Improvement Programme for England's Natura 2000 Sites (IPENS) – Planning for the Future IPENS039

Westleton Heath NNR NVC 2013

Minsmere-Walberswick Heaths and Marshes Special Area of Conservation (SAC)

Minsmere-Walberswick Special Protection Area (SPA)

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Foreword

The **Improvement Programme for England's Natura 2000 sites (IPENS)**, supported by European Union LIFE+ funding, is a new strategic approach to managing England's Natura 2000 sites. It is enabling Natural England, the Environment Agency, and other key partners to plan what, how, where and when they will target their efforts on Natura 2000 sites and areas surrounding them.

As part of the IPENS programme, we are identifying gaps in our knowledge and, where possible, addressing these through a range of evidence projects. The project findings are being used to help develop our Theme Plans and Site Improvement Plans. This report is one of the evidence project studies we commissioned.

A National Vegetation Classification (NVC) survey was commissioned for part of Minsmere-Walberswick Heaths and Marshes Special Areas of Conservation (SAC) and Minsmere-Walberswick Special Protection Area (SPA), both of which are underpinned by Minsmere-Walberswick Heaths and Marshes Site of Special Scientific Interest (SSSI). The survey, covering SSSI units 35, 107 and 108, aimed to provide evidence for assessing changes within the site and to be able to monitor future changes. Details on existing management regimes were noted in order to assess whether current management is appropriate. The survey was carried out at SSSI unit level.

The survey area consists mainly of heathland and dry woodlands, with smaller areas of acid grassland. All three units covered by the survey record management works having been undertaken to restore habitats, all with positive results noted. This includes evidence of tree removal from the main heath areas within unit 35 enabling the heathland to recover from shading and extra competition. Evidence of bracken removal was recorded within two units allowing areas of *Molinia* grassland in unit 35, and acid grassland in unit 107 to be restored. Within unit 108 a considerable amount of restoration over the last few years was noted, with the removal of a large number of silver birch and scots pines, allowing the area to be colonised by the surrounding heathland.

The report makes recommendations for ongoing future management. Removal of tree saplings and scrub clearance across the site will need to continue, as will the reduction in bracken cover. It is also noted that continued monitoring is essential to ensure continuation of recovery for these unit.

The key audience for this work is the staff within Natural England and land managers and should be used to inform management requirements within the site.

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Westleton Heath NNR NVC 2013

Including Units 35, 107 and 108

Project Reference No: LB13/14-84030-Walberswick

Project Title: NVC Survey of Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR Area

Survey Completed by Abrehart Ecology 2013

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Executive summary

Abrehart Ecology was commissioned to carry out an NVC survey of three units of the Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR Area on the Suffolk coast - Units 35, 107 and 108.

Unit 35 was a large area of mature, restored heathland with two large areas of woodland on the northern edge of the unit. 46.85 hectares (ha) of vegetation were mapped of which 27.31ha were heathland communities, 1.44 ha were open vegetation, 6.49 ha were acid grasslands and 11.62 ha were woodland communities. Within this unit the dominant community was H8a, an Annex I habitat and of national importance. A wide range of species were found across the site with 151 species of plant recorded. Botanically, the site held several uncommon species with Mossy stonecrop *Crassula tillaea* seen across the unit along the tracks, Cross-leaved heath *Erica tetralix* was found in two areas on both sides of the road. Heath rush *Juncus squarrosus* was found only to the south of the road in two sites close by each other. Here too was one stand of Mat-grass *Nardus stricta*. Within the southern section Lesser chickweed *Stellaria pallida* was found in an area of restored heath. Near to the car park one plant of Heath grass *Danthonia decumbens* was found. On the invertebrate front very few were noted though Silver-studied blues *Plebejus argus* were observed across the site with five records made. The site was an important for Dartford warblers *Sylvia undata* of which at least eight were heard, also woodlark *Lullula arborea* were present holding territory on the site, as were turtle dove *Streptopelia tutur* and hobby *Falco subbuteo*.

Unit 107 was an area of acid grassland that has had a considerable amount of remediation carried out in order to restore the dry acid grassland community that once occurred on the site. Here there was 3.58 ha of vegetation recorded. This comprised of 0.72 ha of heathland, 0.72 ha of sand dune community, with 2.02 ha of acid grassland and 0.83 ha of woodland communities which was dominated with W16a. The reduction in bracken *Pteridium aquilinum* across the site had enabled a wide range of species to become re-established, with many uncommon species occurring across the unit. Botanically, the site held 86 species of which there were several species that were uncommon in Suffolk. Hoary cinquefoil *Potentilla argentea* was recorded in the northern section of the site, Trailing tormentil *Potentilla anglica* on the western end in the acid grasslands, here too was a small area of Heath milkwort *Polygala serpyllifolia*. Further up the slope to the east were Common milkwort *Polygala vulgaris* and Lesser chickweed, though both uncommon. The site was well grazed by Red deer *Cervus elaphus* and rabbit *Oryctolagus cuniculus.* Stone curlew *Burhinus oedicnemus* was seen on each occasion the site was visited, and woodlark *Lullula arborea* were heard in the vicinity presumably holding territory.

Unit 108 was an area of mature heathland with some woodland on the southern and eastern sides of the site. The unit held 14.72 ha of vegetation of which 8.67 ha was heathland, 0.72 ha was sand dune, 2.59ha was recovering acid grassland with 0.52 ha of woodland scattered across the unit. Much of the mature plantation woodland on the northern boarder had recently been logged, creating an area for heathland and grasslands to recolonize. The logging had only occurred in the winter of 2013 and the vegetation was only just starting to recover. There were several uncommon species noted in this unit during the survey with nightjar *Caprimulgus europaeus* and Dartford warbler being birds of interest, Norfolk hawker *Aeshna isosceles* way seen feeding over the heath. The site held 63 species of plant within which there were several uncommon plants including dodder *Cuscuta epithymum* which was found in one area only, Western gorse *Ulex gallii* found across the unit, Cross-leaved heath found in two areas with four records.

1. Introduction

Abrehart Ecology was commissioned by Natural England Suffolk Team to carry out an NVC survey of three units of the Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR Area on the Suffolk coast. Units 35, 107 and 108 were surveyed. This NVC will provide Natural England with an important set of information for assessing changes within the site and to be able to monitor future changes.

