

NEUTRAL GRASSLAND

Hampshire Biodiversity Partnership

1 INTRODUCTION

Neutral grasslands are unimproved grasslands occurring on mildly acidic to neutral soils (pH 5.5 – 7.0). The soils are usually wet to moist soils (thin peats, leys & brown earths) but not very dry brown sands. On the latter parched acid grassland dominates, which is covered by the Heathland, Acid Grassland and Bog HAP. Neutral grasslands include both hay meadows, pastures, wet and drier grasslands. This plan covers two habitats selected as key habitats under the UK Biodiversity Programme: 'Lowland Meadows'¹ and 'Molinia – Juncus Pastures'².

The plan mainly concerns grasslands in enclosed landscapes away from the major floodplains, particularly the Avon, Test, Itchen and Meon. Grasslands on these chalk river flood plains are covered by the Lowland Wet Grassland HAP. The grasslands on these flood plains are also mixtures of wet and dry grasslands but are usually dominated by different, more calcareous grassland communities. Neutral to acidic grasslands by small rivers in the Tertiary basins are included within the Neutral Grassland HAP, as are the distinctive lawns of the New Forest heathlands.

Some coastal grazing marshes support neutral grassland in higher sections. These are covered by the coastal wet grassland HAP.

Classic examples are Ashford Chase and Ron Wards Meadow in the north of the county, Ancells & Foxlease Meadows in the north east, Bentley Station in the east and Fletchwood, Flexford and Balmer Lawn in the south.

The extent and nature conservation value of neutral grassland has dramatically declined over the last 30 years, principally through agricultural intensification. In England and Wales, an estimated 97% of all unimproved lowland grassland was lost between 1930 and 1984³. This simple statistic covers a much more complex historical reality in areas of ancient countryside such as the London and Hampshire basins. Here an ancient peasant farming system, which probably originated in the iron age, survived into the 19th century. Most permanent pasture was on

open common land, with all the drier enclosed land under arable including rotated fallow. Only enclosed wetter, flooded or flushed ground had permanent grassland and this would all be closed up for hay. This system declined in the 19th century and collapsed after 1870 when the great agricultural depression resulted in large areas of former arable reverting to permanent pasture. From surviving examples this reverted grassland included classic flowery but not necessarily very botanically species rich unimproved grasslands. In contrast, valley sides, bottoms and former commons generally support richer ancient grasslands, which have never been ploughed. The heavier use of fertilisers on modern arable and leys means that even the flowery hay meadows developed on land reverted from arable in the 19th century are not readily re-created today.

In relation to the origin of these grasslands it is of interest to note that one very important site, Fletchwood, was created by clearing ancient woodland and grazing it in the late 19th century. In general neutral grasslands appear to be derived from the glade flora of grazed woodlands and as such are natural communities which continued into a man made landscape.

There is patchy information about recent losses but no reason to believe that the habitat is any less threatened than it was. The monitoring of 33 Sites of Importance for Nature Conservation (SINCs) by the Hampshire Habitat Survey Project in 2000 in the New Forest recorded that 3 meadow SINCs have been lost since 1996 and that 25% of meadow SINCs were in sub-optimum condition. At this rate there may be no species rich grassland left within the New Forest Heritage Area outside of statutorily designated areas. The habitat does not figure in the public consciousness as highly as habitats such as woodland, downland and heathland. Remaining sites are often small, isolated and on private land. They are also often not very distinctive outside of the flowering season or when heavily grazed. Compared to many habitats there is much more potential for many sites to be lost through lack of awareness.

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2 CURRENT STATUS

2.1 Description of Habitat

The habitat consists of a wide range of diverse grassland communities in different landscape types. These include grasslands on dry ground managed as hay meadows, (very much the traditional view of this habitat), but such sites are in a minority in the county. More typical are mixes of wet and dry grasslands on slopes with spring lines in anciently enclosed fields. Even more complex mixture of communities occur in fields created by 19th century enclosure from the more fertile or wetter soils of former heathland commons.

The Hampshire grasslands, especially the ancient swards, have a distinctive south western character. Types of wet grassland dominated by rushes *Juncus* and moorgrass *Molinia* which are typical of SW England and Wales (Culm or Rhos pasture) are often a component. A summary of the main National Vegetation Classification (NVC) communities is given in Appendix 2.

Associated habitats include hedge banks, parched acid grassland, mire, heath and trees with declining epiphytic lichen communities typical of low intensity pasture. Fragmentation means that few neutral grasslands now play a major role in supporting farmland biodiversity, unlike before WW2. This is probably a significant factor in the decline of some BAP species that use farmland mosaics, especially bats.

Appropriate management is required to maintain the habitat, nearly always including stock grazing and sometimes hay cutting. In the rather impoverished soils of parts of the Hampshire basin, sufficient productivity to make hay production worth while can only be produced by manuring the soils. For this reason Hampshire flower rich hay meadows are often semi-improved and less rich in species than the lower productivity unimproved pastures.

