Parish Biodiversity Action Plan

Odiham Parish Council

Sarah Jackson

July 2022

Acknowledgements

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Executive Summary

Odiham Parish Council commissioned Arcadian Ecology & Consulting Ltd to undertake a biodiversity assessment of ten key sites within the parish and produce a Biodiversity Action Plan (BAP) for Odiham Parish.

An extended Phase 1 habitat survey was undertaken of the sites to identify the key habitat types and the potential species they could support, and identify areas for creation, restoration or enhancement for wildlife and people for inclusion in the BAP.

The survey sites were primarily amenity grassland, but did also include areas of woodland, scrub, cemetery and allotments.

The information gathered during surveys was used to create an action table for the parish, including both location specific and parish wide actions.

Actions range from those to enhance existing areas and features which have been created for the benefit of biodiversity such as changing mowing regimes and using native species planting; while others are new ideas, for example, the creation of a wildlife pond and bog in the cemetery. It also includes actions to engage the local community such as a BioBlitz and taking part in national schemes including No Mow May.

By implementing the actions of the BAP, the parish will enhance the biodiversity value of the parish, both for the benefit of wildlife and people.

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1. INTRODUCTION

1.1. Background

Odiham Parish Council commissioned Arcadian Ecology & Consulting Ltd to undertake a biodiversity assessment of ten key sites within the parish and produce a Biodiversity Action Plan (BAP) for the parish.

1.2. Site Description

The parish of Odiham (SU 739 510) covers an area of approximately 2335 hectares (Map 1). The parish lies within Hart District Council, in the north-east of Hampshire.

The parish comprises of the main settlement of Odiham running across the centre of the parish, with the smaller settlement of North Warnborough to the north-west and RAF Odiham to the south; interspersed with public amenity/greenspaces. The parish is rural, comprising areas of farmland and woodland; with the River Whitewater and Basingstoke Canal both passing through the northern part of the parish.

1.3. Remit and Scope of the Report

This report will assess the current ecological status of ten Odiham parish council sites and make recommendations on how to improve the biodiversity of the parish through a Biodiversity Action Plan.

2. BIODIVERSITY AND LEGISLATION

There has been a notable increase in people's engagement with the environment, recognising the immense pressure that the environment is under and the need to act before it is too late.

The State of Nature report 2013 identifies the biodiversity losses the UK has suffered, with over 60% of species having declined in the last 50 years (Burns *et al.* 2013). The latest State of Nature report, published in 2019, further highlights the declines in abundance with 13% of the 696 terrestrial and freshwater species within the indicator showing a significant decline since 1970, and 6% over the last 10 years; with more species having decreased (41%) than increased (26%) within the indicator since 1970, and 44% decreased and 36% increased in the last 10 years. Species distribution also decreased, by an average of 5% since 1970, and is 2% lower than in 2005 (Hayhow *et al.* 2019).

The Aichi Biodiversity Targets were agreed by 196 countries under the Convention on Biological Diversity (CBD) in 2010. In March 2019, the Joint Nature Conservation Committee (JNCC) on behalf of Defra, assessed the UK's performance and found that the UK had failed to meet 14 of the 19 targets assessed (House of Commons Environmental Audit Committee 2021).

It reported that the status of habitats and species has deteriorated and there has been a continued increase in the prevalence of invasive species, as well as a continued deterioration in the fish size classes in the North Sea and in the status of pollinating insects. There has also been a shortfall in the funding for biodiversity by government of 29% from £641 million to £456 million between 2012/13 and 2017/18 (House of Commons Environmental Audit Committee 2021).

In 2019, the Chartered Institute of Ecologists and Environmental Managers (CIEEM) declared a climate emergency and biodiversity crisis. This was a call to action for CIEEM members, governments and society to reduce greenhouse gas emissions through nature-based solutions, as the restoration of biodiversity can potentially mitigate the effects of climate change, such as carbon sequestration by peat bogs (CIEEM 2019). Odiham Parish Council adopted its '*Environment and Climate Change Policy – February 2022'*, and *'Environment and Climate Change Action Plan'* on 15th February 2022 (Odiham Parish Council 2022).

Action is being taken at many levels, through government legislation and policy, to more local initiatives such as the Hampshire & Isle of Wight Wildlife Trust's Wilder 2030 strategy, an overview of some of these are detailed below.

2.1. Environment Act 2021

The Environment Act makes provision about targets, plans and policies:

- for improving the natural environment;
- for statements and reports about environmental protection;
- for the office for Environmental Protection;
- about waste and resource efficiency;
- about air quality;
- for the recall of products that fail to meet environmental standards;
- about water;
- about nature and biodiversity;
- for conservation covenants;
- about the regulation of chemicals; and
- for connected purposes.

It will be key for the delivery of the government's 25 Year Environment Plan and tackling the environmental and climate crises. It will set long-term and legally binding environmental targets (GOV.UK 2020a).

2.1.1. 25 Year Environment Plan

The environment plan sets out goals for improving the environment within a generation, through improvement of air and water quality, and protection of plants, trees and wildlife (GOV.UK 2019).

