginatum* blanket mire

5.1.16 The M17 blanket mire is the characteristic blanket bog vegetation of the more oceanic parts of Britain. It is typically found on deposits that are maintained in a permanently waterlogged state by a high and generally stagnant water-table (Rodwell et al., 1991; Elkington et al., 2001). It usually occurs on deeper peats, i.e. greater than 2 m in depth over flat or gently sloping ground (Rodwell et al., 1991). However, it can also occur extensively on shallower peat. This community is dominated by mixtures of monocotyledons, ericoid sub-shrubs and Sphagnum spp. where tussocks of Hares-tail cotton-grass (***Eriophorum vaginatum)*** and Deergrass (***Trichophorum germanicum)*** grow abundantly among mixtures of Purple moor-grass ***(Molinea caerulea),*** Heather ***(Calluna vulgaris),*** Cross leaved-heath ***(Erica tetralix),*** Blaeberry (***Vaccinium myrtillus*****),** Heath rush (***Juncus squarrosus*****),** Bog asphodel (***Narthecium ossifragum*****),** round-leaved sundew ***(Drosera rotundifolia),*** Tormentil ***(Potentilla erecta)*** and the mosses Acute-leaved bog-moss (***Sphagnum capillifolium***), Flat-topped Bog-moss (***Sphagnum fallax*****),** Flat-topped Bog-moss (***Sphagnum fallax*****),** Feather bog-moss (***S. cuspidatum), Heath Plait-moss (Hypnum jutlandicum)*** and Red-stemmed Feather-moss (***Pleurozium schreberi***). It can occur as extensive, relatively uniform tracts, or as hummock and hollow complexes, with this community giving way to bog pool vegetation in the hollows (Rodwell et al., 1991; Elkington et al., 2001). Burning, marginal peat-cutting, and drainage have often resulted in surface drying of the peat and hence a modification of the vegetation or community shift (Rodwell et al., 1991; Elkington et al., 2001).

5.1.17 M17 is found mainly in the lower altitude and flatter expanses of the study area. Mosaics of M17, M19 and M6d are located on the flatter downslope areas of Windrow Hill. Areas of M17 forming a mosaic with M20 and M25 are located west of Coalburn village and a larger expanse can be found as a mosaic with M19a, M18, M20 and M25 west of Glaikhead and as part of Coalburn Moss SSSI/SAC. The areas of M17 are mostly grazed, and there is evidence of historical attempts at drainage, however despite this the majority of the blanket mire remains in a reasonable condition and most areas are active mire/peat-forming, or capable of peat formation. There are signs of moor burning located to the north-west of Coalburn village.

M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire

5.1.18 This bog vegetation on wet, more or less level ground, resembles the M17 vegetation described above but with much Cranberry (***Vaccinium oxycoccos)*** and/or ***Sphagnum***

megallanicum. The rest of the vegetation consists mainly of Hares-tail cotton-grass (***Eriophorum vaginatum), Purple moor grass (Molinia caerulea***), Cross leaved-heath (***Erica tetralix),*** Deergrass ***(Trichophorum germanicum),Heather (Calluna vulgaris)*** and the mosses Flat-topped Bog-moss (***Sphagnum fallax*****),** Acute-leaved bog-moss ***(S. capillifolium),*** Blunt-leaved Bog-moss ***(S. palustre*****),** Fat Bog-moss ***(S. papillosum),*** Haircap moss ***(Polytrichum commune***), Bog haircap moss (***P. strictum)*** and the bog groove-moss (***Aulacomnium palustre)***. M18a bog was found in mosaics with M19a, M20 and M25. The M18 is also associated with mires that have undergone modification, such as drainage, grazing and burning.

M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire

5.1.19 There are stands of M19 on gentle slopes within the study area and associated with the other mires but on peat that tends to be drier and there is an abundance of ***Calluna*** which makes it well defined, from the sub-category M19a. There is a tussocky sward of Heather (***Calluna vulgaris***) and Hares-tail cotton-grass (***Eriophorum vaginatum***), speckled with the long, deep-green leaves of the Common cotton grass (***E. angustifolium***), straggling shoots of Blaeberry (***Vaccinium myrtillus***), and low clumps of Crowberry (***Empetrum nigrum ssp. Nigrum***). It would appear that this community has gone through some form of modification in its past.

M19*a Calluna vulgaris-Eriophorum vaginatum* blanket mire*; Erica tetralix* sub community

5.1.20 This is vegetation ***c.***30-40 cm tall, consisting of Hare's-tail cotton grass (***E. vaginatum***), Heather (***Calluna vulgaris***) and Cross leaved-heath (***E. tetralix***), in a higher density with small patches of Bog asphodel (***Narthecium ossifragum***). There are mixtures of the mosses Red Bog-moss (***S. capillifolium***), Fat Bog-moss ***(S. papillosum***), Heath plait-moss (***Hypnum jutlandicum***), and Red-stemmed feather-moss (***Pleurozium schreberi***), and small quantities of other vascular species including Purple moor-grass ***(Molinea caerulea***), Wavy hair-grass (***Deschampsia flexuosa*****),** Blaeberry ***(Vaccinium myrtillus***) and Crowberry ***(Empetrum nigrum*****),** Small cranberry (***Vaccinium oxycoccos***) was locally abundant within this wet heath. The M19a sub community tends to be found in lower altitudes, below 300 m (**Error! Reference source not found.**), compared with that of the other M19 sub communities, which are above 300 m and on deep peat. This habitat is evident by its dark ***Calluna*** sward in among the M18 and M25 communities of the surrounding habitats.

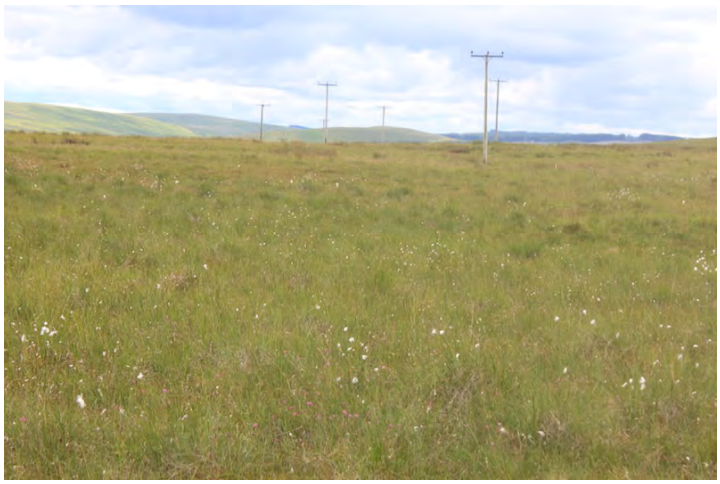

Photo 2: **M19a bog habitat in the expanse between the dismantled railway and Windrow burn**