This survey presents the vegetation within the SSSI in terms of its community type (NVC code), the location, extent, management, composition of species, and all additional information deemed of importance when on site.

2. Methods

Standard NVC methods (Rodwell, 1991a, 1991b, 1992 and 1995) appropriate to each habitat, were used. This comprised the identification of stands of vegetation which were homogenous in terms of their botanical content and structure. This was assessed during a walkover of each site within the individual units. During this walkover a habitat map was prepared using images from Google Earth, these showed the basic nature of each site from which detailed maps were made to current community boundaries. After this initial surveying more detailed assessment of the vegetation was undertaken by carrying out quadrat sampling in appropriate sites. Each quadrat was a 2x2 meters with the exception of the occasional site where the vegetation structure dictated that this was not possible, for example, some small pure stands were recorded in their entirety and the total area of the community was noted (e.g. 1x4m).

The quadrat samples were undertaken in homogenous stands of a community which were visually distinct areas of vegetation. Some random samples were taken in less distinctive communities. The number of quadrats taken was considerably more than quoted for the tender, but it was deemed important to carry out more in order to provide a thorough level of information in a habitat that appeared to be in a state of change.

Within the units a portion of the habitats were rich mosaics of communities and individual stands were often not possible to distinguish, here mosaics of communities were assessed and allocated a percentage for each community within a given area.

In addition to the quadrat data any additional species noted during the field work were recorded.

As part of the field work notes were made to cover all aspects of the site that were considered important, including comments on management, habitat quality, and any issues arising from these. A photo was taken of each quadrat and is attached to the quadrat data in the appendix of this report.

The field survey was undertaken from 20th to 26th June 2013.

Heath milkwort
Polygala serpyllifolia
both Suffolk species of milkwort were found during this survey, both were in unit 107

Red deer
Cervus elaphus
were seen in each of the units surveyed and were causing considerable damage to the area south of unit 35

Dodder
Cuscuta epithymum
This parasitic species was only found in one spot in unit 108

Tiger beetle
Cicindela campestris
These were seen on the Calluna heath in unit 108 only .

Stonechat
Saxicola rubicola
Was occasionally seen on the Common Gorse within unit 108 and 35

Burnet rose
Rosa pimpinellifolia
This attractive rose was only found by the roadside of unit 35 here it was scattered along the southern verge only

Galium saxatile and *Veronica officinalis*
These were common species within unit 107

Minsmere-Walberswick Heaths and Marshes SSSI classification

Country:	England
Unitary Authority:	Suffolk
SPA status:	Classified 11/03/1996
Latitude:	52.25611111
Longitude:	1.617222222
SPA EU code:	UK0012809
Area (ha):	1265.52
Status:	Designated Special Area of Conservation (SAC)

Component SSSI/ASSIs: Minsmere to Walberswick Heaths and Marshes SSSI

Other Information:
This site amalgamates Minsmere Level SSSI (notified in 1954), Walberswick SSSI (notified in 1954) and Brick Kiln Walks SSSI (notified in 1972).

Much of this site has been designated a Special Protection Area under EC Directive 79/409 on the Conservation of Wild Birds, and as a Wetland of International Importance under the Ramsar Convention.

Much of the site is included within 'A nature conservation review' by Ratcliffe (1977). It is within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty.

Parts of the site are owned and/or managed as nature reserves and are listed below:
Walberswick National Nature Reserve (English Nature)
Westleton Heath National Nature Reserve (English Nature)
Minsmere Reserve (Royal Society for the Protection of Birds)
Dunwich Heath (National Trust)

Description and Reasons for Notification:
This composite site is situated on the coast of Suffolk between Southwold in the north and Sizewell in the south. It contains a complex series of habitats, notably mudflats, shingle beach, reedbeds, heathland and grazing marsh, which combine to create an area of exceptional scientific interest.

High land at Minsmere, Westleton and Walberswick forms part of the East Suffolk Sandlings and is composed of infertile sands and gravels. This supports large areas of lowland heath, bracken, dry acidic grassland, woods and scrub.

Lowland heath, dominated by *Calluna vulgaris* but also containing bell heath *Erica cinerea* and Cross-leaved heath *E. tetralix*, occupies a large continuous tract of about 400 ha at Minsmere, Dunwich and Westleton Heath with smaller areas at Walberswick. This heathland provides a valuable habitat for two nationally decreasing birds, the nightjar and woodlark.

Patches of unimproved acid grassland in which Red fescue *Festuca rubra* and Common bent *Agrostis capillaris* predominate, occur through the site but areas dominated by Wavy hair-grass *Deschampsia flexuosa*, Purple moor-grass *Molinia caerulea* and Sand sedge *Carex arenaria* also occur. A variety of other acid grassland plants is also present, of which heath bedstraw *Galium* saxatile and sheep's sorrel *Rumex acetosella* are common. Scarce species include Bird's-foot clover *Trifolium ornithopodioides* and Mossy stonecrop *Crassula tillaea* together with a small colony of Red-tipped cudweed *Filago lutescens*. There are also substantial areas dominated by bracken *Pteridium aquilinum* or gorse *Ulex europaeus* and *U. gallii.*

Mature plantation woodland, chiefly of oak *Quercus robur* or Scots pine *Pinus sylvestris* but also including sycamore *Acer pseudoplatanus* and Sweet chestnut *Castanea sativa*, occur at Minsmere and Walberswick. Naturally regenerated woods of birch *Betula pendula* and Scots pine have arisen on former heathland and alder *Alnus glutinosa*, sallow *Salix* spp. and birch woodlands are also present on wet ground. This woodland and scrub provides important additional habitat diversity for birds and invertebrates.