Key areas of the plan are (including some, but not all, of the actions identified for achieving the goals):

- **Clean air** – including the reduction of emissions from five damaging air pollutants; and stopping the sale of conventional petrol and diesel cars and vans by 2040.
- **Clean and plentiful water** – including a reduction in damaging abstraction from rivers and groundwater; reduction in water leakage; and minimising harmful bacteria in designated bathing waters.
- **Thriving plants and wildlife** – including the reverse of loss of marine biodiversity; increase in proportion of protected marine sites; restoring 75% of terrestrial and freshwater protected sites to favourable condition; creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected sites network; increasing woodland in England.
- **Reducing the risks of harm from environmental hazards** – including making sure everyone has access to information to assess risk to lives and livelihoods from flooding and coastal erosion; and ensuring decisions on land, including development, reflect current and future flood risk.
- **Using resources from nature more sustainably and efficiently** – including maximising the value and benefits we get from resources; improving our approach to soil management; ensuring fish stocks are recovered and maintained at levels that can produce maximum sustainable yield; and ensuring that food is produced sustainably and profitably.
- **Enhancing beauty, heritage and engagement with the natural environment** – including the safeguarding and enhancement of the beauty of our natural scenery; ensuring there are high quality, accessible, natural spaces close to where people live and work; and increasing action to improve the environment from all sectors of society.
- **Mitigating and adapting to climate change** – including the continued cutting of greenhouse gas emissions.
- **Minimising waste** – including working towards zero avoidable waste by 2050; eliminating avoidable plastic waste by 2042; and significantly reducing marine plastic pollution.
- **Managing exposure to chemicals**
- **Enhancing biosecurity** – including the management and reduction of the impact of existing plant and animal diseases, lowering the risk of new ones and tackling invasive, non-native species; and ensuring strong biosecurity protection at our borders.

2.1.2. Nature Recovery Network

The Nature Recovery Network (NRN) is part of the 25 Year Environment Plan. The NRN will be a national network of wildlife-rich places to increase and restore nature, with Defra and Natural England leading to bring together partners, legislation and funding to create the network which will restore and enhance England's wildlife-rich places (GOV.UK 2020b).

2.1.3. Biodiversity Net Gain

A biodiversity metric has been created to use habitats to assess the wildlife value of an area. Biodiversity Net Gain is included in the new Environment Act, making it a mandatory condition for planning permission. The target for net gain can vary across the country / planning authorities, but a 10% biodiversity net gain is most widely adopted (GOV.UK 2021).

2.2. Pledges and Initiatives

2.2.1. 30x30

The 30x30 commitment aims to protect 30% of land and sea around the world by 2030. It is a pledge by political leaders from 64 countries to reverse biodiversity loss. The UK government announced at the same time their commitment to protect 30% of the UK's land for biodiversity by 2030 (GOV.UK 2020c).

The Wildlife Trusts are also running a fundraising appeal '30 by 30' to generate funds to start the process of nature's recovery across 30% of land and sea by 2030 (The Wildlife Trusts 2021).

2.2.2. Wilder 2030

Wilder 2030 is Hampshire & Isle of Wight Wildlife Trust's 10-year strategy to create a much wilder Hampshire and Isle of Wight, with nature's recovery at the forefront of tackling the climate crisis;

restoration of broken ecosystems and the return of missing wildlife; and people to benefit from a healthy natural environment (Hampshire & Isle of Wight Wildlife Trust 2019).
This will be achieved through two key programmes:

- **Team Wilder:** more people on nature's side – 1 in 4 people connecting with wildlife and taking action for nature's recovery.
- **Wilder Land & Sea:** more space for nature to thrive – at least a third of land and sea to be wilder and where wildlife is recovering; pressure on nature reduced everywhere else; and nature recovering, ecosystems restored and wildlife returning.

2.2.3. Rewilding

Rewilding is the large-scale restoration of ecosystems, allowing nature to take back control and natural processes to prevail. It is a minimal intervention approach which allows the landscape to evolve and return to a more natural state. It allows ecosystems to provide natural functions for the benefit of people (ecosystem services) such as carbon sequestration, natural flood management and nitrate reduction. It also provides the opportunity to re-introduce missing species, such as beaver.

2.3. Planning & Biodiversity

Biodiversity is a key consideration in local decision making. Newly built and renovation plans within the parish should take the following into consideration.

The **National Planning Policy Framework** (NPPF) sets out the Government's requirements for the planning system and the development of local and neighbourhood plans (Department for Communities and Local Government 2012). It sets out the purpose of the planning system; to achieve sustainable development through 3 key areas; economic, social and environmental. The environmental strand includes the protection and enhancement of the natural environment and improving biodiversity.

The NPPF highlights key points for consideration in relation to green space and biodiversity:

- the *promotion of healthy communities* requiring access to high quality open spaces including the ability to designate land as Local Green Space;
- the *protection of green belt land* to assist in safeguarding the countryside from encroachment, prevent neighbouring towns merging, preserve the setting and character of historic towns, assist in urban regeneration and to check the unrestricted sprawl of large built-up areas; and
- *conserving and enhancing the natural environment* through protection of valued landscapes, recognition of the benefits of ecosystem services, minimising impacts on biodiversity and providing net gains where possible.

The section on conserving and enhancing the natural environment was updated in July 2021. Formerly the supporting of developments whose primary objective is to conserve or enhance biodiversity was included within the NPPF. A key addition is in paragraph 175, part D, which has added that "*opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate*" (Freeths 2021).

Hampshire Ecological Network Map has been completed under the requirement of the NPPF for all local planning authorities to map and consider ecological networks within their plans, policies and procedures. The mapping identifies core statutory sites (broadly those with international or national levels of designation), core non-statutory (namely locally designated sites and priority habitats) and network opportunity sites (those with potential to be enhanced for the benefit of wildlife). It aims to improve and extend existing wildlife sites, improve habitat connectivity, create new sites and reduce pressure on wildlife through improvement of the wider environment (HBIC 2020).