M20 *Eriophorum vaginatum* blanket and raised mire

5.1.21 This type of bog vegetation contains abundant tussocks of Hare's-tail cotton grass (***Eriophorum vaginatum***), however, Heather (***Calluna vulgaris***) is very sparse and the moss carpets consist mainly of Red Bog-moss (***Sphagnum capillifolium***), Haircap moss (***Polytrichum commune***) and Red-stemmed feather-moss (***Pleurozium schreberi***). Heath rush (***Juncus squarrosus***) is generally common in this vegetation, and there is typically also some Wavy hair-grass (***Deschampsia flexuosa***), Velvet bent (***Agrostis canina***), Mat grass (***Nardus stricta***), Black sedge (***Carex nigra***) and Blaeberry (***Vaccinium myrtillus***). M20 ***E. vaginatum*** blanket mire is a community characteristic of ombrogenous peats on bogs where certain treatments have greatly affected the vegetation; grazing and burning have been of greatest significance, but drainage has also played a part in the development of M20 (Rodwell et al., 1991; Elkington et al., 2001). It is common on blanket mires where these factors have contributed both to floristic impoverishment and to erosion of the peats. The peats are generally drier than in M17 and most M19 bogs, often showing surface oxidation (Rodwell et al., 1991; Elkington et al., 2001).

5.1.22 M20 is one of the common mires in the study area. As is typical all areas of M20 are thickly dominated by a sward of tussocky ***E. vaginatum***, it is likely the extensiveness of M20 in the study area is a consequence of a long history of grazing pressure resulting in the loss of most sub-shrubs in the sward, exacerbated by historical drainage of the peatland (Burning is also evident in some areas). Over grazing can be evident in some sections of M20 and is becoming grassy.

M20a *Eriophorum vaginatum* blanket and raised mire, species-poor sub community

5.1.23 The M20a is the species-poor sub community of M20. It is a bleak, patchy sward made up of tussocks of ***E. vaginatum*** intermingled with shoots of ***E. angustifolium*** and in some places a little Wavy Hair grass (***Deschampsia flexuosa***). The peat surface can have a thin layer of algae and can be furred over with the silvery shoots of the introduced moss Heath star-moss (***Campylopus introflexus***). Sphagnum species (***S. capillifolium*** & ***S***

papillosum) are few, it at all present. This habitat has been found close to areas of bare peat, disturbed ground where grazing and burning have occurred.

M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture

5.1.24 This rush-pasture is a community of gently-sloping ground in and around the margins of soligenous flushes, as a zone around topogenous mires and wet heaths, and in poorly drained, comparatively unimproved or reverted pasture or grassland. They M23 occurs on peaty mineral soils and in stagnant areas, with soils acid to neutral and are kept wet due to flushing and seepage and some standing water and in poorly drained valleys, gentle sloping hillsides and along stream margins, kept wet by seepage and flushing. The water table is at or above the surface with standing water a main feature of this community. As a result, this community can be, at least partially, potentially dependent on groundwater; however, it is also commonly associated with surface water flows and surface water collection. Acidophilous ***Sphagna*** and Haircap moss (***Polytrichum commune)*** are rare in the M23 community (Averis ***et al.,*** 2004).

5.1.25 M23 is quite common throughout the study area, with the sub communities M23a and M23b found. Large expanses are located at lower altitudes around watercourse floodplains and in damp grazing pastures and gently sloping ground.

5.1.26 M23 can also be found as mosaics and forming transitional areas with M6, M25, MG10 and grassland of U4, U5 and U6. There are larger expanses of M23 on the hill slopes to the north of Glespin and as the route makes its way through Douglas West and on to Coalburn and beyond. This Soft Rush (***Juncus effusus***) community tends to be the dominant species in open grassland fields that have been improved for grazing with poor drainage and along drainage lines on hillsides. Multiple drainage channels are also evident on the slopes of hillsides and within grazing fields where linear habitats are formed. Where drainage lines of M23 converge there are larger expanses of this community.

5.1.27 The community as a whole is quite species-poor throughout the whole study area, being dominated by mixtures of ***Juncus effusus*** and/or ***Juncus acutiflorus*** with patches of a low diversity of grasses such as Tufted Hair-grass (***Deschampsia cespitosa)***, Yorkshire fog grass (***Holcus lanatus)***, Rough-stalked meadow grass (***Poa trivialis)***, Sweet Vernal grass (***Anthoxanthum odoratum)*** and Bentgrass spp. (***Agrostis*** spp). The herb layer, where present, is usually dominated by White clover (***Trifolium repens)***, Common sorrel (***Rumex acetosa)*** and Creeping buttercup (***Ranunculus repens***.) The floristic diversity is low overall., however, more characteristic areas of M23 only contained rare to occasional typical associate species, which were absent from many stands.

5.1.28 The following additional species were incidentally recorded in some areas, and in particular at the open field at Douglas West (**Error! Reference source not found.**); Jointed rush (***Juncus articulates),*** Marsh thistle ***(Cirsium palustre***), Cuckoo flower ***(Cardamine pratensis),*** Ragged robin ***(Lychnis flos-cuculi),***Selfheal ***(Prunella vulgaris),*** Heath spotted orchid ***(Dactylorhiza maculata),*** Marsh willow-herb ***(Epilobium palustre***), Black sedge ***(Carex nigra),*** Oval sedge ***(C. leporine),*** Marsh marigold ***(Caltha palustris),*** Meadowsweet ***(Filipendula ulmaria),*** Broad-leaved dock ***(Rumex obtusifolius),*** Marsh violet ***(Viola palustris***), Marsh bedstraw ***(Galium palustre),*** Lesser spearwort ***(Ranunculus flammula),*** Bog bean ***(Menyanthes trifoliata),*** Devils bit scabious ***(Succisa pratensis),*** Marsh lousewort ***(Pedicularis palustris),*** Marsh Hawks-beard ***(Crepis***

paludosa), Marsh cinquefoil ***(Potentilla palustris),*** Tormentil ***(P. erecta),*** Marsh pennywort ***(Hydrocotyle vulgaris),*** Purple moor-grass ***(Molinia caerulea),*** Meadow vetchling ***(Lathyrus pratensis),*** Thyme-leaved speedwell ***(Veronica serpyllifolia),*** Sneezewort ***(Achillea ptarmica),*** Cow parsnip ***(Heracleum sphondylium)*** and Common valerian (***Valeriana officinalis)***. Wefts of mosses are also common between these species and patchily carpeting the ground, with the main species including Pointes Spear-moss (***Calliergonella cuspidate),*** Common fearther-moss ***(Kindbergia praelonga),*** Springy Turf-moss ***(Rhytidiadelphus squarrosus)*** and ***Brachythecium spp.***. These species are widely frequent to occasional but are abundant locally.

