

NVC survey of Broadwater Warren RSPB Reserve

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February 2008



NVC community W5c at Broadwater Warren, 19/02/2007, G Lyons.

0 - Summary

A total of 14 NVC communities were recorded including two communities classed as uncommon (W5c at 0.63 ha and M16a at 0.18 ha) and one community considered threatened (H2 at 0.53 ha). By using the field layer map in conjunction with the NVC map it should be possible to gauge which plantations will revert to which NVC community after the removal of conifers.

Of the 182.3 ha site, 176.7 ha can be considered woodland of which 33.9 ha can be considered broad leaf woodland. Further to this, 11.4 ha can be considered as wet woodland.

1 – Introduction

This report contains the findings of an NVC survey at Broadwater Warren in 2007/08. The survey was commissioned as part of an environmental impact assessment of plans to restore much of the site to heathland and broadleaf woodland by removal of conifers and birch scrub.

2 - Methodology

The reserve was visited three times on the following dates: 16th & 17th August 2007, 20th & 21st November 2007 and 29th & 30th January 2008.

No species list was taken due to time constraints with the mapping and determination of the different communities taking priority.

Recent aerial photographs of the site were enlarged to a suitable size and were used as base maps for mapping the vegetation. A GPS unit (Garmin GPSMAP 60cx) with a high degree of accuracy and an ability to lock on to satellites underneath the canopy, was used to walk areas of vegetation that were not distinct on the aerial photographs. These grid references were then uploaded onto MapInfo. The sketch maps were also digitised using the aerial photographs that are now available on MapInfo at The Lodge.

Two columns were set up in the MapInfo table, one for the canopy/NVC survey and one for the field layer. This will be important as some areas that have a canopy comprised solely of commercial conifers, have under-stories of Heather and Purple Moor-grass and this would go unnoticed if the focus was solely on the canopy.

3 – Results

3.1 - Description of NVC communities

W4 – Downy Birch (*Betula pubescens*)/Purple Moor-grass (*Molinia caerulea*)

Both birches in varying quantities with Purple Moor-grass by far the most dominant species. Mature tussocks of the grass rise up out of relatively wet conditions. The topography of these areas is generally very flat.

W4c – Downy Birch (*Betula pubescens*)/Purple Moor-grass (*Molinia caerulea*) - *Sphagnum* sub community.

Both birches in varying quantities are dominant in the canopy with *Sphagnum* species dominating the ground flora. In some areas, the *Sphagnum* has grown over small pools, like hover, and is quite dangerous to walk through. Again, the topography is generally flat.

W5c – Alder (*Alnus glutinosus*)/Greater Tussock Sedge (*Carex paniculata*) Carr – Opposite-leaved Saxifrage (*Chrysosplenium oppositifolium*) community.....**Uncommon**
Alders dominated the canopy with scattered birches. The ground flora is dominated by Greater Tussock Sedge and the water levels are much higher than in W6 woodland. This woodland is very wet between the tussocks and some of the older dead tussocks are likely to support interesting bryophyte communities.

W6a Alder (*Alnus glutinosus*)/Nettle (*Urtica dioica*) woodland – typical community.

A canopy dominated by Alders but with a drier field layer and a slightly more varied ground flora. The topography of this woodland is very flat and the point at which the ground begins to slope often demarks the boundary between this community and the drier W16a.

W6c Alder (*Alnus glutinosus*)/Nettle (*Urtica dioica*) woodland – Downy Birch (*Betula pubescens*) sub-community

Similar to above but the canopy is dominated by birches. In addition, there appears to be more Honeysuckle (*Lonicera periclymenum*) and Broad Buckler-fern (*Dryopteris dilatata*) and the surface is generally a little drier. As with W6a, the topography is very flat.

W16a Oak spp. (*Quercus* spp.) – Birch spp. (*Betula*) spp. – Wavy hair-grass (*Deschampsia flexuosa*) sub community

Confusingly, areas dominated by Silver Birch with a dense Bracken understorey, which are abundant at Broadwater Warren, fit well to this sub-community. The stands are often very species poor and have a hugely varied topography that is usually undulating. Oaks are occasionally abundant and rarely dominant.

W10b Pedunculate Oak (*Quercus robur*) – Bracken (*Pteridium aquilinum*) – Bramble (*Rubus fruticosus*) – Wood Anemone (*Anemone nemorosa*) sub-community.