2.3.1. Building with Nature

Building with Nature is a set of standards, supported by best practice guidance (Building with Nature 2022), that enables planners and developers to deliver high-quality green infrastructure. The standards provide an evidence-based, how-to, guide on delivering high-quality green infrastructure.

2.4. Legal context for Protection of Biodiversity

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019
These regulations state that:

"Where impacts cannot be avoided or satisfactorily reduced/mitigated, the competent authority will need to ascertain that the plan or project will not have a negative impact on the designated site populations, which would otherwise constitute an adverse effect on the integrity of the international site as a whole."

European designated sites are the Special Areas of Conservation (SAC) and Special Protection areas (SPA), designated before 31 December 2020, collectively known as the National Site Network; in addition, Ramsar sites are areas of international wetland importance. These designations all have implications for local decision making and special care must be taken to ensure decisions and plans do not adversely impact on these sites, the species or features for which they have been designated.

There are no European designated sites within or adjacent to the parish; the closest being Thames Basin Heaths SPA at approximately 3.8km to the north-east at its nearest point.

The **Natural Environment and Rural Communities (NERC) Act 2006** requires every local authority to have regard to conserving biodiversity in the execution of their functions. Section 41 of the act lists 65 priority habitats and 1150 priority species, all of which are identified on the 'UK Post-2010 Biodiversity Framework' which succeeded the UK Biodiversity Action Plan, which should be taken into consideration by local authorities when implementing their duty under the NERC Act.

2.5. Health and Well-being

In 2020, NHS England announced its greener NHS campaign to tackle the climate 'health emergency', reducing its carbon footprint to tackle air pollution and climate change and the associated illnesses and pressures on A&E that this causes (NHS England 2020).

Being in and around nature has many recognised benefits to mental health. These include improving mood, reducing feelings of stress and anger, improving physical health and increased social interaction (Mind 2018).

A study commissioned by The Wildlife Trusts in 2019 also demonstrated that people engaged in targeted programmes with the Trust (designed for people with health or social needs) showed a return of £6.88 for £1 invested, the value generated from health gains such as improved mental wellbeing. This was further increased to £8.50 for every £1 invested for the Trust's more general volunteering programmes (Bagnell *et al.* 2019).

3. CURRENT STATUS OF BIODIVERSITY

The current status of biodiversity in the parish has been assessed through undertaking a series of botanical surveys at ten key sites identified by the parish council, to establish the habitats and potential species they can support, and are present in the parish.

Whilst these methods will not capture everything present, they will give an indication of current biodiversity interest and highlight areas for improvement for inclusion in the action plan.

This survey is complemented by a background data search, obtaining records for the site and within a two-kilometre radius, providing information on the species the site has potential to support.

3.1. Background Data Search

A data search of Hampshire Biodiversity Information Centre (HBIC) protected and notable species GIS layer was undertaken for records within 2km of the parish. Species included in the search parameters are:

- species that are protected by international law;
- nationally protected species under The Conservation of Habitats and Species (Amendment)(EU Exit) Regulations 2019, The Wildlife & Countryside Act 1981 (as amended), Badgers Act 1992 and The Deer Act 1991;
- all species listed as Red or Amber on the Birds of Conservation Concern 5 (BOCC5 2021);
- plant species that are Nationally Rare or Nationally Scarce; and
- species that have Action Plans under the UK Biodiversity Action Plan (UKBAP) or are Priority Species under the Hampshire Biodiversity Action Plan (HBAP).

A data search was made for statutory (those that are internationally and nationally important sites for ecology) and non-statutory (those that are important in a local context) sites designated for nature conservation within 2km of the site boundary. This search included SPAs, SACs, Ramsars, Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Local Nature Reserves (LNRs) and Sites of Importance for Nature Conservation (SINCs).

A map indicating the extent of the data search areas is provided in Appendix 1.

3.2. Phase 1 Habitat Survey Methodology

An extended Phase 1 habitat survey was conducted on 18th May 2022 by Sarah Jackson (MCIEEM) of Arcadian Ecology & Consulting Ltd.

Ten key areas were identified by the parish council as priority for survey (Map 2). These were:

- Allotments
- Beacon Field
- Bufton Field
- Chamberlain Gardens
- Chapel Pond Play Area
- Colt Hill Land
- Odiham Cemetery
- Peace Garden
- Recreation Ground
- The Firs

The JNCC methodology for Phase 1 habitat survey was followed (JNCC 2010). A walkover survey of the site was undertaken, with areas classified and mapped using a standard set of colours on a Phase 1 Habitat Map to indicate the habitat types present. For each different habitat type a species list was compiled, with particular reference to protected, notable or BAP species; this list will not give every species found on the site, but will give a representation of the diversity, significance, and dominance of plant species found within each habitat type. The location of descriptions relating to specific areas and features of interest or note were annotated on the Phase 1 Habitat Map using Target Notes.

Plant nomenclature in this report follows Rose (1989; 2006) for native and naturalised species of vascular plant. Plant names in the text are given with the common names first, followed by the scientific name in italics. Where there is a degree of doubt in the identification of a plant, 'cf.' precedes the specific epithet to signify the plant is very probably the species indicated, but it was not possible to distinguish it from similar members of the genus with certainty.

3.3. Background Data Search Results

3.3.1. Protected and notable species

The background data search returned 13,947 records for 499 protected and / or notable species, within 2km of the parish boundary. Of these, there were 4431 records of 301 species specified as being within the parish. A breakdown by group is given in Table 1.