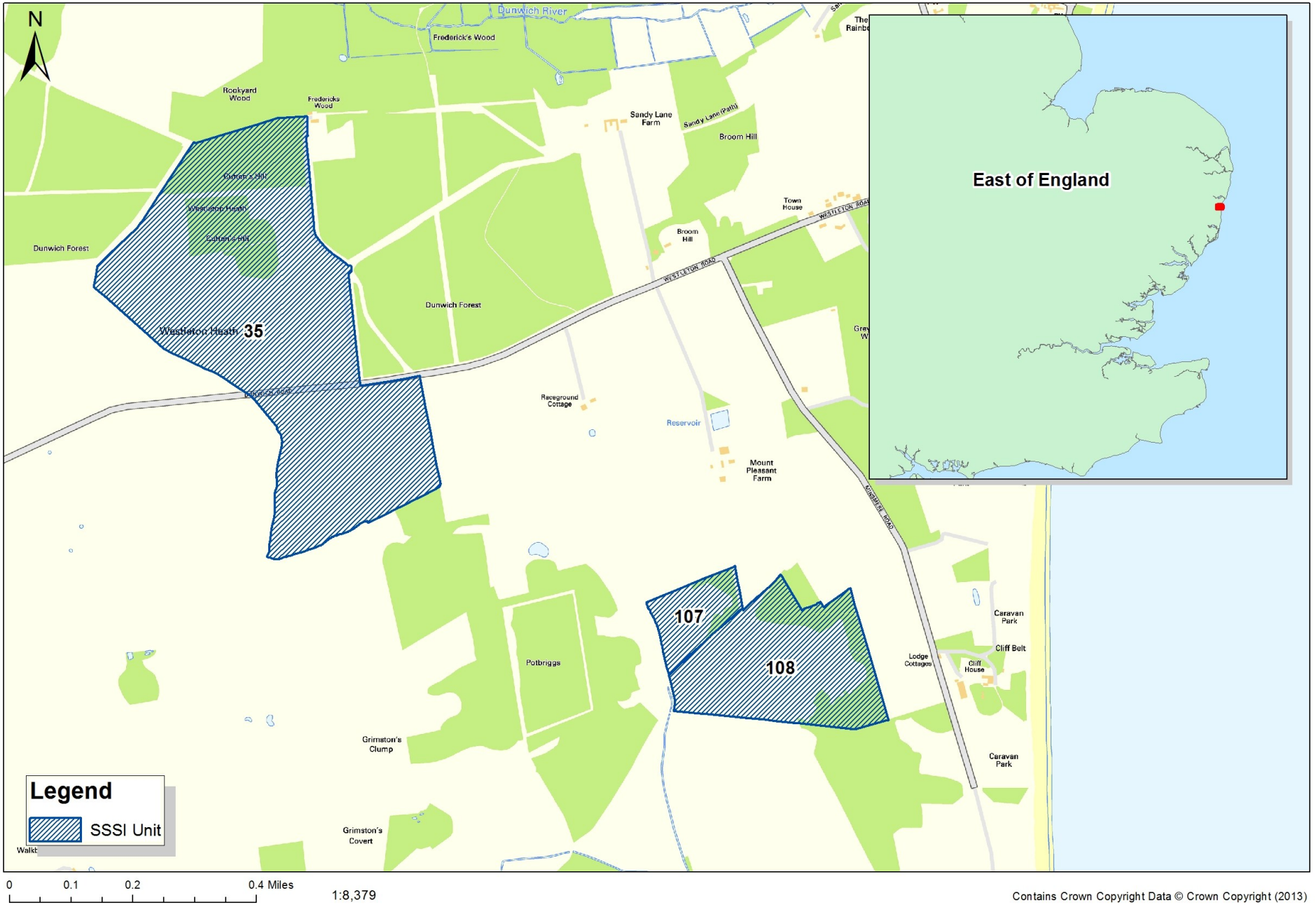

Figure 1: Map of Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR—Units 35, 107 and 108

3. Description of the vegetation communities of the NVC survey of Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR

The NVC survey of Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR– Units 35, 107 and 108 was dominated with heathland and dry woodlands running across the units. Eighteen communities and sub-communities were identified and mapped. These covered an area of 46.85 hectares in unit 35, 3.58 hectares in unit 107 and 14.72 hectares in unit 108.

Within these SSSI units there was one Annex I habitat, **European dry heaths**, which was a primary reason for designation of these sites. The heathland in this area was predominantly NVC type H8a *Calluna vulgaris – Ulex gallii* heath, which usually is more characteristic of western parts of the UK. This community is dominated by heather *Calluna vulgaris*, Western gorse *Ulex gallii* and Bell heather *Erica cinerea*. This community occupies extensive areas of several heathland sites on the east coast of England, which is at the extreme easterly range of heath development in the UK.

Within unit 35 and 108 there was a total 30.47 hectares of the H8a community, almost 50% of those units vegetation.

There had been considerable management carried out over each of these units. This was very noticeable as the communities were developing into communities associated with heathlands in areas that were previously covered in *Pteridium aquilinum* dominated habitats.

Each of the communities recorded within the SSSI units surveyed are described and discussed in the following sections.

3.1. Heathland

H1d *Calluna vulgaris-Festuca ovina* heath, *Carex arenaria* sub-community

This community was mostly found in the western edge of unit 108 towards the bottom of the slope. There were small low ridges running through this end of the site, with *Carex arenaria* often forming pure stands within this community. This community (H1d) was a transitional one leading into the surrounding H8a higher up the slopes to the south and east. On the top of the ridges the H8a community started to become more dominant. The H1d community had generally formed where the underlying sands had become more stable and where there was more stability the H8a community was expanding into this H1d habitat.

The H1d community was developing above the looser soils that held the main area of SD10b dune community, which initially stabilised blown out sands or areas where management had disturbed the underlying soils.

In unit 107 there was 0.72 hectares at 20.14% of the unit area
In unit 108 there was 0.54 hectares at 3.7% of the unit area

Photo 1—Unit 108 looking north

H8a *Calluna vulgaris-Ulex gallii* heath, species-poor sub-community

Photo 2—Unit 108 looking north

This was the dominant community across units 108 and 35.
This was a low vegetation dominated with *Calluna vulgaris* with only occasional *Erica cinerea* and *Ulex gallii*. There were small stands of *Carex arenaria* scattered through the transition zone with SD10d. *Rumex acetosella*, *Pseudoscleropodium purum* often formed an abundance in an under layer along with *Hypnum cuppressiforme*. *Galium saxatile* was often within the community though often limited, occurring along with *Luzula multiflora* and *Deschampsia flexuosa*.