The areas dominated by coppiced Sweet Chestnut (*Castanea sativa*) with large Pedunculate Oak standards best fit this community. Occasionally Hazel (*Corylus avellana*) or Wild Cherry (*Prunus avium*) is abundant. The under-story is mostly dominated by Rhododendron with Bracken and Bramble present too.

W25 – Bracken (*Pteridium aquilinum*)/Bramble (*Rubus fruticosus*) under-story.

This has been used to describe areas where the field layer is dominated by Bracken and there are no tress present.

M16a – Cross-leaved Heath (*Erica tetralix*)/*Sphagnum compactum* Wet Heath (typical sub-community).....**Uncommon**

One small area appears to have developed where trees have been removed from wet woodland growing over Purple Moor-grass. Heather and Purple Moor-grass are now co-dominant and Cross-leaved Heath is present here, as are *Sphagnum* spp. Bracken, Scot's Pine and Birches (particularly Downy Birch) have a strong presence here and Alder Buckthorn (*Frangula alnus*) is also frequent.

M25 - Purple Moor-grass (*Molinia caerulea*) Tormentil (*Potentilla erecta*)

Several small patches of *Molinia* dominated grassland, always occurring on slopes and with no canopy, are best described as this community.

U2 - Wavy Hair-grass (*Deschampsia flexuosa*) acid grassland community.

This community is dominated by Wavy Hair-grass, though Heath Bedstraw (*Galium saxatile*) can be abundant in some areas and its presence is very evident when the flowers are in bloom. Heather is also locally abundant. Scot's Pine, Birches and Bracken encroach into this community.

H2 – Heather (*Calluna vulgaris*) - Dwarf Gorse (*Ulex minor*) heath sub-community.
Threatened.

This is the closest match to the heathland seen at Broadwater Warren although it is not exact, as little Dwarf Gorse (*Ulex minor*) or Bell Heather (*Erica cinerea*) was present. The areas were dominated by Heather, with small patches of common bryophytes and Wavy Hair-grass underneath. Again, Bracken, Birches and Scot's Pines encroach into the community.

S12 – Reedmace (*Typha latifolia*) swamp

One small area around the pond towards the centre of the site is best described as this sub community based upon a species list provided by Martin Allison.

Pondweed/A9

The centre of the pond is dominated by pondweed. Although there is some confusion over this species being Broad-leaved Pondweed (*Potamogeton natans*) or Bog Pondweed (*Potamogeton polygonifolius*). If it is the former the community will be A9, if it is the latter there is unlikely to be an NVC community that could be attributed to this vegetation type.

Conifer plantation

Mature plantation with various under-stories as described.

Young conifer plantation

Younger conifers (under five metres), often mixed with natural Birch regeneration. The trees are often still competing with the under story. Often, the only way to see what is growing throughout these blocks is by looking at what is happening on their edges.

Mixed

Areas that are intermediate between conifer plantation and (usually) M16a have been classed as mixed.

See maps 1 and 2 for the distribution of the NVC communities at Broadwater Warren

3.2 - Understorey and field layer.

The dominant vegetation type of the field layer/understorey was recorded during the NVC survey and was listed as one of the following: Rhododendron, Bracken, Wet Heath, Dry Heath, *Molinia*, *Sphagnum*, Forbs (including a variety of flowering plants and pteridophytes), Bryophytes/litter. See map 3 for the distribution of these areas.

3.3 – Total areas

Table 1. The total areas (in hectares) for each NVC community and vegetation type

NVC community	Area (ha)	NVC community	Area (ha)
Mature conifer	91.80	W4c	0.70
Young conifer	42.30	W5c	0.63
W16a	14.20	H2	0.53
Mixed	8.74	U2	0.32
W10b	8.27	M16a	0.18
W6e	6.36	M25	0.13
Rides	2.88	S12	0.08
W4	2.34	Pool	0.03
W25	1.46	A9	0.02
W6a	1.37		

The total area of wet woodland is therefore the sum of W6e, W4, W6a, W4c and W5c = 11.4 ha

The total area of conifer plantation = 134.1 ha

The total area of broadleaf woodland = wet woodland + W10b + W16a = 33.9 ha

Total woodland = 176.7 ha

Non-wooded areas = 5.6 ha

Table 2. The total areas (in hectares) for each dominant vegetation type in the field layer.