Table 1. Background data search results

Group	**Number of Species (within parish)**	**Number of Records (within parish)**
Amphibians & Reptiles	6 (6)	567 (176)
Birds	96 (68)	7880 (2794)
Higher Plants – Ferns	1 (1)	30 (14)
Higher Plants – Flowering Plants	142 (98)	1699 (783)
Invertebrates – Araneae (Spiders)	4 (1)	5 (1)
Invertebrates – Coleoptera (Beetles)	40 (15)	56 (23)
Invertebrates – Hymenoptera (Bees)	11 (8)	15 (9)
Invertebrates – Lepidoptera (Butterflies & Moths)	168 (81)	2372 (324)
Invertebrates – Odonata (Dragonflies & Damselflies)	3 (2)	18 (8)
Lower Plants – Liverworts, Hornworts & Mosses	5 (2)	8 (2)
Lower Plants – Stoneworts	1 (1)	3 (2)
Mammals – Terrestrial (bats)	14 (12)	1208 (274)
Mammals -– Terrestrial (non-bats)	8 (6)	86 (21)
TOTAL	**499 (301)**	**13,947 (4431)**

The full results of the background data search are available on request.

3.3.2. Statutory and non-statutory designated sites

There are five statutory designated sites at least partially within the parish boundary: Odiham Common with Bagwell Green and Shaw SSSI, Greywell Fen SSSI, Basingstoke Canal SSSI, Butter Wood SSSI, and Warnborough Green SSSI. In addition, Hook Common and Bartley Heath SSSI, Greywell Tunnel (Basingstoke Canal) SSSI, and Up Nately LNR are within 2km of the parish boundary. These are shown on the map in Appendix 2.

Twenty-seven non-statutory designated sites, SINCs, are found either entirely or partially within the parish boundary, as detailed in Table 2 and shown on the map in Appendix 3. In addition, there are a further 86 SINCs within 2km of the parish, which have been included on the map in Appendix 3.

Table 2. SINCs within Odiham parish boundary

SINC Ref	SINC Name	Central Grid Ref.	SINC Criteria	Notables
HA0038	Odiham Castle Woodland	SU72605189	1Cii	
HA0041	Bartley Heath (South)	SU72905280	3Bii/6A	Chamomile *Chamaemelum nobile*
HA0060	River Whitewater	SU73986107	5A	
HA0071	Readon Copse	SU74904930	1A	
HA0072	Hillside Farm	SU74905090	2A/6A	Early marsh-orchid *Dactylorhiza incarnata subsp. incarnata*, marsh lousewort *Pedicularis palustris*
HA0073	Andrew's Copse, Long Sutton	SU75104760	1A	
HA0074	Wassels Copse	SU75204980	1A	
HA0077	Payne's Peak Copse	SU75404870	1A/6A	Common toothwort *Lathraea squamaria*
HA0081	Roke Copse	SU75504930	1A	
HA0082	Broad Oak Meadow	SU75505190	2B	
HA0084	Hillside Common Meadow	SU75705070	2D	
HA0085	Wilk's Water	SU75705210	1A/1D/5A	
HA0090	Dogmersfield/Forest Park East, & Park Wall Copse	SU75805140	1A/1D	
HA0091	Fields West of Lousey Moor	SU75905240	2B	
HA0092	Bagwell Shaw (South)	SU75905276	1A/1Cii/1D	
HA0102	Hilly Close, Lyons & Stapely Copses	SU76304810	1A	
HA0105	Twelve Acre Copse (Odiham)	SU76404850	1A	
HA0112	Horsepond Copse	SU76604860	1A	
HA0113	Varndell's Copse	SU76605060	1A	
HA0118	Clay's Copse	SU76824907	1A	
HA0123	Horsedown Copse (South)	SU76954780	1A	
HA0124	Rye Common	SU77005040	1D/2A	
HA0131	New Copse, Crondall	SU77604940	1A	
HA0139	Brown's Row & Rye Common East	SU78005030	1A/1D	
HA0273	Broad Oak Common	SU75405190	2B	
HA0277	Fincham's Copse	SU76704900	1A	
HA0282	Winchfield Court Farm Marsh	SU75705345	5B	

Details of the SINC criteria can be found on the HBIC website: SINCCriteria.pdf (hants.gov.uk)

3.4. Phase 1 Habitat Survey Results

A summary of the Phase 1 habitat survey, plus more detailed descriptions of each of the survey sites is provided below. A species list is provided in Appendix 4.

3.4.1. Summary

Habitats

There are a range of habitats present across the parish, including amenity grassland, woodland, scrub, and allotments. The most dominant habitat, amenity grassland, is of limited ecological value, however the edge habitats which include hedgerows and trees create diversity, structure and cover, which is able to support a range of species.

Protected and Notable Species

No protected or notable species were recorded during the Phase 1 habitat survey. A number of common and widespread invertebrate species were observed during the survey including buff-tailed bumblebee *Bombus terrestris*, hoverfly species, red admiral *Vanessa atalanta* and speckled wood *Pararge aegeria* butterflies, and alder leaf beetle *Agelastica alni*.

Based on the habitat types and features identified around the parish, it is considered that the parish has the potential to support common amphibians, common and widespread reptiles, bats, birds, common and widespread invertebrates, and mammals such as badger and fox.