M23a *Juncus effusus/acutiflorus-Galium palustre* rush-pasture, *Juncus acutiflorus* sub-community

5.1.29 M23a is common within the study area and can be located on the slopes, along the waterlogged areas of the old railway line, in fields, along ditches (forming linear features on hill slopes) and where ditches converge. A large area is also located within a field at the new Douglas West wind farm extension within a field with a high-water table (**Error! Reference source not found.**). This habitat is dominated by Sharp-flowered Rush (***Juncus acutiflorus***), occasional Soft Rush (***J. effusus***), with pockets of Bogmoss (***Sphagnum*** spp.) and Haircap Moss (***Polytrichum*** spp.). Visible pooling of water is evident in some sections and a more varied floristics can be found as per M23 above. Patches of seral Willow (***Salix*** spp.) is also within this habitat.

5.1.30 However, some of the ***J. acutiflorus*** stands can be species-poor and lack much in the way of mesophytic herbs. These tend to be more associated with linear ditch features.

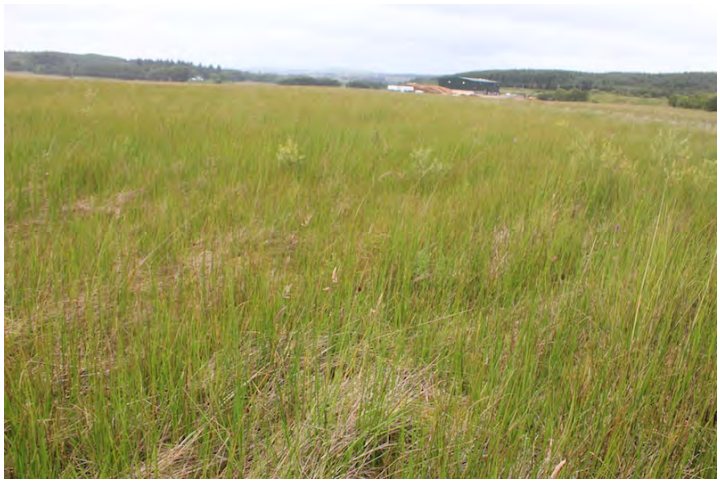

Photo 3: **Large area of herb rich M23a located within a field at Douglas West. Dominated by Sharp-flowered Rush, occasional Soft Rush, with pockets of *Sphagnum* spp. and *Polytrichum* spp. and seral *Salix* spp..**

M23b *Juncus effusus/acutiflorus-Galium palustre* rush-pasture, *Juncus effusus* sub-community

5.1.31 The M23b sub community is the main extensive rush mire of this type on site and tends to be more dominant than the herb rich counterpart of M23a. The M23b ***Juncus effusus*** sub-community is species-poor with weedy swards including Marsh thistle (***Cirsium***

palustre), Common sorrel ***(Rumex acetosa***) and Creeping buttercup (***Ranunculus repens***).

5.1.32 This Soft Rush (***Juncus effusus***) community tends to be the dominant species in open grassland fields that have been improved for grazing with poor drainage and along drainage lines on hillsides. Multiple drainage channels are also evident on the slopes of hillsides and within grazing fields where linear habitats are formed. Where drainage lines of M23 converge there are larger expanses of this community.

M25 *Molinia caerulea-Potentilla erecta* mire

5.1.33 M25 mire is a community of moist, but usually well aerated, acid to neutral peats and peaty soils (Rodwell et al., 1991). It generally occurs over gently-sloping ground, marking out seepage zones and flushed margins of topogenous mires, but also extends onto the fringes of ombrogenous mires (Rodwell et al., 1991). It is a wet grassland of dense tussocks of Purple-Moor grass (***Molinia caerulea***), with a network of small winding channels. There are some Tormentil (***Potentilla erecta***), Cross-leaved-heath (***Erica tetralix***) and occasional Heather (***Calluna vulgaris***) found among the Molinia.

5.1.34 M25 is located in a few relatively small scattered stands within the study area. It appears relatively dry and within a wider matrix of mires, wet heaths and acid grasslands.

5.1.35 Treatments such as burning, grazing and drainage are likely to be largely responsible for the development of this community, and its sub communities, over ground that would naturally host some other kind of mire or wet heath vegetation (Rodwell et al., 1991; Elkington et al., 2001).

M25a *Molinia caerulea-Potentilla erecta* mire, *Erica tetralix* sub community

5.1.36 The M25a sub-community found on site is the heathy form and also the most common. ***Erica tetralix*** and occasional ***Calluna vulgaris*** can be found among the ***Molinia***. There are additional other bog species, such as Bog myrtle (Myrica gale), Fat Bog-moss (***Sphagnum papillosum***), Red Bog-moss (***Sphagnum capillifolium***), Haircap moss (***Polytrichum commune***) and Heath plait-moss (***Hypnum jutlandicum***). The M25a community forms a mosaic with M15b, M19a and M20.

M25b *Molinia caerulea-Potentilla erecta* mire, *Anthoxanthom odoratum* sub community

5.1.37 The M25b community in the study area is dominated by Purple Moor-grass (***Molinia caerulea)*** and forms a tussocky and sometimes low and more open sward. The M25b has a more mixed sward of grasses, such as Sweet Vernal-grass (***Anthoxanthum odoratum),*** Yorkshire fog ***(Holcus lanatus),*** Common bent ***(Agrostis capillaris),*** Mat grass ***(Nardus stricta***), Sheeps fescue ***(Festuca ovina),*** Tufted hair-grass ***(Deschampsia cespitosa)***. Other species recorded in variable abundances included; Blaeberry (***Vaccinium myrtillus)***, Tormentil (***Potentilla erecta),*** Heath bedstraw ***(Galium saxatile),*** Common sorrel ***(Rumex acetosa),*** Heath rush ***(Juncus squarrosus),*** Sharp-flowered Rush ***(J. acutiflorus),*** Soft Rush ***(J. effusus),*** Deergrass ***(Trichophorum germanicum)***, Oval sedge (***Carex leporina)***, Black sedge (***C. nigra)*** and the mosses Haircap moss (***Polytrichum commune)*** and Red-stemmed feather-moss(***Pleurozium schreberi***).

M27 *Filipendula ulmaria-Angelica sylvestris* mire

5.1.38 This is a mire of damp mesotrophic soils at low to moderate altitudes, extending up to about 400 m. It generally occurs in mosaics with other tall-herb mires and swamps, in glens and wet hollows, alongside slow-moving streams, soakways, edges of flushes and at the edges of ponds or lochs. These are all places where the water-table fluctuates widely over the year. It is a tall, lush, herb-rich mire dominated by Meadowsweet (***Filipendula ulmaria***) and can be found where it is protected from grazing. It is also typically found as a mosaic within swamps with other tall herb communities, as found within the study area with S9, S10, S12, and M23 at standing water locations.