2.2 Distribution and Extent

A rough estimate of the area of neutral grassland in the county from Phase 1 data is 1700-2100ha (0.43-0.56% of Hampshire). There is no detailed data on the extent of neutral grassland in the actual area covered by this plan but an indication has been obtained from the Hampshire Biological record. This has 511 sites which match the following criteria: 3 or more grassland indicators, neutral grassland recorded as a

habitat and found in situations covered by this plan. Sites in the New Forest SSSI were excluded. The 511 sites cover 2600ha. Only part of this area will be species rich neutral grassland, but there are also unrecorded sites. There is over 1000ha of neutral grassland within the Forest SSSI⁴. Combining these estimates suggests between 1800 and 2700ha of neutral grassland within the area covered by this plan.

The existing data has not been fully reviewed but what has been examined indicates that sites are scattered across the Tertiary and Wealden outcrops but with some obvious concentrations. There is greater survival in difficult to access and cultivate areas with springlines, hence an association with Bracklesham Beds and younger rock types and with sands/clay junctions within London Clay. There is a strong association with fringes of former hunting forests and within enclosed relics of large areas of common such as around the New Forest, North Baddlesley and Ancells & Foxlease Meadows. Many are also found adjacent to or close to woodland. The London and Hampshire basins appear to have a greater density of neutral grassland than the Weald. Knowledge of the resource is clearly incomplete but a high percentage of the best sites have probably been located. There is a much less clear picture of less striking meadows and semi-improved grassland with residual interest. It can not be guaranteed that all the sites located in the 1980s still survive as losses have continued.

Historically the largest losses were to agricultural intensification and this has tended to result in many isolated sites surviving by happenstance. The average site size is about two hectares with most between 1 to 4ha. Large agricultural holdings do occasionally still support neutral meadows in inaccessible sites but more are found on small holdings, commoners farms or are used to graze recreational horses. The fragmented ownership of these small sites makes the provision of advice or monitoring difficult.

2.3 Legislation and Site Designation

New Forest cSAC includes international important examples of '*Molinia* meadows on calcareous, peaty or clay-silt-laden soils (Eu-Molinion)' extending to about 900ha to 1000ha⁴. This includes enclosed neutral grassland sites as well as wet lawns on the New Forest.

Significant stands of neutral grassland occur within at least 20 SSSIs in the county (see Appendix 3). There are 10 SSSIs which are

dominated by neutral grassland covering 134ha, 5 in which neutral grassland is a major component of the SSSI covering 351ha and 5 with neutral grassland a significant but proportionately small part of the SSSI covering 30,783ha.

Ashford Hill Meadows NNR is dominated by neutral grassland but the North Solent NNR and Baddesley Common NNR also include areas of neutral grassland. In addition at least 302 Sites of Importance for Nature Conservation (SINC) within the areas covered support neutral grassland.

3 CURRENT FACTORS AFFECTING THE HABITAT

- Inappropriate grazing including both more intensive methods of stock grazing and the conversion to heavily grazed pony paddocks.
- Neglect and abandonment. On going problems in livestock farming could exacerbate this.
- Direct loss to development. The habitat is more vulnerable than others due to its lower profile compared to say woodland.
- Drainage of wetter parts of neutral grasslands. Digging of ponds in to wet areas as well meaning, but inappropriate, conservation measure.
- Direct loss to improved pasture or arable.
- The vulnerability of a large number of sites without statutory protection, exacerbated by small size and fragmentation making SSSI notification difficult.
- Most no longer have a central position in the economy of the holding on which they occur on and have survived by chance or whim. These can be very vulnerable to loss or inappropriate management on change of ownership.
- Current incentive and agri-environmental schemes can be ineffective at helping to conserve small, fragmented sites. Capital payment levels may be insufficient for work on small sites, as the cost per unit area is higher than on larger holdings.

4 CURRENT ACTION

4.1 Site and Species Protection

- New SSSIs neutral grasslands are not being systematically searched for but will be notified if issues emerge.
- SINC identification is ongoing in Hampshire. Further neutral grassland SINCs are likely to be identified by HCC in consultation with EN and Hampshire Wildlife Trust (HWT) and the relevant district council.
- HCC currently have Management Agreements (under Section 39 of the Wildlife and Countryside Act 1981) with the managers of several neutral grasslands.
- EN also have a number of agreements (under Section 15 of the Act) on neutral grassland all of which are SSSIs.
- HWT manage 10 sites with about 100ha of neutral grassland. Of these 7 are SSSIs.

4.2 Habitat Management and Programmes of Action

- Countryside Stewardship (CSS): several significant neutral grasslands have been entered into CSS under the historic land category, including Binswood and Odiham Common while a scatter of other sites have been included, often under the waterside category. Coverage of neutral grassland, however, is not as wide as other more extensive and less fragmented habitats.
- The Habitat Management Advisory Project (HMAP): provides free advice to owners and managers of SINCs in Hampshire, including neutral grassland sites. In addition to advice, assistance is given with applications for grant-aid and a grant budget is available to assist small-scale capital works such as fencing. 22 sites with neutral grassland have been visited ranging from 0.6 – 8ha and averaged 2.5ha with landowner response very positive. Issues found included the sites often being isolated, horse grazing, sites abandoned or neglected and often attached to residential dwellings. Many were hobby farmers, possibly reflecting the level of enthusiasm in terms of asking for HMAP support.
- Hampshire Grazing Project (HGP): HCC and EN are currently funding a project to promote appropriate grazing of conservation sites. The project works across all habitat

types, including neutral grassland, and seeks to promote grazing as a management tool.