Conclusion

Odiham parish has a range of habitats, with linked areas of green space by gardens, hedgerows, trees and field margins, within the parish and to the wider landscape offering opportunities for species to move around the landscape. Whilst many of the high ecological value habitats are not extensive, they offer important space for foraging and shelter, particularly for invertebrates, which in turn provides a food source for bats and birds.

Further enhancements to the parish could be made, and more detail is included in the biodiversity action table.

3.4.2. Allotments

The allotments cover an approximately 0.24 hectare area divided into plots, growing a variety of fruits, vegetables and flowers (Photograph 1). The plots are linked by grass paths dominated by cock's-foot *Dactylis glomerata* and annual meadow grass *Poa annua*, and interspersed with herbs such as yarrow *Achillea millefolium*, ribwort plantain *Plantago lanceolata*, common mouse-ear *Cerastium fontanum* and creeping buttercup *Ranunculus repens*; with areas of ruderal vegetation around the boundary, that is predominantly nettle *Urtica dioica*.

3.4.3. Beacon Field

Beacon field is an approximately 0.19 hectare amenity space (Photograph 2), comprising grassland with species including cock's-foot, annual meadow grass, fescue *Festuca* species, daisy *Bellis perennis*, dandelion *Taraxacum* agg., creeping buttercup and white clover *Trifolium repens;* and bounded by scattered trees and shrubs including dogwood *Cornus sanguinea*, yew *Taxus baccata*, hornbeam *Carpinus betulus* and walnut *Juglans* species.

3.4.4. Bufton Field Play Area

Bufton field play area comprises a central fenced play area bounded by a mixture of native and garden/ornamental shrubs, trees, herbs and grasses, covering approximately 0.08 hectares (Photograph 3). Species include barren brome *Bromus sterilis*, cock's-foot, wood forget-me-not *Myosotis sylvatica*, garlic mustard *Alliaria petiolata*, horsetail *Equisetum* species, sycamore *Acer pseudoplatanus*, field maple *Acer campestre* and ash *Fraxinus excelsior*.

3.4.5. Chamberlain Gardens

Chamberlain gardens is an amenity grassland with small play area and bounded by trees of approximately 0.43 hectares in size (Photograph 4). The grassland is predominantly annual meadow grass with perennial rye grass *Lolium perenne*, white clover, germander speedwell *Veronica chamaedrys*, yarrow and daisy; bounded by ruderals, scrub and trees including cow parsley *Anthriscus sylvestris*, ivy *Hedera helix*, elder *Sambucus nigra*, sycamore and bramble *Rubus fruticosus* agg.

3.4.6. Chapel Pond Play Area

Chapel pond play area comprises amenity grassland, seating and play equipment bounded by fences and hedging, covering approximately 0.1 hectares (Photograph 5). The grassland is mainly annual meadow grass with perennial rye grass and common bent *Agrostis capillaris*, and scattered herbs such as creeping buttercup, daisy and dandelion.

3.4.7. Colt Hill Land

Colt Hill Land is a small section of woodland, of approximately 0.42 hectares, containing a central grass path bounded by longer vegetation before transitioning to scrub and trees (Photograph 6). Around the path species include cock's-foot, Yorkshire fog *Holcus lanatus* and creeping thistle *Cirsium arvense*, transitioning into taller species such as cow parsley, hogweed *Heracleum sphondylium*, nettle and garlic mustard. The bounding vegetation and trees include ash, alder *Alnus glutinosa*, ivy, hawthorn *Crataegus monogyna*, field maple and sycamore.

3.4.8. Odiham Cemetery

Odiham cemetery is a mix of short mown and long vegetation, with wildflower area bounded by hedges and trees. It also includes the recently planted orchard for the Queen's Green Canopy platinum jubilee celebrations in 2022. The total area covers approximately 1.92 hectares.

The cemetery (Photographs 7 to 9) comprises amenity grassland with grass species including annual meadow grass, cock's-foot, Timothy *Phleum pratense* and rough meadow grass *Poa trivialis*, and herbs such as daisy, white clover, creeping buttercup, ribwort plantain, yarrow, common mouse-ear and black medick *Medicago lupulina*. Trees scattered within the cemetery and around the boundary include sycamore, cherry *Prunus* species, elder, Scots pine *Pinus sylvestris*, beech *Fagus sylvatica*, ash and copper beech *Fagus sylvatica f. purpurea*.

The orchard (Photographs 10) is amenity grassland planted with a selection of apple, pear, plum and quince trees, bounded by a fence, wall and hedges, with a species composition similar to that found within the cemetery.

3.4.9. Peace Garden

The peace garden is a small area of amenity grassland with scattered trees, planting and seating area, and banks bounding the south and western sides, of approximately 0.06 hectares (Photograph 11). The grassland comprises annual meadow grass, cock's-foot, fescue *Festuca* species, daisy, bristly oxtongue *Helminthotheca echioides*, black medick, ground-ivy *Glechoma hederacea* and scarlet pimpernel *Anagallis arvensis*. Trees and scrub include ash, hawthorn, blackthorn *Prunus spinosa*, beech and yew.

3.4.10. Recreation Ground

The recreation ground is a large area of amenity grassland with play equipment, bounded by hedges, walls and fencing, of approximately 1.26 hectares (Photograph 12). The grassland contains typical amenity grassland species such as annual meadow grass, cock's-foot, Yorkshire fog, daisy, yarrow, creeping buttercup, red clover *Trifolium pratense* and germander speedwell.