H9 *Calluna vulgaris-Deschampsia flexuosa* heath

5.1.39 This heath is a characteristic sub-shrub vegetation of acid and impoverished soils at low to moderate altitudes. It is normally found on very base-poor soils, highly oligotrophic and at least moderately free-draining, often excessively so, which have been derived from a wide variety of parent materials (Rodwell ***et al.,*** 1991; Elkington ***et al.,*** 2001). ***Calluna vulgaris*** is typically the most abundant plant in this community, often forming a fairly low and open canopy. The only other vascular constant is ***D. flexuosa***, although even in open ***Calluna*** it often occurs only as sparse tufts, and under dense canopies it can almost disappear. Other herbs are also few and are of low cover. Bryophytes and lichens are rarely abundant and associated species diversity is low (Rodwell ***et al.,*** 1991; Elkington ***et al.,*** 2001).

5.1.40 This community was recorded within the north of the study area, with larger patches found along the slopes at the south-east Coalburn reclaimed opencast mining area. ***Calluna*** is overly dominant within these areas with some sparse ***D. flexuosa, M. caerulea*** and ***P. erecta***.

H10 *Calluna vulgaris – Erica cinerea* heath

5.1.41 The H10 ***Calluna vulgaris – Erica cinerea*** heath is a dry heath community that occurs widely throughout the more oceanic sections of Scotland and around the east-central part of the Highlands. It is a community characteristic of acid to circumneutral and generally free-draining soils and is typically dominated by Heather (***Calluna vulgaris)***. Bell Heather (***Erica cinerea)*** is a constant being frequent but generally subordinate to ***C. vulgaris***. H10 is commonly found in zonations and mosaics with grasslands, other heath types and mire communities (Rodwell et al., 1991; Elkington et al., 2001). H10 community was recorded south of the Poniel Water of the study area near Wallace's Cave. This was in a disturbed area with MG9 and seral trees and shrub. It was also located on mining spoils including at Coalburn spoil (**Error! Reference source not found.**).

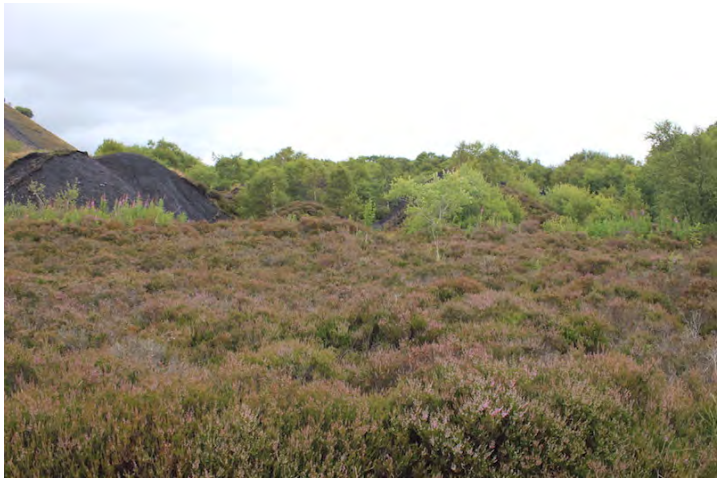

Photo 4: **H10 dry heath habitat on mining spoil (Coalburn spoil), with regeneration of broadleaved woodland. H12 can also be found in this vicinity.**

H12 *Calluna vulgaris – Vaccinium myrtillus* heath

5.1.42 The H12 heath is a typical sub-shrub community of acidic to circumneutral, free-draining mineral soils, throughout the cold and wet sub-montane zone and is generally located between 200 m and 600 m. H12 is dominated by Heather (***Calluna vulgaris)*** and can be visually uniform***,*** although the cover of this species can also be open and degenerate. Blaeberry (***Vaccinium myrtillus)*** is constant, though it is usually subordinate to ***Calluna***. The ground layer is generally characterised by bulky mosses (Rodwell et al., 1991; Elkington et al., 2001). Species found in the sward included Wavy hair-grass (***Deschampsia flexuosa*****),** Purple moor-grass ***(Molinea caerulea*****),** Heath rush ***(Juncus squarrosus),*** Tormentil ***(Potentilla erecta***), Heath bedstraw ***(Galium saxatile)*** and the mosses Red-stemmed feather-moss (***Pleurozium schreberi***) and Broom Fork-moss (***Dicranum scoparium***). H12 heaths are rather uniform and they cover extensive areas throughout large parts of Scotland.

5.1.43 There are a few isolated stands of H12 recorded within the study area, mainly at disturbed ground associated with historical open cast mines south of Coalburn village, within the Douglas West windfarm extension site, and associated with H10.

U2 *Deschampsia flexuosa* grassland

5.1.44 This is a tussocky grassland dominated by fine-leaved, dark-green clumps of Wavy hair-grass (***Deschampsia flexuosa)***. The smooth rounded tufts of this plant can give the sward a characteristic quilted appearance. There is also Heather (***Calluna vulgaris),*** Tormentil ***(Potentilla erecta***), Sheep's fescue (***Festuca ovina)***, Common bent (***Agrostis capillaris)*** includes the mosses Bristly Haircap (***Polytrichum piliferum)*** and Broom Fork-moss (***Dicranum scoparium), Bracken (Pteridium aquilinum)*** grows in many stands.

U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland

5.1.45 This is grassland with a sward ***c.***20-30 cm tall, identified by the presence of an often close-cropped, grass- rich sward dominated by various combinations of Common bent (***Agrostis capillaris***), Brown bent (***Agrostis vinealis***), Red fescue (***Festuca rubra***), Sweet

vernal grass ***(Anthoxanthum odoratum***) and Wavy hair-grass (***Deschampsia flexuosa***). Mat grass (***Nardus stricta***), Yorkshire fog (***Holcus lanatus***), Smooth meadow grass (***Poa pratensis***) and herbs are common, especially Tormentil (***Potentilla erecta***), Heath bedstraw (***Galium saxatile***) and Devil's-bit scabious (***Succisa pratensis***). This grassland is a form of predominately upland grassland of well-drained, acidic and base-poor mineral soils throughout the wet and cool regions of north-west Britain where it dominates extensive areas of pastureland (Rodwell et al., 1992; Cooper, 1997). Throughout this geographic range the community can often be found forming a distinctive component of larger mosaics of grasslands, heaths, and mires.

5.1.46 U4 and its sub communities (**U4a, U4b, & U4d**) are located throughout the study area and they form patches of varying sizes, and all are grazed by livestock. U4 in the more elevated parts of the study area is generally unimproved, smaller and patchier amongst a mosaic of mires, heaths and other acid and marshy grasslands. These areas are for the most part of the U4a typical sub-community or U4d ***Luzula multiflora - Rhytidiadelphus loreus*** sub-community. Lower down in the increasingly pastoral southern study area U4 is more extensive and appears slightly more improved, generally being of the U4b ***Holcus lanatus - Trifolium repens*** sub-community. The slopes of the hills, such as Longhouse Hill, Windrow Hill and Robs Hill tend to be dominated by U4 grassland (**Error! Reference source not found.**). Overall, the stands of U4 within the study area tend to have variable amounts of the grasses listed above. Typical quantities of these species and associate species differ between the respective sub-communities.