- Hampshire FWAG: FWAG Advisors provide advice on integrated farming, conservation and grant schemes. This is available to all landowners throughout the county.
- Avon Valley & New Forest Conservation Advisor The Hampshire Wildlife Trust advisor gives free management advice and practical works as well as assistance with agri-environment grant applications. Neutral grassland in parts of the New Forest are covered.
- 'Integrated Management Guidelines' have been developed for the East Hampshire AONB⁵. These include measures to promote the conservation of neutral grasslands. The Integrated Management Guidelines of particular significance are those for '10 Hangers on Greensand' and '13 Mixed Farmland and Woodland'.
- Local action Hampshire Wildlife Trust's Wildlife Awareness Team (WAT) provide free advice to Parish Councils, Community groups, owners and managers of public land across Hampshire. In addition, WAT provide a programme of training, produce a newsletter three times a year and assist with applications for grant aid.

4.3 Action for Species

Table 1 (Appendix 1) gives details of priority species in Hampshire found primarily in neutral grassland. Action proposed in this Plan will be the principal means of conserving most of these species, although one species – marsh fritillary – will have its own Species Action Plan (SAP). In some cases additional action plans and programmes will also contribute to conserving priority species: for example, UK Species Action Plans (UK SAP) and Butterfly Conservation Regional Action Plans (BC RAP).

Table 3 (Appendix 1) lists those Hampshire priority species that occur in neutral grassland but whose main habitat is **not** neutral grassland. Although action in this HAP may contribute to the conservation of these species, other HAPs have key responsibility for their conservation. Eleven of the species on Table 3 have been identified as requiring a SAP.

At least one priority species identified in Appendix 1, Marsh Fritillary is already the subject of specific conservation efforts, with

suitable grazing regimes introduced to several sites in north east Hampshire.

4.4 Survey, Research and Monitoring

- EN are currently carrying out regular condition assessment of SSSIs through standardised Common Standards Condition Assessment using Site Unit Recording Forms (SURF) for monitoring⁶. HWT are using a similar approach for their reserves.
- Various systematic phase 2 surveys of neutral grasslands were carried in the 1980s, by HCC and NCC/EN, latterly using the NVC classification. The 1990s and 2000s phase 2 survey of neutral grassland has mainly been as a part of the contracted surveys by HWT Ecological Services Ltd. as this habitat has turned up. There was no systematic survey of the neutral grassland resource in the 1990s. A recent aerial photography based phase 1 survey has been carried out for HCC but the accuracy of such surveys for this habitat is usually low.
- Neutral grassland SINCS are being re-surveyed on a rolling 10 year monitoring programme. In 2000 meadows in the New Forest Heritage Area were monitored.
- DEFRA funds an extensive programme of grassland related research, either broadly relevant to neutral grassland or directly addresses neutral grassland management, restoration and creation. These include:
 - Impact of organic fertilisers on semi-natural grasslands.
 - Sustainable livestock systems to conserve key moorgrass/rush pasture species.
 - Ecological mechanisms affecting the restoration of diversity in agriculturally improved grasslands.
 - Ecologically sustainable grazing management of lowland neutral grassland and its effect on livestock performance.
 - Changes in lowland grassland management: effects on invertebrates and birds.
 - Efficiency of hay spreading to increase the diversity of grassland enhancement and arable reversion sites.
- At least one invertebrate survey has been undertaken:
 - A survey of Marsh Fritillary and its habitats in EA Southern Region, but also covering the west of the New Forest, was carried out by Jon Cox for HWT and EA in 1996. This was part of an audit of priority species of rivers and wetland. The species was extinct in the area surveyed but suitable habitat survived.

This, and former sites were found in the wetter parts of neutral grassland away from flood plains. Habitat fragmentation reducing the potential for survival of dispersed meta-populations was thought responsible for the extinction of the species in the study area.g

- The Lowland Grassland Management Handbook (1999)⁷ is the most up to date references for management of neutral grassland.

5 OBJECTIVES

The overall aim of this Plan is to protect and enhance biodiversity of neutral grassland. This broad aim translates the specific objectives set out below. Where feasible, objectives have been allocated targets against which achievement can be measured. The 'Proposed Action' table in section 6 identifies the action to be taken to meet these objectives.