3.4.11. The Firs

The Firs is a small area of beech woodland on the boundary of a large agricultural field, covering approximately 0.39 hectares (Photograph 13). There is a path going through the centre of site, with a ground flora including wood avens *Geum urbanum*, herb-robert *Geranium robertianum*, lords and ladies *Arum maculatum* and wood mellick *Melica uniflora*, and shrub and canopy layer including hawthorn, sycamore, hazel *Corylus avellana*, beech, holly *Ilex aquifolium*, field maple and oak *Quercus robur*.

4. ACTION TABLE

Based on the results of the background data search, extended Phase 1 survey and discussions with the parish council, suitable actions have been developed that will improve the biodiversity interest of the parish. Actions are focussed on providing a connected space for wildlife across the parish, and promoting the health and well-being of residents and visitors to the parish through access to nature and greenspaces.

Some of the actions listed are already underway; others are potential projects, while others are aspirational, they represent ideal actions given sufficient resources and time. The actions listed represent the current priorities. Priorities will, however, change for many reasons, hence the need for regular review of this BAP.

The action table has been divided into site specific actions for the sites surveyed and more generic actions that can be applied parish-wide.

Allotments	Chapel Pond Play Area	Peace Garden
Beacon Field	Colt Hill Land	Recreation Ground
Bufton Field	Odiham Cemetery	The Firs
Chamberlain Gardens	Orchard	Parish-Wide

Each action table is divided into 5 main columns; Objective, Action, Outcome, Targets and Reporting Method. Objectives are the overall aim of undertaking the action, actions are the key activities that need to be undertaken, outcomes are the benefits to biodiversity that will be achieved, the targets are the steps that need to be fulfilled by the end of the stated years, and the reporting method identifies how progress towards the final objective is going to be monitored. Some targets also include management suggestions on how best to achieve the target, these should be incorporated into the management plans for the sites.

	Objective	Action	Outcome	Target (Years)			Reporting Method
				1- 2	3 – 5	6 – 10	
Allotments	**More space for wildlife**	Create holes in fences for hedgehogs	Hedgehogs able to move around the landscape Part of a national scheme 'Hedgehog Street' www.hedgehogstreet.org Opportunity for engagement with neighbours and local community	Cut 13cm x 13cm holes at base of fence, at approximately 20 metre intervals			Annual biodiversity check
Allotments		Enhance areas to attract more invertebrates and birds	More natural spaces which attract wildlife Opportunity for wildlife encounters by site users		Plant native species around edges of allotment for pollinators Use scented native climbers on boundary fences		Annual biodiversity check
Beacon Field		Create a wildflower area	Habitat for invertebrates and birds		Create a wildflower meadow along eastern boundary (fence line)		Annual biodiversity check
Bufton Field Play Area		Create a stag beetle log pile	More natural spaces which attract wildlife Habitat for stag beetles and other invertebrates			Build a stag beetle log pile in northern corner of play area	Annual biodiversity check

	Objective	Action	Outcome	Target (Years)			Reporting Method
				1- 2	3 – 5	6 – 10	
Chapel Pond Play Area		Enhance areas to attract more invertebrates and birds	More natural spaces which attract wildlife Opportunity for wildlife encounters by site users		Use woodland / shade tolerant planting such as ferns along southern boundary		Annual biodiversity check
Chamberlain Gardens		Enhance areas to attract more invertebrates and birds	More natural spaces which attract wildlife Opportunity for wildlife encounters by site users		Use woodland / shade tolerant planting such as ferns along northern fence line		Annual biodiversity check
Colt Hill Land		Increase standing dead wood	Retention of trees as habitat for invertebrates, birds and bats		Any trees identified as hazardous retained as monoliths if safe to do so *Management:* Additional holes drilled to create cavities and stimulate rotting		Annual biodiversity check
Colt Hill Land		Replacement of bat boxes	Increased roosting provision for bats	Research ownership and history of boxes, replace if necessary	Check if boxes are being used and re-site if necessary		Bat box check

Objective		Action	Outcome	Target (Years)			Reporting Method
				1- 2	3 – 5	6 – 10	
Colt Hill Land		Retain trees with features	Increased sheltering opportunities for bats, birds and invertebrates	Retain trees with features such as splits, cracks and cavities where safe and possible to do so			Annual biodiversity check
Odiham Cemetery		Create a pond and / or bog garden in suitable location not assigned to burial plots	Increased habitat for amphibians, dragonflies and damselflies Peaceful place for visitors to sit	Pond and associated bog garden created in suitable area *Management:* Dig out hole for bog garden, line and refill with soil. Plant with suitable native species Further details in Appendix 5	Bog garden with established vegetation	Bog garden able to support a diversity of species including invertebrates, amphibians & plants	Annual biodiversity check
Odiham Cemetery		Install a bird bath	Fresh water for birds for drinking and bathing Close contact with nature for visitors	Locate bird bath near to a hedge but far enough away so that it is in the open so birds are not vulnerable to predators e.g. cats hiding in the hedge			Annual biodiversity check

Objective		Action	Outcome	Target (Years)			Reporting Method
				1- 2	3 – 5	6 – 10	
Odiham Cemetery		Retain areas of longer grass for wildlife	Shelter and food source for invertebrates, birds and small mammals	Reduce mowing frequency to allow wildflowers to grow and set-seed, particularly creating ecotones (transitional habitats) around hedge bases Areas retained for over-wintering invertebrates and seed source for birds *Management:* Cut each autumn, but retaining an area of approximately 25% uncut			Annual biodiversity check
Orchard		More natural boundaries	Increased shelter and cover for wildlife such as birds, small mammals and invertebrates		Plant hedge along fence to create more natural boundary		Annual biodiversity check