Ulex gallii was a common component in the bulk of unit 108, however, it was scarce in unit 35.

This was a species poor community, therefore individual quadrats were species-poor. However, as the community was recorded extensively across the site, the overall number of species recorded in H8a was 53.

The *Calluna* heath was varyingly grazed across the sites. In unit 35 at the RSPB boundary there is some grazing by Red Deer just before the fence line (on the RSPB side the *Calluna vulgaris* is heavily grazed and trampled photo P104-0316) although there is some grazing across this end of the site there is still a strong community of plants which are rounded and separated,

This was the dominant community with:
Unit 35 with 22.34 hectares at 47.68% of the total unit area
Unit 108 with 8.13 hectares at 55.3% of the total unit area

H9a *Calluna vulgaris-Deschampsia flexuosa* heath, *Hypnum cuppressiforme* sub-community

Photo 3—Unit 35 looking north

This sub-community occurred scattered across unit the western side of unit 35 where there had been some management and the *Calluna vulgaris* was recovering and the previous moss dominated understorey was becoming covered in *Calluna*.

Unit 35 with 0.21 hectares at 0.44% of the total unit area.

H1b *Calluna vulgaris-Festuca ovina* heath, *Hypogymnia physodes-Cladonia impexa* sub-community

This community occurred in unit 35 where there had been some grazing either by rabbits or red deer. They created this tight structured community by reducing the strength of the *Calluna vulgaris* enabling the more grass rich habitat to become established, in turn providing themselves with better feeding.

Where the *Calluna vulgaris* had become larger and leggier there was a very limited flora associated with it, with occasional *Festuca ovina* and *Galium saxatile* within the plants and with *Hypnum cuppressiforme* under the larger plants. There was a lichen presence dominated with *Cladonia portentosa*.

In unit 35 there was 0.05 ha at 0.1% of the unit area

Photo 4—Unit 35 looking north

H9e *Calluna vulgaris-Deschampsia flexuosa* heath, *Molinia caerulea* sub-community

This community was only found within unit 35. It was frequent in three main areas: near to the woods at the north of the site, at the bottom of the slope near to the dividing track and to the south of the road on the south facing slope adjacent to the footpath.

In each case *Molinia caerulea* was the dominant species throughout. In the southern portion of the unit, there was an association with some less common species *Carex nigra, Juncus squarrosus, Carex pilulifera* and *Erica tetralix.*

There were few associates in the northern sites other than with the title species. However, in the slightly damper areas there was *Erica tetralix*, some *Potentilla erecta* and *Luzula multiflora* scattered through the *M. caerulea*.

H9e was developing where the *Pteridium aquilinum* had been eradicated/ reduced on the southern slope of unit 35 and where there had been considerable work at the northern higher section of the heath in between the woods, here it formed an almost pure stand of *Molinia caerulea*.

In unit 35 there was 4.71 Hectares at 10.06% of the unit area.

Photo 5—Unit 35 looking north

3.2. Acid Grasslands

U1b *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland, typical sub-community

Unit 107 had recently had considerable restoration in the last two years from an area dominated with bracken to one that was supporting a recovering grassland of U1b. With *Carex muricata, Leontodon taraxacoides, Potentilla argentea, Potentilla anglica* and *Aira caryophyllea* as uncommon species with the grasses *Festuca ovina* and *Anthoxanthum odoratum* more frequently found. Bracken had been cleared around these areas as can be seen in photo 6.

This community was scattered throughout the unit in between the other U1 communities present. The matrix was subtle across the site and transitioned seamlessly from one to the other. Some interesting species occurred with this sub-community. Up to 19 species were recorded in the quadrats for this community.

In unit 107 there was 0.68 hectares at 18.96% of the unit area

Photo 6—Unit 107 looking north

U1c *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland, *Erodium cicutarium-Teesdalia nudicaulis* sub-community

This was a rare sub-community scattered only along the northern boundary of the unit 107. Here there was a considerable amount of grazing by both rabbits and red deer, both of which were present during the field work.

Uncommon species here included *Polygala serpyphyllum* (rare in Suffolk), *Cerastium semidecandrum, Ornithopus perpusillus, Stellaria pallida, Myosotis discolor and Centaurium erythraea.* Up to 21 species were recorded within the quadrats of this community.

Hypnum cuppressiforme formed a constant species within the flora.

This habitat and the other U1 communities held Stone Curlews.

In unit 107 there was 0.11 ha at 3.16% of the unit area

Photo 7—Unit 107 looking north

U1e *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland, *Galium saxatile-Potentilla erecta* sub-community

This community was frequent in unit 107. In the areas where the bracken had been controlled this community was developing.

Galium saxatile was common amongst the herb species. Where the *Calluna vulgaris* had been grazed or mown, the U1e had started to become more developed with less completion with taller species. The main species within this communty were those of the title with more uncommonly *Luzula multiflora, Galium verum, Carex muricata, Potentilla anglica, Hypochaeris radicata* and occasional *Pseudoscleropodium purum*.

Up to 17 species of plant were recorded in these quadrats.

In unit 35 there was 2.13 hectares at 4.54% of the unit area.
In unit 107 there was 0.53 hectares at 14.77% of the unit area.

Photo 8—Unit 107 looking north

U20a *Pteridium aquilinum-Galium saxatile* community, *Anthoxanthum odoratum* sub-community


Photo 9—Unit 107 looking south

This community was frequent in small stands across all the units though it was being replaced by more heath dominated communities as management were controlling its growth. Where the Bracken had been cut or sprayed its reduced vigour had allowed grass species to become more dominant.

Herb species within this community were low in abundance but did include some important species including *Polygala vulgaris, Potentilla argentea, Moenchia erecta, Myosotis ramosissima and Vicia lathyroides.* Common species included *Anthoxanthum odoratum, Holcus lanatus, Galium saxatile* and *Glechoma hederacea.*

This community had a transition with the U1 communities where the bracken had been almost eradicated. This community was reducing as grazing occurs once the bracken had been reduced.