	OBJECTIVES	PROPOSED ACTIONS
A	<p>Ensure no future loss or degradation of unimproved neutral grassland:</p> <ul style="list-style-type: none"> ▪ Maintain the extent and the quality of the existing resource and ensure no further fragmentation. 	<p>1-12, 14 16-18, 25</p>
B	<p>Increase the extent of unimproved neutral grassland:</p> <ul style="list-style-type: none"> ▪ Seek to extend the area of neutral grassland and reduce fragmentation by both reversion of improved land and restoration of areas lost to neglect. 	<p>13-15, 17 31-32</p>
C	<p>Improve the quality of unimproved neutral grassland – achieve favourable management on existing sites:</p> <ul style="list-style-type: none"> ▪ Seek to restore to favourable condition 100% of all unimproved neutral grassland in Hampshire by 2010 	<p>5, 7-12, 14-20 23, 32, 35, 40</p>
D	<p>Ensure that the needs of the Hampshire priority species of neutral grassland are met</p>	<p>6, 15, 21-26, 35</p>
E	<p>Improve knowledge of distribution, status and habitat requirements of neutral grasslands in Hampshire through appropriate research, survey and monitoring.</p>	<p>24, 26-30, 32-34, 38</p>
F	<p>Communication, Awareness and Promotion:</p> <ul style="list-style-type: none"> ▪ Promote the importance of lowland neutral grassland, its associated species and threats to them. Communicate with and provide information to key sectors including statutory agencies, NGOs, landowners and managers, schools, community groups and members of the public 	<p>19-20, 29, 31, 35-41</p>

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6 PROPOSED ACTION

The following table lists the actions required to achieve the objectives set out in this Plan. Each action has been assigned to one or more 'Key Partners'. Key Partners are those organisations that are expected to take responsibility for the delivery of the actions assigned to them, according to the targets set in this Plan. Other organisations may also be involved in the delivery of action, and they have been indicated in the 'Others' column.

Key to symbols in Action Table:

- ◆ To be completed by the indicated year. Work can commence at any time before the due date, at the discretion of the Key Partner.
- ◆⇄ Design or production of a plan/strategy to be completed by this year and then followed by its implementation.
- ➡ To start by the indicated year and usually followed by ongoing work. A start arrow in year 2000 can indicate a new action or a new impetus to existing work.
- ⇄ Work that as already begun and is ongoing.

	ACTION	DELIVERY BY		YEAR						MEETS OBJ.	
		Key Partner	Others	2001	2002	2003	2004	2005	2011		
◆ = Complete by ◆⇄ = Design by and implement ➡ = Start by ⇄ = Ongoing											
Habitat Protection											
1	Review extent of New Forest SAC, as this does not yet include all <i>Molinia</i> meadows on calcareous, peaty or clay-silt-laden soils (Eu-Molinion) within New Forest SSSIs.	EN, FE	HCC, HWT							◆	A
2	Review the selection of SSSIs to ensure all relevant sites are designated.	EN	HCC, HWT	⇄	⇄	⇄	⇄	⇄	⇄	⇄	A
3	Review SINC criteria for neutral grassland.	HCC	HWT, EN, DCS			◆					A
4	Ensure that all suitable sites containing neutral grassland that meet SINC criteria are identified.	HCC	HWT, EN, DCS	⇄	⇄	⇄	⇄	⇄	⇄	⇄	A
5	Review and/or develop site acquisition policies and purchase sites where appropriate.	ALL			➡						A, C
6	Ensure that neutral grassland and associated priority species are safeguarded from development through forward planning and development control.	LAs	EN, HWT	⇄	⇄	⇄	⇄	⇄	⇄	⇄	A, D
7	Provide advice to mineral operators regarding the ecologically sensitive working and restoration of quarries.	HCC		⇄	⇄	⇄	⇄	⇄	⇄	⇄	A, C

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Habitat Management, Incentive Schemes and Other Resources										
8	Ensure that management objectives for New Forest cSAC are met	EN Life III	FE, NT, HWT, HCC						◆	A, C
9	Set conservation objectives for favourable condition for neutral grasslands in SSSIs	EN		➔		◆				A, C
10	Review all SSSIs supporting neutral grassland and ensure all are under favourable and appropriate management.	EN							◆	A, C
11	Ensure favourable and appropriate management on neutral grassland sites managed by conservation bodies.	HCC, HWT, EN, NT	DEFRA, FE	↔	↔	↔	↔	↔	◆	A, C
12	Seek favourable and appropriate management on SINCs that support neutral grassland.	HMAP	HCC, HWT, DEFRA, EHA	↔	↔	↔	↔	↔	↔	A, C
13	Increase the area of species rich neutral grassland, targeting areas adjacent or near to existing sites, as indicated in EN natural area profiles	EN	HCC,HWT, DEFRA, EHA	↔	↔	↔	↔	↔	↔	B
14	Implement Integrated Management Guidelines for East Hampshire AONB.	EHA		➔						A, B, C
15	Endeavour to incorporate the needs of neutral grassland and/or priority species when developing, revising and/or updating incentive schemes and strategies.	DEFRA		➔						B, C, D
16	Encourage further uptake of CSS schemes in supports of actions 9, 10, 11, 12 & 13.	DEFRA	HMAP, EHA FWAG, HWT	↔	↔	↔	↔	↔	↔	A, C
17	Investigate the potential for reviving the application of HCC administered Wildlife & Countryside Act section 39 management agreements for sites not easily covered by CSS.	HCC, EN		➔						A, B, C
18	Facilitate the beneficial grazing of neutral grassland sites.	HGP	FWAG HMAP, HWT	↔	↔	↔	↔	↔	↔	A, C
19	Provide information and advice to landowners and managers on land management, incentive schemes and advisory projects.	DEFRA, FWAG, HMAP HWT, HGP		↔	↔	↔	↔	↔	↔	C, F