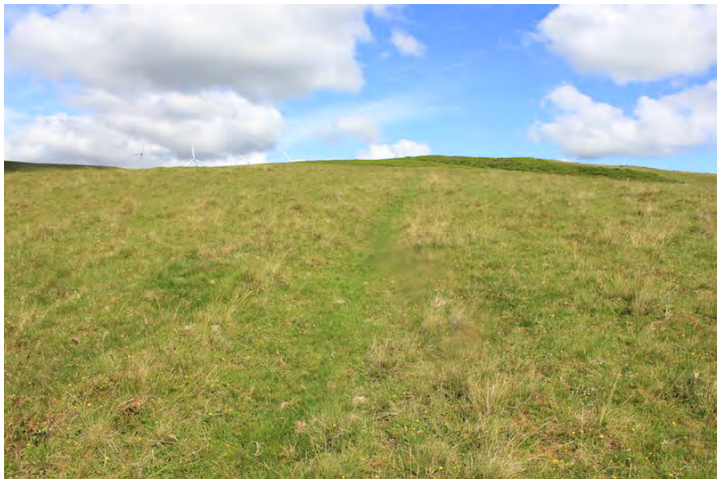

Photo 5: **U4 acid grassland on the slopes of Rob Hill.**

U5 *Nardus stricta – Galium saxatile* grassland

5.1.47 U5 grassland is a pale sward of dense wiry clumps of Mat-grass (***Nardus stricta)*** and tends to be found on damp mineral soils which have peaty upper horizons. U5 typically occupies slopes where the depth and wetness of the soil are intermediate between those of the drier podsols under U4 grasslands and wet shallow peats found under U6 grassland. The underlying rock can be anything from acid to basic, but the soils are

generally acidic (Rodwell et al., 1992; Averis et al., 2004). U5 is common on the higher hill slopes of the cool, wet north and west of Britain (Rodwell et al., 1992). Other associates noted through the sward included Common bent (***Agrostis capillaris***), Sheeps fescue (***Festuca ovina***), Sweet-vernal grass (***Anthoxanthum odoratum***), Heath rush (***Juncus squarrosus***), Tormentil (***Potentilla erecta***), Heath bedstraw (***Galium saxatile***), Harebell (***Campanula rotundifolia***), Purple moor-grass (***Molinia caerulea***), Wavy hair-grass (***Deschampsia flexuosa***), Blaeberry (***Vaccinium myrtillus***), Soft rush (***Juncus effusus***), ***Carex*** spp., ***Luzula*** spp. and the mosses Springy turf-moss (***Rhytidiadelphus squarrosus***), Glitterring wood-moss (***Hylocomium splendens***) and Red-stemmed feather-moss (***Pleurozium schreberi***).

5.1.48 U5 is found within the grassland areas of the site as larger stands, and as smaller patches throughout the study area. U5 tends to be found on the middle to upper slopes on a number of the hills within the study area, such as Blackwood Hill (**Error! Reference source not found.**). It can be found forming mosaics with other acid grassland types and with M23, and ***Juncus*** spp.. **U5a** and **U5b** are also located within the study area and there are small patches of the species-poor sub community U5a and consists of Mat-grass (***Nardus stricta***) with no other distinguishing species. U5b ***Agrostis canina – Polytrichum commune*** sub-community occurs in damper soils and was recorded and is likely due to the associated frequency of ***Polytrichum commune*** in the sward of those stands and occasional Fat Bog-moss (***Sphagnum papillosum)*** was found.

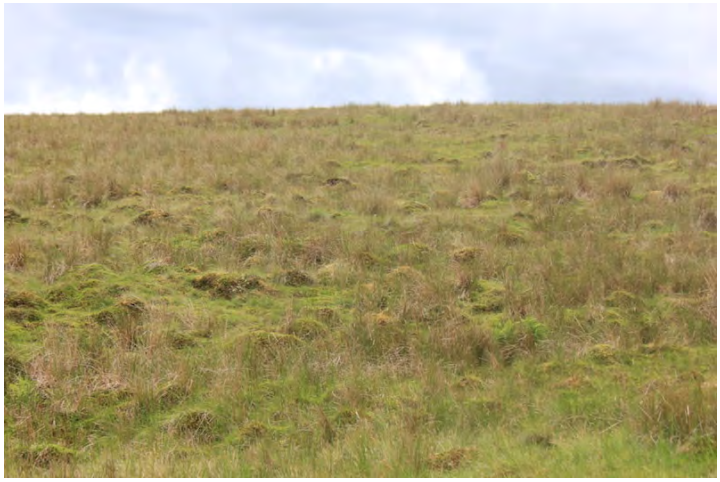

Photo 6: U5 grassland on the slope of Blackwood Hill.

U6 *Juncus squarrosus – Festuca ovina* grassland

5.1.49 The U6 ***Juncus squarrosus - Festuca ovina*** grassland includes most of the sub-alpine vegetation, where Heath rush (***Juncus squarrosus***) occurs abundantly with diverse associates of bog, grassland and heath. It is characteristic of moist peats and peaty mineral soils, almost always base-poor and infertile, over gentle slopes and plateaux at higher altitudes (400 m to 800 m) in the cool and wet north and west of Britain (Rodwell et al., 1992). U6 is often a secondary vegetation type, strongly encouraged by particular kinds of grazing and burning treatments in damper upland pastures and on the drying fringes of blanket mires. The spread of ***J. squarrosus*** in upland pastures tends to be

encouraged where uncontrolled heavy and selective grazing has been applied over rather drained ground (Rodwell et al., 1992). Bryophytes tend to be numerous and varied with Common haircap (***Polytrichum commune***) being the most common.

5.1.50 A number of areas of U6 are present within the study area and are in transitional areas with community species overlap or are present in mosaics with other acid grassland communities, such as U4 and U5, with both blending to U6.

5.1.51 Within the study area, the U6 community is dominated by ***Juncus squarrosus*** but not overly so, and as a result also contain varying abundances of associate species including; Sheeps fescue (***Festuca ovina***), Sweet-vernal grass (***Anthoxanthum odoratum***), Mat-gras (***Nardus stricta***), Purple moor-grass (***Molinia caerulea***), Tormentil (***Potentilla erecta***), Heath bedstraw (***Galium saxatile***), Blaeberry (***Vaccinium myrtillus***), Wavy hair-grass (***Deschampsia flexuosa***) and occasionally Hares-tail cotton-grass (***Eriophorum vaginatum***).

U20 *Pteridium aquilinum – Galium saxatile* community

5.1.52 The U20 ***Pteridium aquilinum – Galium saxatile*** community is vegetation dominated by Bracken (***Pteridium aquilinum***), which can form extensive stands. The community is most common on lower hill slopes and on marginal ground, including abandoned fields, where it forms mosaics and transitions with heaths, grasslands and woodlands. The community covers fairly deep, well aerated but often moist, base-poor and infertile soils (Rodwell et al., 1992). It is largely absent from wet ground and strongly flushed slopes, preferring drier ground. ***Pteridium aquilinum*** is the sole dominant and is overwhelmingly abundant in some stands. This is a community of little ecological value. A number of small areas of U20 are found throughout the study area, generally on steep slopes (**Error! Reference source not found.**) and dry soils and the historical open cast mine areas.