In unit 35 there was 0.32 hectares at 0.69% of the unit area
In unit 107 there was 0.26 hectares at 7.33% of the unit area


Photo 10—Unit 107 looking south

U20c *Pteridium aquilinum-Galium saxatile* community, species-poor sub-community

This community was frequent in smaller areas due to the effect of management controls across all the units. In unit 35 it was present along the centre of the unit west of the car park where there had been considerable clearance of a large area of *Pteridium aquilinum*. The main additional species within this community were *Luzula multiflora, Carex pilulifera, Campylopus introflexus, Festuca ovina* and *Carex arenaria.*


Photo 11—Unit 108 looking south

In unit 107 much of the central portion of the unit would have been this community, however management of this area had reduced the extent to 0.44ha, 12% of the unit area.

In unit 108 U20c was found mainly around the eastern side of the unit where it previously dominated under the now cleared woodland.

This community created a dense, uniform, species-poor community where it was left unchecked, but with management a range of species quickly developed into U20a.

In unit 35 there was 4.04 hectares at 8.62% of the unit area
In unit 107 there was 0.44 hectares at 12.28% of the unit area
In unit 108 there was 2.59 hectares at 17.6% of the unit area


Photo 12—Unit 108 looking south

3.3. Open vegetation communities

OV21a *Poa annua-Plantago major* community, typical sub-community

This community was limited to an area around the car park and along the roadways across unit 35. Here the OV21 formed a thinly vegetated community across the areas it was found.

Many species were found through this habitat the more unusual species include *Cerastium semidecandrum, Crassula tillaea, Aphanes australis, Hypochaeris glabra, Ornithopus perpusillus, Arenaria serpyllifolia subsp. Leptoclados* and *Juncus bufonius.* Very few species were common where there was slightly less vehicular traffic. More *Agrostis capillaris* was found in the less trampled areas, though grasses were in general rare in this habitat.

In unit 35 there was 1.44 hectares at 3.08% of unit 35

Photo 13—Unit 35 looking south

3.4. Sand dune communities

SD10 *Carex arenaria* dune community, *Festuca rubra* sub-community

This community was only found in unit 108 where it was found in two areas of the site. At the east of the unit SD10 was a lightly vegetated community in areas of disturbed soils where the removal trees and scrub from the heath had been undertaken. It was also most frequent in the eastern area of the site where there had been some restoration work; primarily the removal of trees.

The loose soils were slowly becoming consolidated by the *Carex arenaria* with a range of other species including *Galium saxatile, Carex pilulifera, Rumex acetosella* and occasional *Veronica officinalis* occurring.

In the western corner of unit 108 the land sloped away and there were some low ridges and troughs. These were covered in SD10 which often formed a pure community of dense vegetation with a good thatch. The SD10 grassland here had fewer species associated with it, though there was *Pteridium aquilinum* spreading into the area. Here there was *Ceratocapnos claviculata, Veronica officinalis* some *Festuca ovina* and *Luzula multiflora* lightly scattered through this area.

Above the SD10 grassland the H1d heathland formed a transition into the abundant H8a of the stable heathlands further up the slope.

In unit 108 there was 2.59 hectares which was 17.6% of the unit area.

Photo 14—Unit 108 looking south

Photo 15—Unit 108 looking east

3.5. Woodlands and shrubs

W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community

Photo 16—Unit 108 east

This woodland was found in unit 108 along the southern edge of the unit, there was a very limited understory which was dominated with *Pteridium aquilinum* and very few other associates, but with *Deschampsia cespitosa* and *Lonicera periclymenum* as consistent species within the community.

On the north western side of the unit there was a narrow strip of this community where the nearby *Carex arenaria* communities were found. A very species poor community.

In unit 108 there was 1.48 hectares at 10.1% of the unit area

W16a *Quercus spp.-Betula spp.-Deschampsia flexuosa* woodland, *Quercus robur* sub-community

Photo 17—Unit 108 looking south

W16a was found in each unit. This community dominated the northern section of unit 35. Here it formed two distinct blocks of land. The canopy was dominated with *Betula pendula* on the slopes with a range of under-scrub of *Lonicera periclymenum, Ilex aquifolium.* There was a species poor ground flora with *Ceratocapnos claviculata, Molinia caerulea* frequent and the moss flora was well represented by *Leucobryum glaucum, Brachyhecium velutina, Polytrichum formosum* and *Campylopus introflexus.* Other associated species included *Erica cinerea, Erica tetralix* which were sparsely distributed on the edges of the community within the more open canopy areas near to the main rides. *Pteridium aquilinum* was an occasional component though never in a high density with a species poor understory.

This community formed a mosaic in the north west of the unit where it formed a light canopy over the H8a on this north facing slope.

In unit 108, this community extended along the eastern side of the site. It formed a boundary with neighbouring fields. Some of this woodland had been cleared to enable the H8a to continue to develop across the site. *Teucrium scorodonia, Veronica chamaedrys* were occasional species within this habitat.

In unit 107, the W16a was limited to the area along the north east of the unit where it formed a mosaic with W22. This was a small stand along the edges of the track and footpath.

In unit 35 there was 9.78 hectares at 20.87% of the unit area
In unit 107 there was 0.44 hectares at 12.28% of the unit area
In unit 108 there was 0.72 hectares at 4.9% of the unit area

W21a *Crataegus monogyna-Hedera helix scrub, Hedera helix-Urtica dioica* sub-community

There was only a small stand of this community along the eastern end of unit 35. This hedge and scrub area was the main community here.

In unit 35 there was 0.04 hectares at 0.09% of the unit area

Photo 17—Unit 35 east

W22 *Prunus spinosa-Rubus fruticosus* scrub

At the northern side of unit 107 was a hedge dominated by *Prunus cerasifera*, it was fenced off from the sheep grazing the nearby unit . It had a limited under flora which was dominated by *Claytonia perfoliata, Glechoma hederacea* and had some bare soil disturbed by rabbits.

In unit 107 there was 0.27 hectares at 7.54% of the unit area

Photo 18—Unit 107 looking north

W23b *Ulex europaeus-Rubus fruticosus* scrub, *Rumex acetosella* sub-community

Photo 19—Unit 107 looking east

Each unit had areas of this community, though only occurred in small stands. W23b was composed of tall, open or closed canopy of *Ulex europaeus* with a limited under flora. There were often *Betula pendula* and *Lonicera periclymenum* with an abundance of *Pteridium aquilinum* through these stands.