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	ACTION	DELIVERY BY		YEAR						MEETS OBJ.
		Key Partner	Others	2001	2002	2003	2004	2005	2011	
◆ = Complete by ◆⇄ = Design by and implement ➡ = Start by ⇄ = Ongoing										
Habitat Management, Incentive Schemes and Other Resources										
20	Promote the appropriate and beneficial management of land adjacent to neutral grassland	DEFRA,	FWAG HMAP,	➡						C, F
Species Action										
21	Prepare species action plan for species associated with neutral grassland, that are not adequately covered by this plan or others, as identified in Appendix 1	HCC	HWT, EN, BC					◆		D
22	Encourage landowners/ managers and their advisors to ascertain which priority species (listed in Appendix 1) occur on their neutral grassland sites and ensure that appropriate management is implemented.	EN, HWT, EA, BC	HMAP, FWAG, LAs, DEFRA	⇄	⇄	⇄	⇄	⇄	⇄	D
23	Identify and promote knowledge of priority species, e.g. Marsh Fritillary, that can be used to highlight specific adjustments to standard management regimes and produce appropriate guidelines.	EN, HWT, BC, EA	HCC DEFRA		➡					C, D
24	Develop a monitoring strategy for Hampshire priority species which occur on neutral grassland sites	HWT, EN, BC HCC	DCs			◆⇄				D, E
25	Ensure that consideration of the needs of priority species is incorporated into the forward planning and development control process.	LAs		⇄	⇄	⇄	⇄	⇄	⇄	A, D
26	Identify 'flagship' species that can be used as indicators to assess progress of this HAP.	HWT, BC	HCC			◆				D, E
Survey, Research and Monitoring										
27	Produce a survey strategy for neutral grassland to complement actions within this HAP. This will include the confirmation of un-surveyed neutral grasslands pin pointed by Phase 1 air photographs.	HCC	HWT	◆⇄						E
28	Implement a rolling re-survey programme for neutral grassland SINCS at a 10-yearly interval in rural areas and 5 years in urban areas.	HCC		⇄	⇄	⇄	⇄	⇄	⇄	E
29	Produce an inventory of all Hampshire neutral grassland sites	HCC	EN, HWT			◆				E, F
30	Ensure that all relevant data on neutral grassland is incorporated into the Hampshire Biological Record and is fed into the National Biodiversity Network (NBN).	HCC	LRC	⇄	⇄	⇄	⇄	⇄	⇄	E
31	Collate data to determine effective local methods of	HCC	EN, DEFRA				➡			B, F

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Neutral Grassland

	neutral grassland restoration and provide guidelines									
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Survey, Research and Monitoring										
32	Identify target areas within each Natural Area for lowland neutral grassland re-establishment, restoration and acquisition.	EN	DEFRA FWAG, BC				◆⇄			B, C, E
33	Design and implement a monitoring scheme to assess favourable condition of neutral grassland on SINCs.	HCC, HWT	EN			◆⇄				E
34	Identify and collate existing research on neutral grassland in Hampshire.	HCC, HWT	EN, BC			➔				E
Communication and Publicity										
35	Compile an index of information sources and guidance on good management practices for neutral grassland and associated priority species.	HCC, HWT, EN				◆⇄				C, D, F
36	Promote the ecology and conservation requirements of this habitat and associated priority species, particularly amongst farmers and their advisors.	DEFRA, FWAG	NFU, CLA, HMAP, HGP, BC, HWT	⇄	⇄	⇄	⇄	⇄	⇄	F
37	Raise awareness of incentive schemes and projects relevant to the management of neutral grassland.	DEFRA, FWAG, HMAP HWT	NFU, CLA, HGP, EHA	⇄	⇄	⇄	⇄	⇄	⇄	F
38	Identify sites which demonstrate good management practice and promote those sites	EN, FWAG HGP	HWT, HCC, BC, NT DEFRA			➔		◆⇄		E, F
39	Increase public awareness of neutral grassland, including production of promotional material and encouragement of public access to appropriate sites.	HWT, BTCV, HCC, BC		⇄	⇄	⇄	⇄	⇄	⇄	F
40	Involve local communities in the conservation of neutral grassland sites where appropriate.	HWT, BTCV	BC	⇄	⇄	⇄	⇄	⇄	⇄	C, F
41	Support the actions of the Education & Awareness Action Plan relevant to this habitat and priority species.	ALL		➔						F

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KEY TO ORGANISATIONS

BC Butterfly Conservation
 BTCV British Trust for Conservation Volunteers
 CLA Countryside Landowners Association
 DCs District Councils
 EHA East Hampshire AONB
 EN English Nature
 FE Forest Enterprise
 FWAG Farming and Wildlife Advisory Group
 HCC Hampshire County Council