Peace Garden		Enhance areas to attract more invertebrates and birds	More natural spaces which attract wildlife Opportunity for wildlife encounters by site users		Create a wildflower meadow or allow vegetation to grow longer to create an ecotone on north-west boundary Use scented native climbers on wall Use woodland / shade tolerant planting at base of ash trees		Annual biodiversity check
Recreation Ground		Create a wildflower area and / or ecotone on western boundary of recreation ground	Habitat for invertebrates and birds		Create a wildflower meadow or allow vegetation to grow longer to create an ecotone on western boundary		Annual biodiversity check
The Firs		Identify and retain standing dead wood	Retention of trees as habitat for invertebrates, birds and bats		Any trees identified as hazardous retained as monoliths if safe to do so *Management:* Additional holes drilled to create cavities and stimulate rotting		Annual biodiversity check

The Firs		Installation of bat boxes	Increased roosting provision for bats	Install 3 bat boxes within The Firs	Check if boxes are being used and re-site if necessary		Bat box check
Parish-wide		Installation of bird boxes	Increased nesting provision for birds			Erection of at least 4 boxes across the parish	Bird box check
Parish-wide		Create holes in garden fences for hedgehogs	Hedgehogs able to move around the landscape Part of a national scheme 'Hedgehog Street' www.hedgehogstreet.org Opportunity for engagement with neighbours and local community	Cut 13cm x 13cm holes at base of fence, at approximately 20 metre intervals			Annual biodiversity check
Parish-wide		Develop ecotones (transitional habitats) along boundaries of amenity spaces and encourage people to the same in their gardens	Increased cover for invertebrates and small mammals Food source for invertebrates, birds and small mammals	Reduce mowing frequency along base of hedge extending up to 1 metre from hedge to develop gradient in vegetation from hedge into tall ruderals, herbs, long grass and amenity grassland			Annual biodiversity check

Parish-wide		Provision of log piles in rough grassland area	More shelter and space for amphibians, reptiles and invertebrates		Installation of at 3 log piles		Annual biodiversity check
Parish-wide		Use of wildlife friendly / sensitive lighting	Wildlife, particularly bats, not dissuaded from using areas due to lighting regime	Check for spill from lighting, particularly around boundaries, and install cowls / hoods to direct light down if necessary so dark areas for foraging and commuting bats	Assess potential to use lighting on timers / sensors to reduce light pollution and create dark areas for wildlife movement Use of low level lighting for footpaths		Annual biodiversity check
Parish-wide	**Provision of food sources for wildlife**	Appropriate species planting to habitats and landscape	Connected habitats to aid movement of wildlife through the landscape	Only use locally sourced, native species for new and replacement planting			Annual biodiversity check
Parish-wide		Bat friendly species planting	Increased food sources for night flying insects	Plant species that provide food sources for night flying insects in wildflower areas			Annual biodiversity check Bat Transect Survey
Orchard	**Community engagement**	Maintaining orchard	Increased engagement and sense of ownership of green spaces Additional food source for birds and invertebrates	Community volunteers to help maintain trees and surrounding vegetation		Productive fruit trees	Annual biodiversity check

Parish-wide		Information exchange – contact local Wildlife Trust for press releases and suitable news articles that cover topics such as disposal of garden waste	Awareness of wildlife issues e.g. effects of non-native species on local wildlife, value of wildlife gardening etc.	Regular articles in parish magazine and on website on relevant topics e.g. encouraging appropriate disposal of garden waste			Publications in magazine and webpage
Parish-wide		Create page on parish website for recording species and links to useful information and websites	Increased engagement and sense of ownership of green spaces	Develop page to allow submission of records and photos. Link to online recording system e.g. iRecord	Update with articles or links to local/national projects and sightings of interest		Webpage counter
Parish-wide		Invest in trail cameras and set-up loan scheme for local residents	Increased engagement with local community Generate more species records for the parish		Two cameras purchased for loan		Number of species records for parish

Parish-wide		Invite specialist groups to survey a site e.g. Hampshire bat group, Hampshire fungus recording group	Generate more species records for the parish			Invite Hampshire bat group to check bat boxes at Colts Hill Land	Number of species records for parish
Parish-wide		Hold a BioBlitz to increase knowledge of species found in the parish	Increased awareness of natural environment Engagement with local community		Organise day to hold BioBlitz, contacting local experts and organizations to help with species ID Recruit volunteers to assist on day	Hold BioBlitz Disseminate results to participants	Count of attendees
Parish-wide		Encourage recording by residents	Engagement with local community Increased knowledge and understanding of local wildlife	Promote national events such as 'big garden bird watch' and 'big butterfly count' to aid learning and then encourage people to use systems such as iRecord to submit their own records	Use BioBlitz to further promote own recording and submission of records		Number of species records for parish

Parish-wide		Take part in local and national schemes e.g. No Mow May, 30 Days Wild and Incredible Edible	Encourage local residents to take action for wildlife, which also has a health and well-being benefit	Promote and engage in environmental schemes	Hold activities for local residents and visitors to take part in e.g. building of bug hotels, bat and bird boxes by local school children		Promote and report achievement on webpage / social media
Parish-wide		Create wildlife walk around village	Easy access to greenspace Appreciation of surroundings			Create 'loop' walk around village greenspaces, picking out key things for people to see e.g. bird box, wildflower area and possible species they may see e.g. butterflies – use interpretation panels or posts with QR codes linked to website	Webpage / social media Signage on site
Odiham Cemetery	**Encouraging recycling of natural waste**	Build compost bin	Encourage appropriate disposal of garden waste Additional habitat for wildlife Source of compost for future planting	Build compost bin in suitable location within cemetery			Annual biodiversity check
Parish-wide	**Remove garden variants and non-native species**	Identify and remove non-native species from parish	Invasive, non-native species removed		Monitor for, and remove / treat as necessary on parish owned sites		Annual biodiversity check