In the north of unit 108 there were three stands of this habitat all with a very limited flora associated, *Ceratocapnos claviculata, Lonicera periclymenum* as occasional species from the nearby heath entering the edges of this habitat.

In unit 107 this community formed a barrier to the nearby footpaths and tracks. Creating a protective area for the Stone Curlews using this unit. Here *Lonicera periclymenum, Ceratocapnos claviculata* and occasional *Rosa* and *Rubus* species were uncommon through the community.

In unit 35 this community was limited to small stands across the site, with the largest area either side of the main track running through the northern section of the unit. Here it was surrounded by H8a and the conifer plantation to the east. The W23 was a species poor community across all the sites, though often supported Dartford Warblers and Stonechats when passing.

There was little management of this community though grazing by large herbivores (red deer) controlled the growth of this.

In unit 35 there was 0.46 hectares at 0.99% of the unit area
In unit 107 there was 0.16 hectares at 4.57% of the unit area
In unit 108 there was 0.52 hectares at 3.6% of the unit area

4.0 Data analysis

4.1 Overview of vegetation communities in the Westleton Heath NNR

These are summarized below.

Community type	**Percentage of units**			Total %
Unit number	35	107	108	
Heathland	58.28	20.14	58.94	137.36
Acid grassland	13.84	56.53	17.63	88.00
Woodland and scrub	24.79	23.33	18.54	66.67
Open vegetation	3.08			3.08
Sand dune			4.89	4.89

Table 1—Showing percentages of main vegetation types within each unit of the NVC survey

Community type	**Area of units (hectares)**			Total (ha)
Unit number	35	107	108	
Heathland	27.31	0.72	8.67	36.70
Acid grassland	6.49	2.02	2.59	11.10
Woodland and scrub	11.62	0.83	2.73	15.18
Open vegetation	1.44			1.44
Sand dune			0.72	0.72
Total (ha)	46.85	3.58	14.72	65.15

Table 2—Showing areas (ha) of main vegetation types within each unit of the NVC survey

NVC Community		Area - hectares per unit			
		35	**107**	**108**	**Totals**
H8a	Calluna vulgaris-Ulex gallii heath, species-poor sub-community	22.34		8.13	30.47
H1d	Calluna vulgaris-Festuca ovina heath, Carex arenaria sub-community		0.72	0.54	1.26
H9a	Calluna vulgaris-Deschampsia flexuosa heath, Hypnum cuppressiforme sub-community	0.21			0.21
H9d	Calluna vulgaris-Deschampsia flexuosa heath, Galium saxatile sub-community	0.05			0.05
H9e	Calluna vulgaris-Deschampsia flexuosa heath, Molinia caerulea sub-community	4.71			4.71
OV21	Poa annua-Plantago major community	1.44			1.44
SD10	Carex arenaria dune community, Festuca ovina sub-community			0.72	0.72
U1b	Festuca ovina-Agrostis capillaris-Rumex acetosella grassland, typical sub-community		0.68		0.68
U1c	Festuca ovina-Agrostis capillaris-Rumex acetosella grassland, Erodium cicutarium-Teesdalia nudicaulis sub-community		0.11		0.11
U1e	Festuca ovina-Agrostis capillaris-Rumex acetosella grassland, Galium saxatile-Potentilla erecta sub-community	2.13	0.53		2.66
U20a	Pteridium aquilinum-Galium saxatile community, Anthoxanthum odoratum sub-community	0.32	0.26		0.58
U20c	Pteridium aquilinum-Galium saxatile community, species-poor sub-community	4.04	0.44	2.59	7.07
W10d	Quercus robur-Pteridium aquilinum-Rubus fruticosus woodland, Holcus lanatus sub-community			1.48	1.48
W16a	Quercus spp.-Betula spp.-Deschampsia flexuosa woodland, Quercus robur sub-community	9.78	0.40	0.72	10.90
W21	Crataegus monogyna-Hedera helix scrub	0.04			0.04
W22	Prunus spinosa-Rubus fruticosus scrub	1.33	0.27		1.60
W23	Ulex europaeus-Rubus fruticosus scrub		0.16	0.52	0.6880
W23b	Ulex europaeus-Rubus fruticosus scrub, Rumex acetosella sub-community	0.46			0.46
		46.85	3.58	14.72	65.15

Table 3– Area (hectares) cover of NVC communities found during the survey at units 35, 107 and 108 of the Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR

NVC Community		Percentage per unit (%)		
		35	**107**	**108**
H8a	Calluna vulgaris-Ulex gallii heath, species-poor sub-community	47.68		55.25
H1d	Calluna vulgaris-Festuca ovina heath, Carex arenaria sub-community		20.14	3.69
H9a	Calluna vulgaris-Deschampsia flexuosa heath, Hypnum cuppressiforme sub-community	0.44		
H9d	Calluna vulgaris-Deschampsia flexuosa heath, Galium saxatile sub-community	0.10		
H9e	Calluna vulgaris-Deschampsia flexuosa heath, Molinia caerulea sub-community	10.06		
OV21	Poa annua-Plantago major community	3.08		
SD10	Carex arenaria dune community, Festuca ovina sub-community			4.89
U1b	Festuca ovina-Agrostis capillaris-Rumex acetosella grassland, typical sub-community		18.97	
U1c	Festuca ovina-Agrostis capillaris-Rumex acetosella grassland, Erodium cicutarium-Teesdalia nudicaulis sub-community		3.16	
U1e	Festuca ovina-Agrostis capillaris-Rumex acetosella grassland, Galium saxatile-Potentilla erecta sub-community	4.54	14.78	
U20a	Pteridium aquilinum-Galium saxatile community, Anthoxanthum odoratum sub-community	0.69	7.34	
U20c	Pteridium aquilinum-Galium saxatile community, species-poor sub-community	8.62	12.28	17.63
W10d	Quercus robur-Pteridium aquilinum-Rubus fruticosus woodland, Holcus lanatus sub-community			10.06
W16a	Quercus spp.-Betula spp.-Deschampsia flexuosa woodland, Quercus robur sub-community	20.87	11.23	4.92
W21	Crataegus monogyna-Hedera helix scrub	0.09		
W22	Prunus spinosa-Rubus fruticosus scrub	2.84	7.54	
W23	Ulex europaeus-Rubus fruticosus scrub		4.57	3.57
W23b	Ulex europaeus-Rubus fruticosus scrub, Rumex acetosella sub-community	0.99		

Table 4– Percentage cover of NVC communities found during the survey at units 35, 107 and 108 of the Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR

4.2 Rare and unusual species of plant

Cuscuta epithymum
This small parasite is very scarce in Suffolk restricted to about 6 sites. Classed as a Suffolk Rarity. This was found in unit 108 in one small are to the east of the footpath. Away from general visitor access. The plants were small this early in the season.