HGP Hampshire Grazing Project
 HMAP Habitat Management Advisory Project
 HWT Hampshire Wildlife Trust
 LAs Local Authorities (HCC & DCs)
 LRC Local Record Center
 DEFRA Department for Environment, Food and Rural Affairs
 NFU National Farmers Union

APPENDIX 1

Key to abbreviations in Tables 1 and 2 – see 'Action in addition to HAP' and 'Status/Protection'

Abbreviation	Definition
ACTION IN ADDITION TO HAP (Other Plans Relevant to Priority Species)	
UK SAP	Species Action Plan prepared under UK Biodiversity programme
UK Grouped SAP	Species catered for by a grouped Species Action Plan prepared under UK Biodiversity programme
UK Species Statement	Conservation of species generally achieved through HAPs. Statement prepared under UK Biodiversity programme to link the relevant Plans.
No Plan	Species removed from revised UK priority list. No Action Plan / Species Statement produced
BC RAP	Butterfly Conservation Regional Action Plan
BC NAP	Butterfly Conservation National Action Plan
PROTECTION: European (EC Habitats Directive)	
Annex II	Designation of protected areas for animals and plants listed
Annex IV	Special protection for animals and plants listed
Annex V	Control of exploitation of animals and plants listed
PROTECTION: British (Wildlife and Countryside Act 1981)	
Sch. 1	Special protection for birds listed
Sch. 5	Special protection for animals listed
Sch. 5 (sale)	Protection against sale for animals listed (Schedule 5 section 9 (5))
Sch. 8	Special protection for plants listed
STATUS: International (International Union for the Conservation of Nature)	
IUCN VU	Vulnerable – Species facing high risk of extinction
IUCN LR/cd	Lower Risk / conservation dependent species – Species that do not satisfy the criteria for 'Critically Endangered', 'Endangered' or 'Vulnerable'. They are 'conservation dependent' if they are the focus of specific conservation programmes, which if stopped, would result in the taxon qualifying for one of the threatened categories within a period of five years.
IUCN LR/nt	Lower Risk / near threatened species – Species that do not qualify for 'conservation dependent' but are close to 'Vulnerable' status
IUCN DD	Data Deficient – Insufficient data to make a direct or indirect assessment of a species status, based on its distribution and/or population status.
STATUS: British – Mammals (Red Data Book)	
RDB	Mammal species listed in the British Red Data Book
STATUS: British – Plant and Fungi (Red Data Book and associated)	
RDB Cr	Critically Endangered – Extremely high risk of extinction in the near future
RDB En	Endangered – Very high risk of extinction in the near future
RDB V	Vulnerable – High risk of extinction in the medium-term future
RDB K	Insufficient data to assess status
NS	Nationally Scarce – Plants not on red list but occurring in 16 to 100 10x10 km squares
NT	Near Threatened – Plants not on red list but occurring in 15 or fewer 10x10 km squares
STATUS: British – Invertebrates (Red Data Book and associated)	
RDB En	Endangered – In danger of extinction
RDB V	Vulnerable – Declining or occurring in a vulnerable habitat. Usually occurs in less than 16 10x10 km squares
RDB R	Rare – Not declining but occurring in less than 16 10x10 km squares
RDB K	Insufficiently known – Suspected, but not definitely, Endangered, Vulnerable or Rare
NS (a)	Nationally Scarce – Occurring in 16 to 30 10x10 km squares (for well recorded species)
NS (b)	Nationally Scarce – Occurring in 31 to 100 10x10 km squares (for well recorded species)
STATUS: Royal Society for the Protection of Birds (Birds of Conservation Concern)	
Red List	Various criteria, including a 50% decline in breeding population or range over last 25 years
Amber List	Various criteria, including a 25-49% decline in breeding population or range over last 25 years
STATUS: Butterfly Conservation (BC RAP)	
RAP	Various criteria

Table 1 - Hampshire priority species found primarily in neutral grassland

Scientific name	Common name	Group	Status/Protection	Habitat/Ecology	Hants Distribution	Specific management requirements	Action in addition to HAP	Hants SAP?
<i>Eurodryas aurinia</i>	marsh fritillary	Butterflies	Annex II , Sch. 5, NS (b)	Open areas of unimproved grassland with abundant Devil's Bit Scabious; also lightly grazed chalk grassland.	NE Hampshire, NW fringes of the New Forest, Martin Down, Stockbridge Down, Bentley Wood	Network of habitat patches essential for recolonisation	UK SAP, BC RAP, BC RAP	yes
<i>Dorycera graminum</i>	a large otitid	Flies	RDB R	Herb-rich unimproved meadows and broadleaved woodland; larvae may develop in decaying vegetable matter; possible link with umbellifers such as Hogweed	One Hampshire site (Hilsea Moats), old New Forest records		UK SAP	no
<i>Urophora quadrifasciata</i>	a tephritid fly	Flies	-	Unimproved neutral grassland; larvae produce galls in <i>Centaurea nigra</i> and possibly other <i>Centaurea</i> spp	Several recent records scattered across Hants		0	no
<i>Carum verticillatum</i>	whorled caraway	Flw Plants	-	Marshy acid grassland	Very rare New Forest only		0	no
<i>Orchis morio</i>	green-winged orchid	Flw Plants	-	Unimproved grassland, relatively short sward, mainly pastures, occasionally hay meadows, heaths, lawns and church yards	Widespread but much declined		0	no
<i>Hygrocybe calyptraeformis</i>	a fungus	Fungi	RDB V	Grassland, usually short grass in meadow/pasture; soil/geology/pH not known	Old records in Hants	Grass needs to be kept short by grazing	UK SAP	no
<i>Adscita stacies</i>	forester moth	Moths	NS (b)	Unimproved grassland, woodland edge, sandy heaths; requires Common Sorrel	1 known site	Little or no grazing required	UK SAP, BC RAP	no
<i>Deltote bankiana</i>	silver barred	Moths	RDB R	Fen/marsh margins, damp grassland and boggy heathland; requires meadow grasses (<i>Poa</i> spp.) and purple moor-grass	Immigrant in Hampshire	Cocoons cannot withstand prolonged winter flooding; drainage of marshy grassland is a threat	0	no
<i>Hemaris tityus</i>	narrow-bordered bee hawk	Moths	NS (a)	Downland, woodland rides and clearings with devils bit scabious.	Four Hampshire sites including Pamber Forest	Maintenance of rides and food plant	UK SAP, BC RAP	no