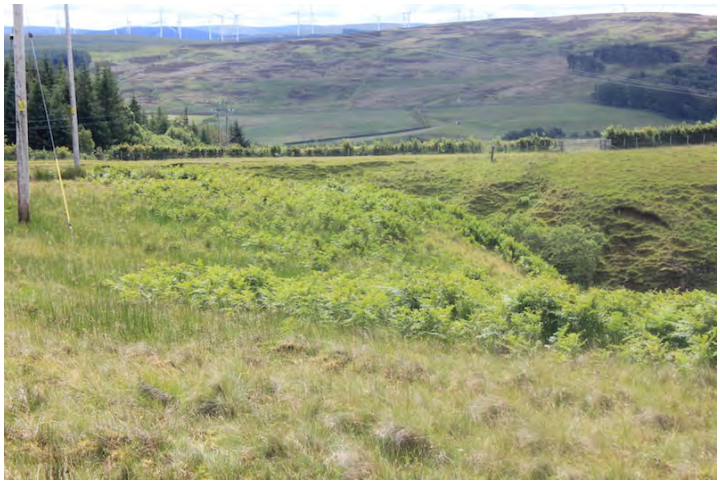

Photo 7: **U20 on dry steep slopes within the survey area.**

MG6 *Lolium perenne – Cynosurus cristatus* grassland

5.1.53 The MG6 grassland generally has a short tight sward dominated by grasses. The most abundant grass is usually Perennial ryegrass (***Lolium perenne***) in this improved grassland sward, with varying amounts of Crested Dog's tail (***Cynosurus cristatus***). However, swards of Timothy grass (***Phleum pratense***) are abundant in improved fields in the area of Kennoxhead (**Error! Reference source not found.**). The improved fields south of Poneil water (and north of Douglas West extension) have become waterlogged resulting in mosaics of MG10a, Juncus spp. and occasional M23 with MG6. This is also evident elsewhere within the study area.

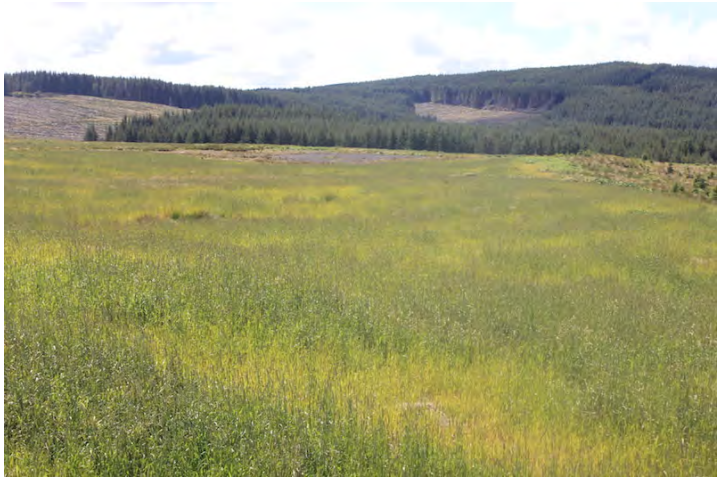

Photo 8: **Swathes of MG6 with *Phleum pratense* dominant at Kennoxhead.**

MG7 *Lolium perenne leys* and related grassland

5.1.54 In the study area, MG7 occurs as improved agricultural fields. As is typical for this community, the vegetation is almost completely dominated by a sward of Perennial ryegrass (Lolium ***perenne***). The plant associates found to be locally frequent are Smooth meadow-grass (***Poa pratensis***), Soft brome (***Bromus hordeaceus***), White clover (***Trifolium repens***) and Common daisy (***Bellis perennis***). Other associates include Annual meadow-grass (***Poa annua***), Rough meadow-grass (***P. trivialis***), Yorkshire fog (***Holcus lanatus***), Common bent (***Agrostis capillaris***), Cocksfoot (***Dactylis glomerata***), Common mouse-eared chickweed (***Cerastium fontanum***), Self-heal (***Prunella vulgaris***), field Forget-me-knot (***Myosotis arvensis***) and Chickweed (***Stellaria media***). Some stands contain a few more weed species, with occasional Broad-leaved dock (***Rumex obtusifolius***), Common ragwort (***Senecio jacobaea***), Pineappleweed (***Matricaria discoidea***), Creeping thistle (***Cirsium arvense***) and Nettle (***Urtica dioica***).

MG9 *Holcus lanatus – Deschampsia cespitosa* grassland

5.1.55 The MG9 grassland has a coarse and tussocky sward dominated by Tufted hair-grass (Deschampsia ***cespitosa***) (Rodwell et al., 1992). It is characteristic of permanently moist, gleyed and periodically inundated circumneutral soils across large areas of the British lowlands. It can exist on level to moderately sloping ground in areas of pasture or meadow but can also be found along woodland rides and fen/wetland margins.

5.1.56 The MG9 community is found scattered within the study area in places that are more permanently moist, often in mosaics with the rush dominated M23 community and the U4 acid grassland community. Usually found within marshy areas, Tufted hair-grass (***Deschampsia cespitosa***) is most often dominant with other associates such as Sharp-flowered rush (***Juncus acutiflorus***) and Yorkshire fog (***Holcus lanatus***). Species diversity was often limited to Common sorrel (***Rumex acetosa***), Marsh bedstraw (***Galium palustre***), Marsh thistle (***Cirsium palustre***) and Marsh horsetail (***Equisetum palustre***). Moss cover included Pointed Spear-moss (***Calliergonella cuspidate***) and Springy turf-moss (***Rhytidiadelphus squarrosus***).

MG10 *Holcus lanatus – Juncus effusus* rush-pasture

5.1.57 MG10 has a sward with prominent Juncus effusus in a species-poor and shorter grassy ground. It is a form of rush-pasture characteristic of areas with strongly impeded drainage over a wide range of usually acid to neutral mineral soils on level to gently sloping ground (Rodwell et al., 1992). This community requires consistently high soil moisture (Rodwell et al., 1992). It occurs across most of the British lowlands, with the typical sub-community being particularly prominent towards the north and west. Although found on various soil types including brown earth and calcareous earth throughout its range, this habitat can also have close associations with various types of mire vegetation and can form significant parts of rush-dominated mire mosaics in areas of suitably moist soils.

5.1.58 MG10 is common throughout the study area mostly on the grazed damp pastures and poor pastoral ground and within grazing fields (**Error! Reference source not found.**). The majority of the MG10 in the study area is of the **MG10a** Typical sub-community; the community frequently forms mosaics with other Juncus spp. dominated communities common in the study area and occasionally blends to M23.