Crassula tillaea
This nationally scarce species is widespread in Suffolk and often found on tracks in the Sandlings of east Suffolk. During this survey it was often found in unit 35 along the tracks and within the car parks.

Danthonia decumbens
This locally scarce species is known from about 20 records in Suffolk, one plant was found at the path side leading from the road to the car park of unit 35.

Erica tetralix
This is a locally rare species in Suffolk, with only a few locations in the east and north of the county. Eight records were made during this survey in units 108 and 35. Always associated with slightly damper conditions.

Juncus squarrosus
This locally scarce species is known from 14 sites in Suffolk, this was only found in unit 35 on the edge of the foot path running south through the southern section of the unit, often near to *Erica tetralix*.

Nardus stricta
This species is a scarce and declining grass in Suffolk and was recorded only once during the field work on the edge of the southern path in unit 35.

Polygala serpyllifolia
This locally scarce species is only known from five sites in Suffolk and was recorded only once in unit 107 at the western end of the site in an area that is being restored from a *Pteridium aquilinum* dominated habitat to good quality U1 grasslands.

Polygala vulgaris
This locally scarce species is known from 20 sites in Suffolk and was recorded only once in unit 107, as with *P. serpyllifolia* it was recorded in restored habitat on the south east of the unit.

Potentilla argentea
This near threatened species is fairly widespread in the Sandlings of Suffolk and was found on four occasions in unit 107, scattered along the eastern side of the unit in heavily grazed grasslands or in compacted vehicle tracks.

Rosa spinosissima
This rare Suffolk native was recorded from the road side of unit 35.

Stellaria pallida
This is scarce Suffolk species and was recorded in three quadrats in unit 107 and 108.

Overall, 178 species of plant were recorded across the three units during this survey

Unit 35—152 species were recorded
Unit 107— 86 species were recorded
Unit 108—63 species were recorded

These lists were compiled whilst carrying out the survey work and are not exhaustive species list. Mostly casual observations whilst determining communities. Please refer to Appendices for maps of the locations of the rare and unusual plants.

4.3 Non-botanical species records of note

Records of interesting species observed during the NVC survey are summarised in table 5 below.

Species	Scientific name	Unit	Notes	Grid-ref	Number of
Norfolk hawker	*Aeshna isosceles*	108	One seen hawking over the heath	TM4721268784	1
Woodlark	*Lullula arborea*	35	Territorial - singing	TM4585969628	1
Woodlark	*Lullula arborea*	107	Territorial - singing	TM4682268922	2
Stone curlew	*Burhinus oedicnemus*	107	Territorial - calling	TM4680668889	2
Nightjar	*Caprimulgus europaeus*	108	Territorial - singing	TM4714068843	1
Dartford warbler	*Sylvia undata*	108	Territorial - singing	TM4704868737	1
Dartford warbler	*Sylvia undata*	35	Territorial - singing	TM4582569249	1
Dartford warbler	*Sylvia undata*	35	Territorial - singing	TM4580769700	1
Dartford warbler	*Sylvia undata*	35	Territorial - singing	TM4563469781	1
Silver-studded Blue	*Plebejus argus*	35	Hill topping	TM4545869850	1
Silver-studded Blue	*Plebejus argus*	35	Hill topping	TM4578869140	1
Silver-studded Blue	*Plebejus argus*	35	Hill topping	TM4580369339	1
Silver-studded Blue	*Plebejus argus*	35	Hill topping	TM4583469157	1
Silver-studded Blue	*Plebejus argus*	35	Hill topping	TM4576069242	1

Table 5: Non botanical species records of particular note made during the NVC survey of units 35, 107 and 108 of the Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR

5. Limitations of the survey

5.1 Access

Access was possible along the entire site and no areas were missed during this survey.

5.2 Timing

The timing of this survey was planned to coincide with the greatest abundance of heathland plants to ensure that identification of the more difficult species would be easier. This did reduce the ability to find and vernal species though it is considered that very few species were missed during this survey.

The time taken to carry out the field work will always have an effect on the abundance of species found throughout a survey of this type, some species will be more prevalent at different times of year and create apparent abundance of scarcity depending on when the visit was made.

The field work was carried out on 18, 20, 21, 25 and 26 June 2013

5.3 Land use

As far as was noticed along the three units there was only recreational use being carried out. There were no signs of grazing in the heaths other than by rabbits and red deer.

6. Discussion

During the survey of units 35, 107 and 108 of the Minsmere-Walberswick Heaths & Marshes SSSI – Walberswick NNR 18 types of vegetation were recorded. The vegetation composition of each unit is discussed in the following sections.

6.1. Unit 35

Unit 35 was a large area of mature restored heathland with two large areas of woodland on the northern edge of the unit. 46.85 hectares (ha) of vegetation were mapped of which 27.31ha were heathland communities, 1.44 ha were of open vegetation, 6.49 ha were acid grasslands and 11.62 ha were woodland communities. The dominant community was H8a, an Annex I habitat of national importance.

Across the northern section of the site it was apparent that there had been considerable management carried out, this was backed up by referring back to Google Earth images from previous years. Here it was evident that a considerable number of trees had been removed from the main heath areas. This had enabled the heathland to recover from shading and extra competition. This had been carried out on both sides of the road running through the site. In the northern section of the unit there were areas of woodland, around which was an developing area of *Molinia caerulea* grassland where the main *Pteridium aquilinum* had been reduced and removed. Though it was relatively early on in the recovery stage, this section of the site showed that the management was effective and important to have carried out in order to reduce the effects of the *Pteridium aquilinum* and create a set of valuable additional habitats on the site. Within these grasslands there will be damper sections where the uncommon *Erica tetralix* will be able to become more established within the community.