Table 2 - Priority species, thought to be extinct in Hampshire, which are primarily associated with neutral grassland

Scientific name	Common name	Group	Status/Protection	Habitat/Ecology	Hants Distribution	Specific management requirements	Action in addition to HAP
<i>Crex crex</i>	corncrake	Birds	IUCN VU, Sch. 1, RSPB Red List	Favours hay meadows	Rare summer passage migrant to Hampshire, last bred in 1957	Late cut for hay or silage	UK SAP
<i>Gryllotalpa gryllotalpa</i>	mole cricket	Crickets	Sch. 5, RDB En	Unimproved grassland on free-draining warm soils; damp edges of wetlands, seepages	National stronghold; but very rare, few recent records	Threatened by drainage	UK SAP
<i>Mythimna turca</i>	double line	Moths	NS (b)	Wet grasslands and in woodland clearings and rfindes	Formerly well known from New Forest, most recent record Emer Bog 1978		UK SAP BC RAP

Table 3 - Priority species, found primarily in other habitats, but which occur in neutral grassland

Scientific name	Common name	Group	Primary HAP	Hants SAP?
<i>Triturus cristatus</i>	great crested newt	Amphibians	Dependent on many habitats, mosaic/landscape species	yes
<i>Andrena gravida</i>	a mining bee	Bees	Heathland, acid grassland, bog	no
<i>Bombus humilis</i>	brown-banded carder bee	Bees	Dependent on many habitats, mosaic/landscape species	yes
<i>Bombus ruderatus</i>	large garden bumble bee	Bees	Dependent on many habitats, mosaic/landscape species	yes
<i>Bombus sylvarum</i>	shrill carder bee	Bees	Dependent on many habitats, mosaic/landscape species	yes
<i>Nomada xanthosticta</i>	a cuckoo bee	Bees	Ancient semi-natural woodland	no
<i>Alauda arvensis</i>	skylark	Birds	Arable land	yes
<i>Carduelis cannabina</i>	linnet	Birds	Arable land	no
<i>Miliaria calandra</i>	corn bunting	Birds	Arable land	no
<i>Perdix perdix</i>	grey partridge	Birds	Arable land	no
<i>Streptopelia turtur</i>	turtle dove	Birds	Arable land	no
<i>Boloria selene</i>	Small Pearl-bordered Fritillary	Butterflies	Ancient semi-natural woodland	no
<i>Asilus crabroniformis</i>	hornet robberfly	Flies	Chalk grassland	yes
<i>Microglossum olivaceum</i>	an earth tongue	Fungi	Heathland, acid grassland, bog	no
<i>Barbastellus barbastellus</i>	barbastelle bat	Mammals	Dependent on many habitats, mosaic/landscape species	yes
<i>Eptesicus serotinus</i>	Serotine bat	Mammals	Dependent on many habitats, mosaic/landscape species	yes
<i>Lepus europaeus</i>	brown hare	Mammals	Arable land	no
<i>Myotis bechsteinii</i>	Bechstein's bat	Mammals	Dependent on many habitats, mosaic/landscape species	yes
<i>Pipistrellus pipistrellus</i>	pipistrelle bat	Mammals	Dependent on many habitats, mosaic/landscape species	yes
<i>Rhinolophus ferrumequinum</i>	greater horseshoe bat	Mammals	Dependent on many habitats, mosaic/landscape species	yes
<i>Heliophobus reticulata marginosa</i>	Bordered gothic	Moths	Chalk grassland	no
<i>Noctua orbona</i>	lunar yellow underwing	Moths	Chalk grassland	no

APPENDIX 2: SUMMARY OF MAIN NEUTRAL GRASSLAND NVC COMMUNITIES IN HAMPSHIRE

Neutral grasslands cover a wide range of core communities from moist grasslands to wet grasslands:

MG5 *Cynosurus cristatus* – *Centaurea nigra* grassland is the main herb rich moist grassland and is found widely. Two sub-communities occur; one, **MG5a** the *Lathyrus pratensis* sub-community, occurs mainly on manured soils, especially hay meadows. In spite of the name, it is actually characterised by the frequency of *Lolium perenne* and represents traditional productive herb rich hay meadow and it is commoner on the London Clay. It is characteristically found in fields which were arable in the 19th century. It is often rather more colourful than botanically species rich. The second, **MG5c** *Danthonia decumbens* sub-community, is found on more acidic and less fertile soils and is normally a pasture community. It is commoner off the London Clay and can be much more botanically species rich than **MG5a**. It is more likely to be ancient, or derived from heathland or woodland clearance. A third, **MG5b** *Galium verum* sub-community is largely confined to the drier parts of the Chalk river flood plains and is covered by the 'wet grassland' HAP.

M23a *Juncus effusus/acutiflorus* – *Galium palustre* grassland is the most widespread wet grassland and the commonest species rich community in enclosed grasslands. It is characteristic of wet but well aerated flushed soils, typically below flush lines. It is most characteristic of ancient enclosures of flood plain lawns in the New Forest.

M24c *Molinia caerulea* – *Cirsium dissectum* fen-meadow *Juncus acutiflorus* – *Erica tetralix* sub-community is a very botanically species rich community found less productive soils than M23a with slight base enrichment. Mainly found in heathland fringe enclosures and on New Forest lawns away from flood plains. Included within Habitats Directive Annex 1 habitat '*Molinia* meadows on calcareous, peaty or clay-silt-laden soils (Eu-Molinion)'.

M25b *Molinia caerulea* – *Potentilla erecta* mire *Anthoxanthum odoratum* sub-community very similar to **M24c** and difficult to separate in Hampshire and generally as species rich. Found in similar situations.

Associated communities of conservation value that are of interest but rarer include:

M22 *Juncus subnodulosus* - *Cirsium palustre* fen-meadow. Occurs occasionally with M23a and marks areas of base enrichment.

M6 *Carex echinata* – *Sphagnum fallax* Mire *Juncus acutiflorus* sub-community, this poor fen community is occasional in heathland fringe enclosures.

M25c *Molinia caerulea* – *Potentilla erecta* mire *Angelica sylvestris* sub-community. Occasional in lightly grazed *Molinia* grassland.

U1f *Festuca ovina* – *Agrostis capillaris* – *Rumex acetosella* Grassland *Hypochaeris radicata* sub-community. Small stands are typical on banks and terrace gravels.

Typical associated communities of limited conservation value:

MG6 *Lolium perenne* – *Cynosurus cristatus* grassland, herb poor permanent grassland, typical of semi-improved grassland.

MG9 *Holcus lanatus* – *Deschampsia cespitosa* grassland, undergrazed grassland on clay soils, uncommon in Hampshire.

MG10a *Holcus lanatus* – *Juncus effusus* Grassland typical sub-community, on wet poorly aerated soil or partly improved swards on poorly drained soils. Frequent in Hampshire.

**APPENDIX 3:
LIST OF SSSIs CONTAINING NEUTRAL GRASSLAND HABITAT IN HAMPSHIRE**

SITE NAME	PUBLIC OWNERSHIP	ADDITIONAL DESIGNATIONS
Sites with neutral grassland dominant in the SSSI		
Bentley Station Meadow	BC	
Fletchwood Meadows	HWT	
Foxlease & Ancells Meadows	Part MoD & HWT	
Hookheath Meadows		
Leyheath Marsh		
Moorgreen Meadows		
Ratlake Meadows		
Ron Wards Meadow with Tadley Pasture	HWT	
Waltham Chase Meadows		
West Minley Meadow		
Sites with neutral grassland a major component of the SSSI		
Ashford Hill Woods and Meadows	Grasslands EN	
Binswood	WT	
Highclere Park		
Norley Copse and Meadow		
Odiham Common	Part HDC	
Sites with neutral grassland a major significant but proportionately small part of the SSSI		
Baddesley Common	EN & HWT	
New Forest	FE, NT	SPA, cSAC
North Solent	Part EN reserve by agreement	
Pamber Forest & Silchester Common	HWT (but not the grassland)	
Roydon Woods	HWT	cSAC

KEY TO ORGANISATIONS:

BC	Butterfly Conservation
EN	English Nature
FE	Forestry Enterprise
HCC	Hampshire County Council
HDC	Hart District Council
MoD	Ministry of Defence
NT	National Trust
WT	Woodland Trust

KEY TO DESIGNATIONS:

NNR	National Nature Reserve
CSAC	Candidate Special Area of Conservation
SPA	Special Protection Area for Birds

REFERENCES

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HABITAT ACTION PLAN

This Plan is one of many Habitat, Species and Topic Action Plans being prepared by the Hampshire Biodiversity Partnership. It will be monitored by the Partnership and fully reviewed and updated in 2005.

This habitat action plan has been prepared by Neil A Sanderson and the Neutral Grassland HAP Working Group on behalf of the Hampshire Biodiversity Partnership.

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