Field layer	Area (ha)	Field layer	Area (ha)
Bracken	92.38	Rides	2.88
Dry heath	34.98	Wet Heath	2.42
Rhododendron	19.69	Sphagnum	0.70
<i>Molinia</i>	14.68	Tussock sedges	0.63
Bryophytes/litter	8.04	Aquatic/swamp	0.10
Forbs	5.83	Pool	0.03

4 – Discussion

The survey timing was not ideal due to the lack of ground flora but enough could be gleaned from the more robust components of the vegetation to interpret the different NVC communities accurately.

5 – References

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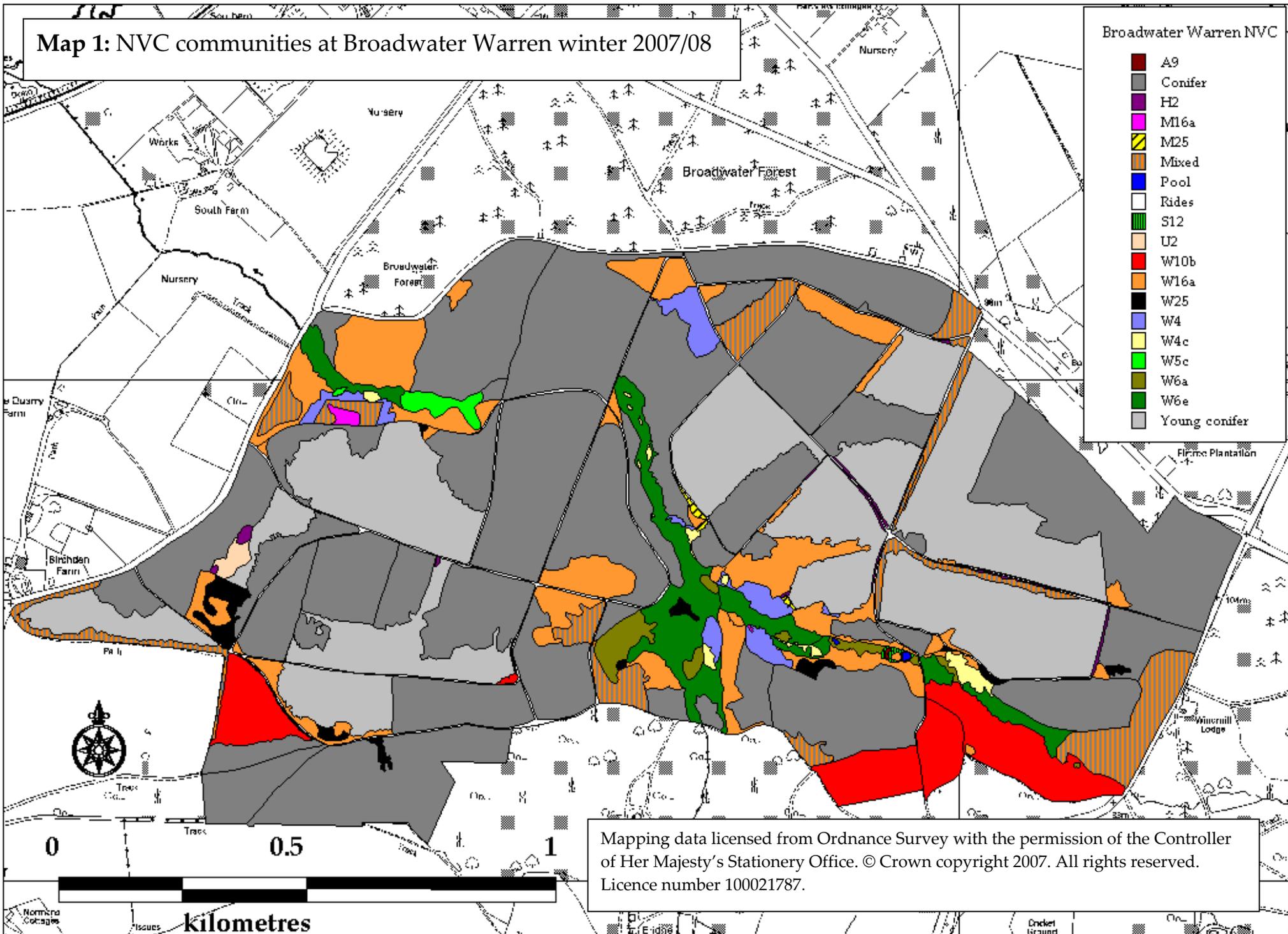
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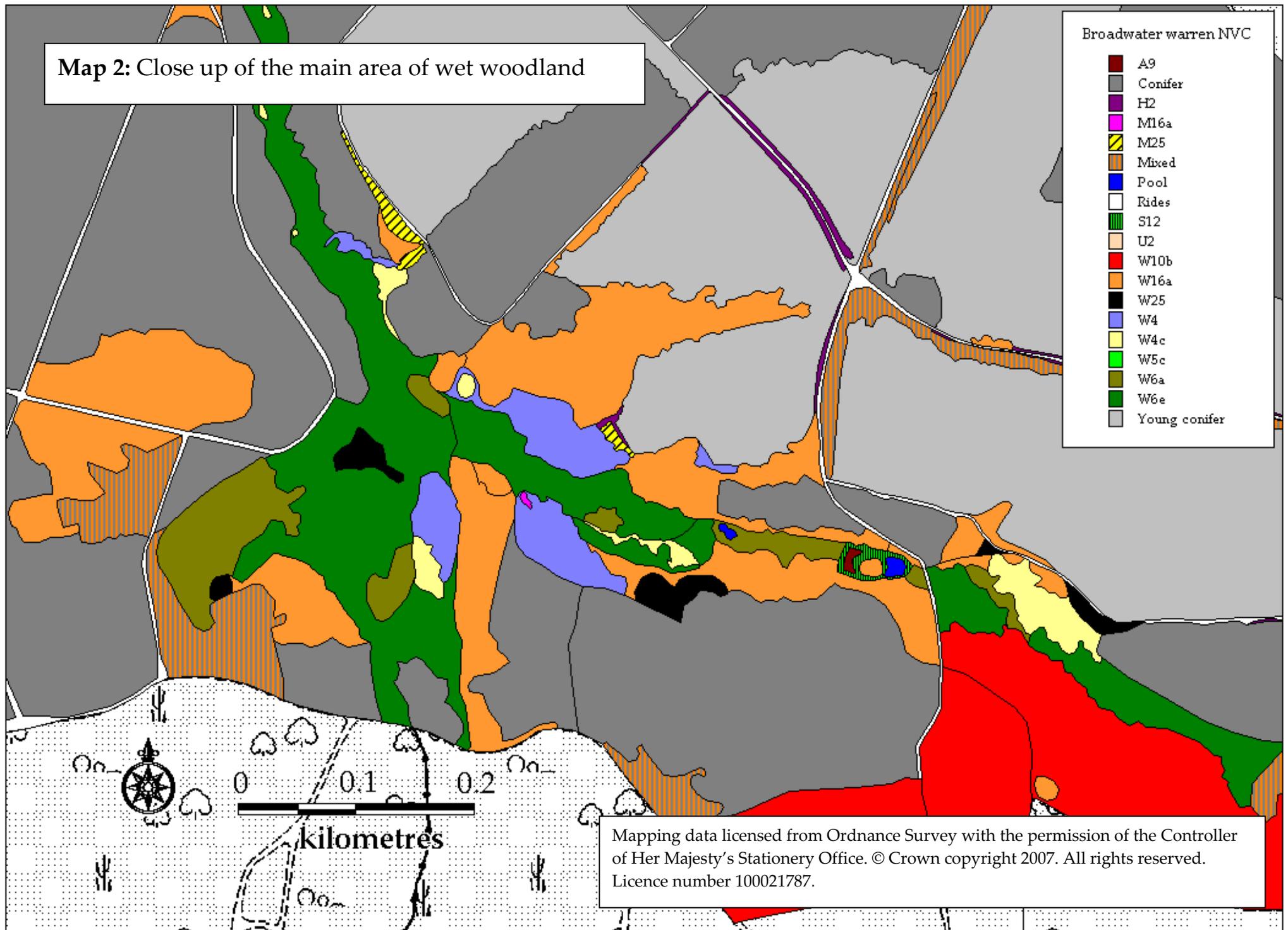
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Map 1: NVC communities at Broadwater Warren winter 2007/08