5.1.59 Growing through the tussocks there is usually and typically variable amounts of Yorkshire fog (***Holcus lanatus***), ***Agrostis*** spp., Creeping buttercup (***Ranunculus repens***), Common sorrel (***Rumex*** acetosa) and White clover (***Trifolium repens***). More occasional and only in some stands there were additional floristics of Common ragwort (***Senecio jacobaea***), Creeping thistle (***Cirsium arvense***), Marsh thistle (***Cirsium palustre***), Broad-leaved dock (***Rumex obtusifolius***), Field horsetail (***Equisetum arvense***), Crested Dog's tail (***Cynosurus cristatus***), Self-heal (***Prunella vulgaris***), Jointed rush (***Juncus articulates***) and Common Dandelion (***Taraxacum officinale*** agg). Mosses such as Common Feather-moss (***Kindbergia praelonga***) and Springy turf-moss (***Rhytidiadelphus squarrosus***) often form diffuse wefts over the damp soil and among the larger plants.

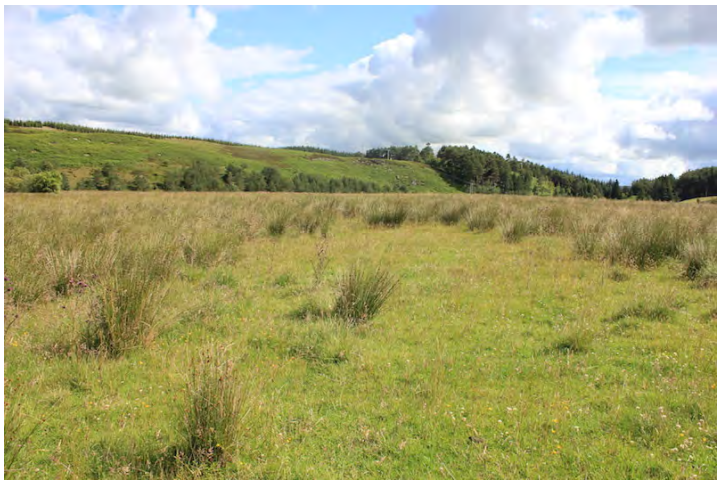

Photo 9: MG10 within a grazing field near Poneil Burn.

W7 *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum* woodland

5.1.60 W7 is a community of moist to very wet mineral soils which are only moderately base-rich and not very eutrophic (Rodwell et al., 1991). It is most extensive in the wetter parts of Britain, but usually occurs in soils where there is no great tendency for peat accumulation. Common alder (***Alnus glutinosa***) is the main tree species and is commonly accompanied by other species such as Ash (***Fraxinus excelsior***), Birch (***Betula*** spp.), Willow (***Salix*** spp.) and Sycamore (***Acer pseudoplatanus***). The field layer can be very varied; the wetness and nutrient status of the soil determines what other species may occur, these being mainly grasses and herbaceous dicotyledons (Rodwell et al., 1991). There are three sub-communities; differences between them are related to the extent of waterlogging, the nature of the water supply and its movement.

5.1.61 A few small planted stands of W7, mostly the W7c ***Deschampsia cespitosa*** sub-community, were recorded. These areas generally have a canopy of Common alder (***Alnus glutinosa***) and Birch (***Betula*** spp). with occasional Willow (***Salix*** spp.) and Rowan (***Sorbus*** aucuparia***)***. The field layer contains abundant to almost pure Tufted Hair-grass (***Deschampsia cespitosa***) and a range of other more occasional species including Soft rush (***Juncus effusus***), ***Agrostis*** spp., ***Dryopteris*** spp., and Springy Turf-moss moss (***Rhytidiadelphus squarrosus***).

W11 *Quercus petraea – Betula pubescens – Oxalis acetosella* woodland

5.1.62 W11 is a community of moist, free-draining base-poor brown earth soils in the cooler, wetter north- west of Britain. It is characteristic of substrates that are neither markedly calcareous nor strongly acidic. The character of the community is often heavily influenced by grazing (Rodwell et al., 1991). These woodlands have a canopy of ***Betula*** spp. and/or ***Quercus*** spp. and a field layer dominated mainly by grasses. The canopy composition has similarities with the W17 ***Quercus petraea – Betula pubescens*** – ***Dicranum majus*** community, and from which it is distinguished mainly by the swards of grasses including ***Agrostis*** spp., Creeping soft-grass (***Holcus mollis***) and Sweet-vernal grass (***Anthoxanthum odoratum)***, rather than being dominated by pleurocarpous mosses, sub-shrubs and Wavy hair-grass (***Deschampsia flexuosa***). W11 is found within

the study area on the edges of plantations, roadsides, farm field boundaries and along watercourses. Many W11 are also the result of the mature planted broadleaved woodland. The canopy varies with Birch (***Betula spp***)., Common alder (***Alnus glutinosa***), Sessile oak (***Quercus petraea***), Common hawthorn (***Crataegus monogyna***), and occasional Willow (***Salix*** spp).

W23 *Ulex europaeus – Rubus fruticosus* scrub

5.1.63 The W23 community is dominated by Common gorse (***Ulex europaeus***) and has a usually sparse and species-poor ground flora which may be totally absent. It is a community of acidic and free draining soils on gentle to steep, rocky slopes at low altitudes. The vegetation often develops after woodland clearance of, or on, abandoned pasture (Rodwell et al., 1991). The community was dominated by Common gorse (***Ulex europaeus***) with occasional Bramble (***Rubus fruticosus***).

S9 *Carex rostrata* swamp

5.1.64 The S9 swamp is generally a community of the north and west of Britain with the vegetation typically a swamp of shallow to moderately deep, mesotrophic to oligotrophic standing waters with organic substrates. It also occurs more fragmentarily in peat cuttings (Rodwell et al 1995). The S9 community is readily recognised by the tall, dense growth of Bottle sedge (***Carex rostrata***) rooted in shallow water. Separation from other communities in which ***C. rostrata*** is present is based on its almost exclusive dominance in this community and the low cover and richness of associates. This community appears at the main swamp habitats on site and also along the edges of ponds.

S10 *Equisetum fluviatile* swamp

5.1.65 The S10 occurs in similar situations to S9 community above, being found in shallow to moderately deep, eutrophic to oligotrophic, standing waters in both lowland and upland lakes and pools. This community is comprised of open or closed vegetation up to around 50 cm high in which Water Horsetail (***Equisetum fluviatile)*** is the most abundant species. No other species is frequent throughout, although in each sub-community some of the associates may be locally abundant (Rodwell ***et al.,*** 1995).

5.1.66 This community appears in multiple locations within the study area, where there are shallow ponds and blocked ditches. The S10 community also forms a mosaic with the other swamp community S9, S12 and M23 rush mire community. Species diversity is low with a pure dominance of ***E. fluviatile***.