A wide range of species were found across the unit with 151 species of plant recorded. Botanically the site held several uncommon species scattered across the unit. Mossy stonecrop *Crassula tillaea* was recorded along the tracks and Cross-leaved heath *Erica* tetralix was found in two areas on both sides of the dividing road. Heath rush *Juncus squarrosus* was found only to the south of the road in two sites close by each other. Here too was one stand of *Nardus stricta*. Within the southern section *Stellaria pallida* was found an area of restored heath. Near to the car park one plant of Heath Grass *Danthonia decumbens* was found.

The H8a heathlands across the northern section of the site have been managed to create a wide range of vegetation densities, sward height and structure. Thus creating a wide range of habitats for the invertebrates and breeding birds on the site. As was noted with Dartford warbler frequently seen across these heaths.

A large amount of hard work has obviously been carried out and this has maintained a very important site to a high standard. The management by removing the tree seedlings across the site will need to be continued as will the reduction of the U20a community. The work that has already been carried out all shows how great the site is already. In the future, there is potential for more improvements and the development of the large *Pteridium*-cleared area in the southern side of the unit.

The site was important for Dartford warblers *Sylvia undata* of which at least eight were heard, also woodlark *Lullula arborea* which were present holding territories on the site as were Turtle dove and hobby.

On the invertebrate front very few were noted though Silver-studied Blues *Plebejus argus* were noted across the site with 5 records made.

A wide range of species of plant were seen across unit 35 with several that are of note:

Cuscuta epithymum
Crassula tillaea
Danthonia decumbens
Erica tetralix
Juncus squarrosus
Stellaria pallida
Nardus stricta
Polygala serpyllifolia
Polygala vulgaris
Potentilla argentea
Rosa spinosissima and

6.2. Unit 107

Unit 107 was an area of acid grassland that has had a considerable amount of remediation work carried out in order to restore the dry acid grassland community that once occurred on the site. Here there was a total of 3.58 ha of vegetation recorded. This comprised of 0.72 ha of heathland, 0.72 ha of sand dune community, with 2.02ha of acid grassland and 0.83 ha of woodland. The reduction in bracken across the site has enabled a wide range of species to become re-established with many uncommon species being recorded across the site.

The recent work across unit 107, reducing the cover of *Pteridium aquilinum*, was having a marked effect on the flora of the site. There was no data for comparison but it appeared to be greatly improved with numerous scarce and uncommon species evident across this small unit.. The use of Google Earth showed the extent of the work carried out on the site and the rapid changes in the flora too that were found during this survey.

At the western end of the site the reduced bracken was allowing for an increased amount of grazing to occur in the developing grasses here. The centre of the site was formerly covered in scrub and Pteridium, here now there was a rich acid grassland establishing.

The site was well grazed by Red deer *Cervus elaphus,* which were observed on the site during the survey, and rabbit *Oryctolagus cuniculus* which will be important for managing the site in the future. The centre of the unit held a rabbit warren which was active at the time of this survey.

Stone curlew *Burhinus oedicnemus* were seen on each occasion the site was visited and woodlark *Lullula arborea* were heard in the vicinity presumably holding territories.

The removal of the dividing hedge across the centre of the site had created areas of disturbed soils which were species poor at the time of the survey. Though the potential level of grazing and rich nearby communities should allow for swift re-colonisation of the area.

It is essential that continued monitoring, scrub clearance and *Pteridium* reduction is maintained to ensure a continued development of this unit.

Botanically, the site held 86 species of which there were several species that were uncommon in Suffolk with *Potentilla argentea* seen in the northern section of the site, Trailing tormentil *Potentilla anglica* on the western end in the acid grasslands, here too was a small area of Heath milkwort *Polygala serpyllifolia*. Further up the slope was Common milkwort *Polygala vulgaris* and Lesser chickweed *Stellaria pallida* though both uncommon on the site.

A wide range of species of plant were seen across unit 107 with several that are of note:
Polygala serpyllifolia
Polygala vulgaris
Potentilla argentea and
Potentilla anglica

6.3. Unit 108

Unit 108 was an area of mature heathland with some woodland on the southern and eastern sides of the site.

The unit held 14.72 ha of vegetation of which 8.67 ha was heathland, 0.72 ha was sand dune, 2.59 ha was recovering acid grassland and 0.52 ha of woodland.

Across the site there had been a considerable amount of restoration carried out in the last few years. Most notable was the removal of a large number of *Betula pendula* and *Pinus sylvestris* from across the H8a-dominated section of the unit. The areas where the removal had already occurred were starting to become colonised by the surrounding H8a heathlands. Which is a very short time frame and shows the strength of the site and the associated seed bank on the site.

Much of the mature planation woodland on the northern boarder had recently been logged therefore making an area available for heathland and grassland to colonize. On the northern edge of the site there had been a considerable removal of naturally regenerated woodland and old larch plantation. This had a very poor understory with very little vegetation, however, the work here had only recently been finished in the winter of 2012. There were still small areas of brash present in these areas and this will be beneficial for invertebrates on the site by providing additional habitat. This was an important area to clear to allow the H8a to return into areas where it had been absent for many years. The 1945 Google Earth images it shows that this was formerly an area of heathland it is exciting to see this being returned to a more natural community.

The eastern side of the unit had also previously held a larger amount of woodland which has been reduced to a wide hedge line along the boundary of the site. Here too the heathlands have been quick to become re-established within in a single growing season.

Unit 108 held 63 plant species of which there were several uncommon plants including dodder *Cuscuta epithymum* found in one area only, Western gorse *Ulex gallii* found across the unit, Cross-leaved heath *Erica tetralix* found in two areas with four records.

A wide range of species of plant were seen across unit 108 with several that were of particular note:
Cuscuta epithymum
Erica tetralix
Nardus stricta
Stellaria pallida

There were several uncommon, non-plant species noted during the survey. Nightjar and Dartford warbler being birds of interest and the Norfolk Hawker dragonfly was seen feeding over the heath. There were two nightjar runways on the eastern side of the unit. These essentially had bare peats with very limited vegetative cover.

7. References

This report is to cited as:
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