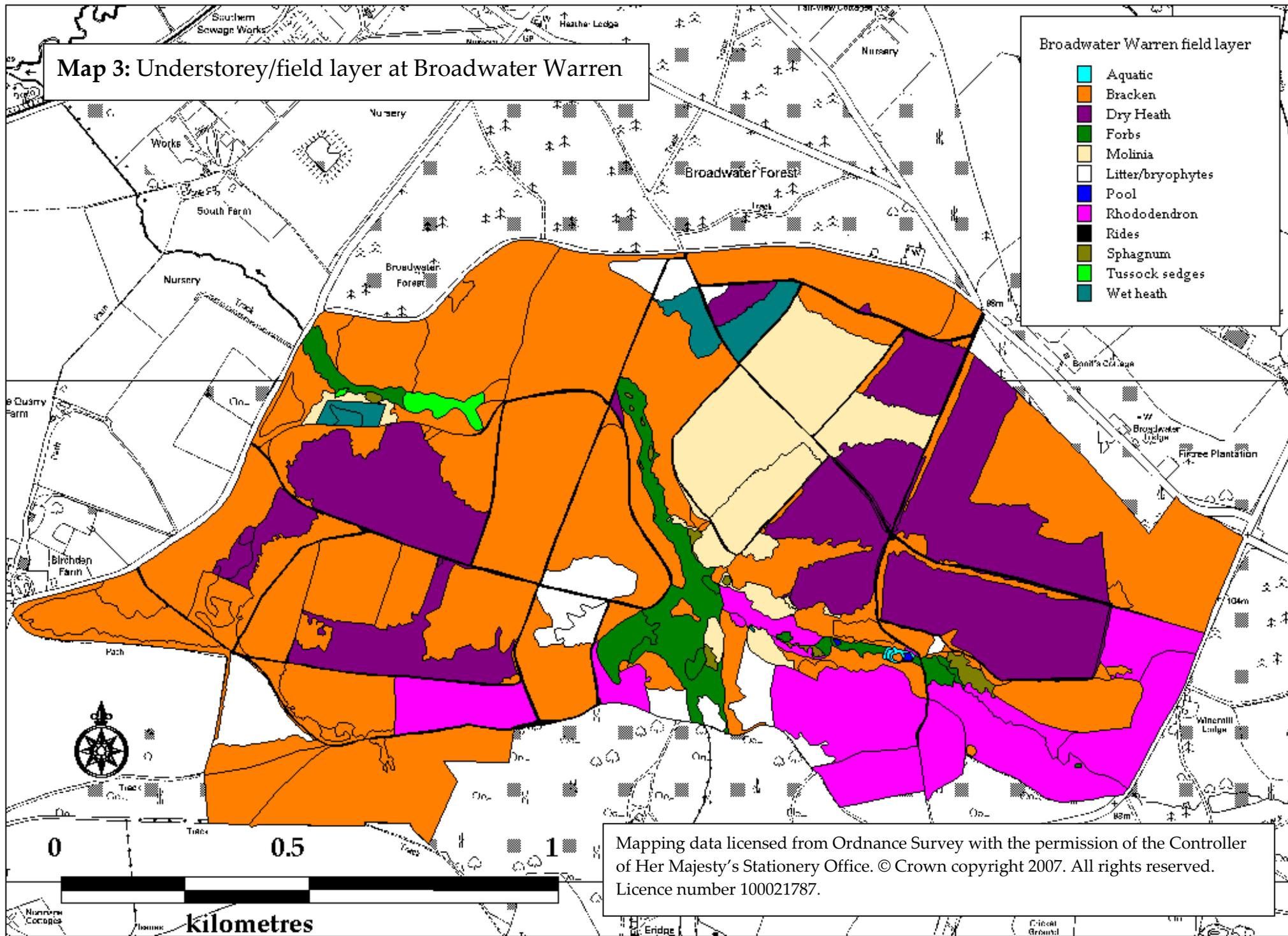
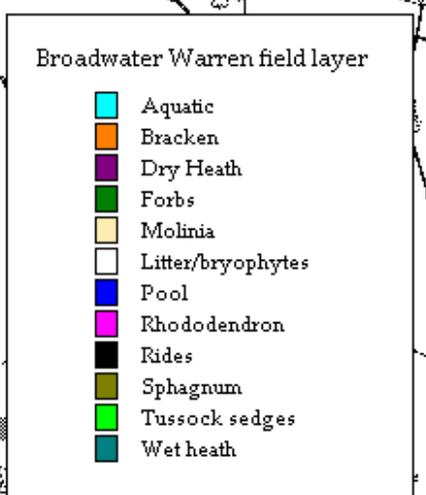
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Map 2: Close up of the main area of wet woodland



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Map 3: Understorey/field layer at Broadwater Warren



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