S12 *Typha latifolia* swamp

5.1.67 The S12 swamp community is most characteristic of standing or slow-moving, mesotrophic to eutrophic, circumneutral to basic waters with silty substrates. It is frequent around lowland lakes, ponds and reservoirs and along canals and sluggish streams. Bulrush (***Typha latifolia***) is always dominant in this type of swamp, forming an open or closed cover of shoots usually 1-2 m tall. This community appears at multiple locations within the study area, such as, where there is slow moving water at Alder burn, (in association with Common Valerian (***Valeriana officinalis***) (**Error! Reference source not found.**), with M23 rush mires, and as a single pure stand at the edge or within shallow ponds. Species diversity is low with complete dominance of Bulrush (***T. latifolia***).

Photo 10: **S12 community located along the Alder burn.**

OV24 *Urtica dioica - Galium* aparine community

5.1.68 This community occurs widely throughout lowland Britain and comprises of species-poor tall herb vegetation dominated by Common nettle (***Urtica dioica***) with Cleavers (***Galium aparine***) being the only other constant. It typically occurs on disturbed, nutrient-rich soils and is frequently found around dumps of rich soil, dung, or farm waste, in neglected gardens and around abandoned buildings, on waste land, and on disturbed verges and tracks. There are also dense thickets of Colt's-foot (***Tussilago farfara***) These form open mosaic with OV25 and OV27 in previous open cast mine areas and is a dominant feature to the south of the site at Kennoxhead.

OV25 *Urtica dioica – Cirsium arvense* community

5.1.69 OV25 is a tall-herb weed community and is found throughout lowland Britain, on disturbed, nutrient-rich soils, usually where there are patches of bare or lightly covered ground, in which ***Cirsium*** spp. can establish themselves. It is typically found in poorly managed meadows, on abandoned arable land or waste land, on disturbed verges and tracks, and in cleared woodland or young plantations. Large swathes of this community can be found in the areas of old open mine cast areas forming a mosaic with OV24 and OV27.

OV27 *Chamerion angustifolium* community

5.1.70 This community is found throughout lowland Britain in suitable habitats. It occurs on damp, fertile, disturbed soils, in woodlands, on heaths, on road verges and railway embankments, and on recreational and waste ground. It is particularly characteristic of areas that have been burned by fires. The ***Chamerion angustifolium*** community is overwhelmingly dominated by Rosebay willowherb (***C. angustifolium***), the tall shoots of which can reach well over 1 m. No other species is frequent throughout, but the commonest associates overall are Bramble (***Rubus fruticosus*** agg.), Yorkshire fog grass (***Holcus lanatus***), Bracken (***Pteridium aquilinum***) and Common nettle (***Urtica dioica***) with various other species reflecting the different situations in which this kind of vegetation can develop. This community is found in association with OV25 and OV25.

Open Water

5.1.71 There are various types of surface water habitats within the study area, such as several ponds of different sizes, drainage systems, small streams and rivers. Many of the ponds have marginal vegetation, and/or vegetation growing within it, such as Pondweed (***Potamogeton*** spp.) (**Error! Reference source not found.**).

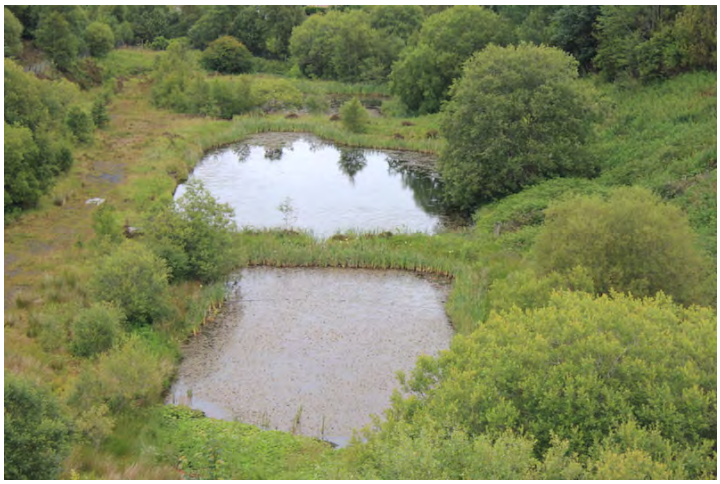

Photo 11: Settling ponds south of Coalburn village with *Potamogeton* spp.

Je/Ja Juncus spp. mixed rush

5.1.72 This is habitat dominated by ***Juncus*** species and is species poor but accompanied by U4a grasses and also forming mosaics with M25a. These are located close to track verges and opencast mining areas and mostly on soil which has previously been disturbed. This vegetation does not fit into any NVC community as it lacks the wetland element of M6 and M23 Juncus spp. mires and has a more acidophilous flora than MG10 ***Juncus effusus*** rush-pasture; it is therefore classed separately.

Early succession woodland & scattered trees

5.1.73 Early succession woodland is present in many areas on site consisting mostly of young Birch (***Betula*** spp.), Willow (***Salix*** spp.) and occasional conifers that do not fit into an NVC type. This is due to the effect of forestry processes, where trees have been felled and young trees have been left to colonize the area. The habitats also consist of ***Juncus*** dominated mire and ***Molinea*** grassland. Scattered trees were found throughout the length of the study area.

Plantation woodland & Clear fell

5.1.74 Planted woodland consisted of conifer plantation (CP), mixed broadleaved (BP) and mixed woodland (MP). Conifer plantation had been felled (CF) in the south of the study area near Kennoxhead (**Error! Reference source not found.**).

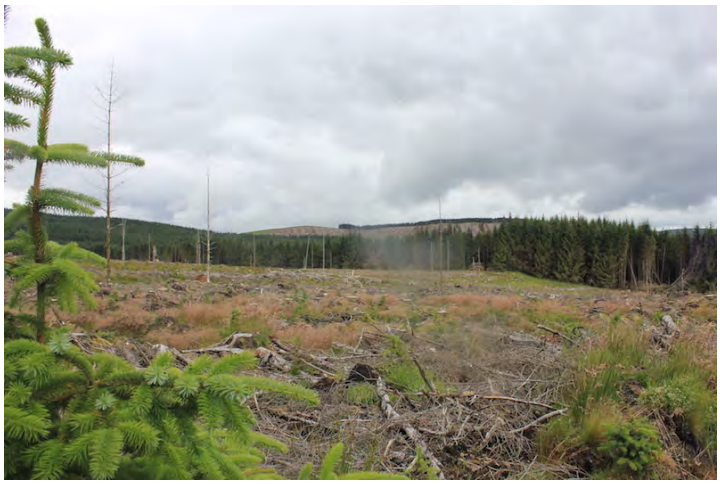

Photo 12: **Felled coniferous (CF) woodland at Kennoxhead.**

Non-native Invasive Species (INNS)

5.1.75 Invasive plant species located on site included Japanese Knotweed (***Reynoutria japonica***) and Japanese Rose (***Rosa rugosa***). These were located along a small watercourse south of Coalburn.

Notable Species

5.1.76 No notable or rare species were recorded during the habitat surveys; however, this does not preclude their presence from the study area.