Parish-wide		Use native species only for hedgerow planting Encourage local residents to use native species in their own gardens	Increased food sources for invertebrates and birds More native species, diverse hedgerows	Any new or replacement hedgerow planting should be with native species only. Use variety of species to create diversity of seed and fruit producing species		More species diverse hedges	Annual biodiversity check

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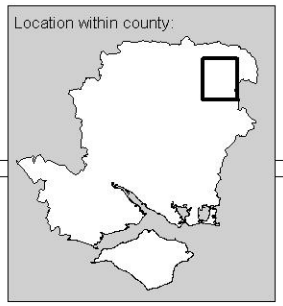
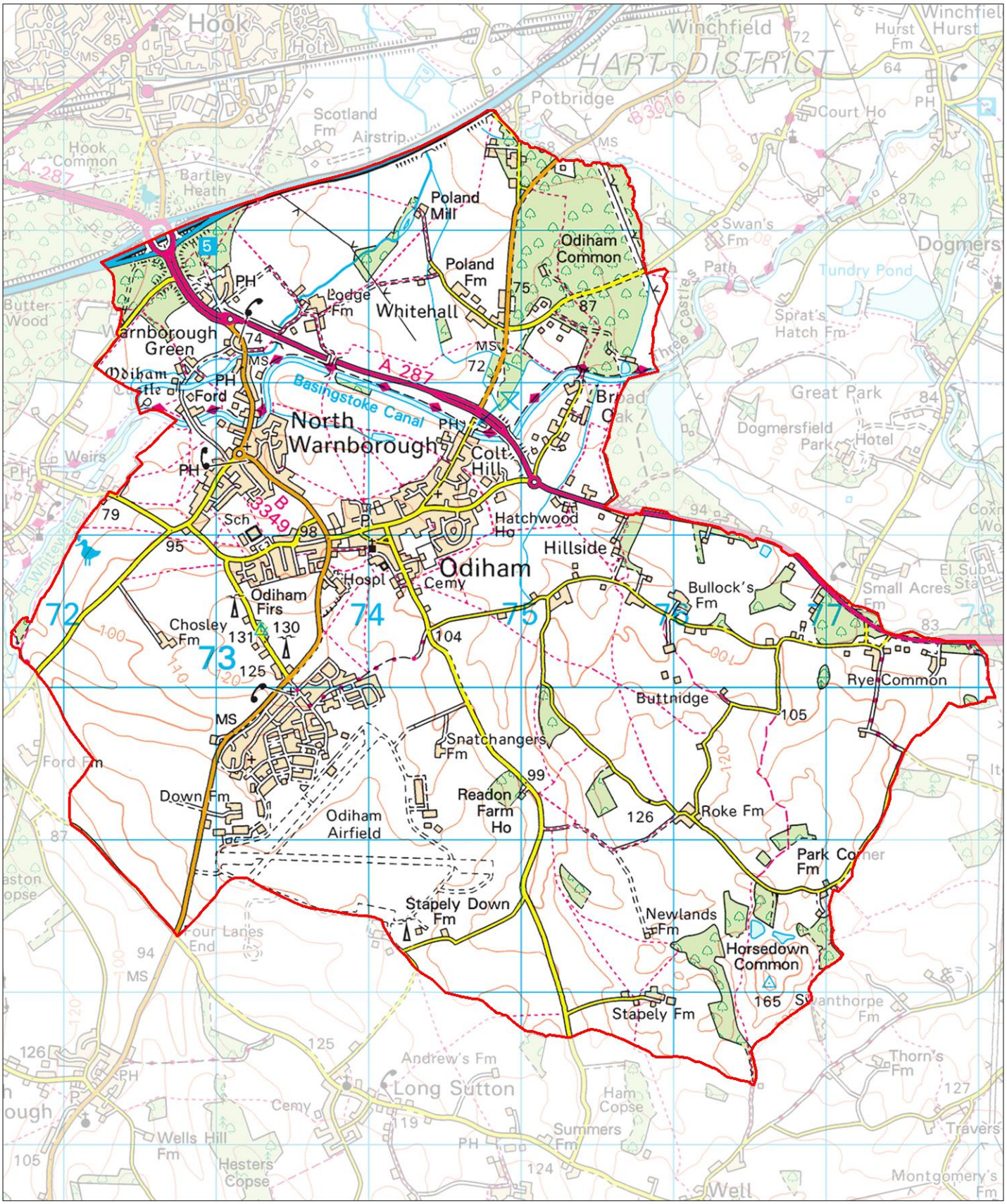
MAPS

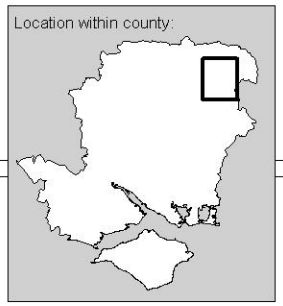


Map 1. Parish Boundary

Odiham Parish BAP

Scale 1:35000

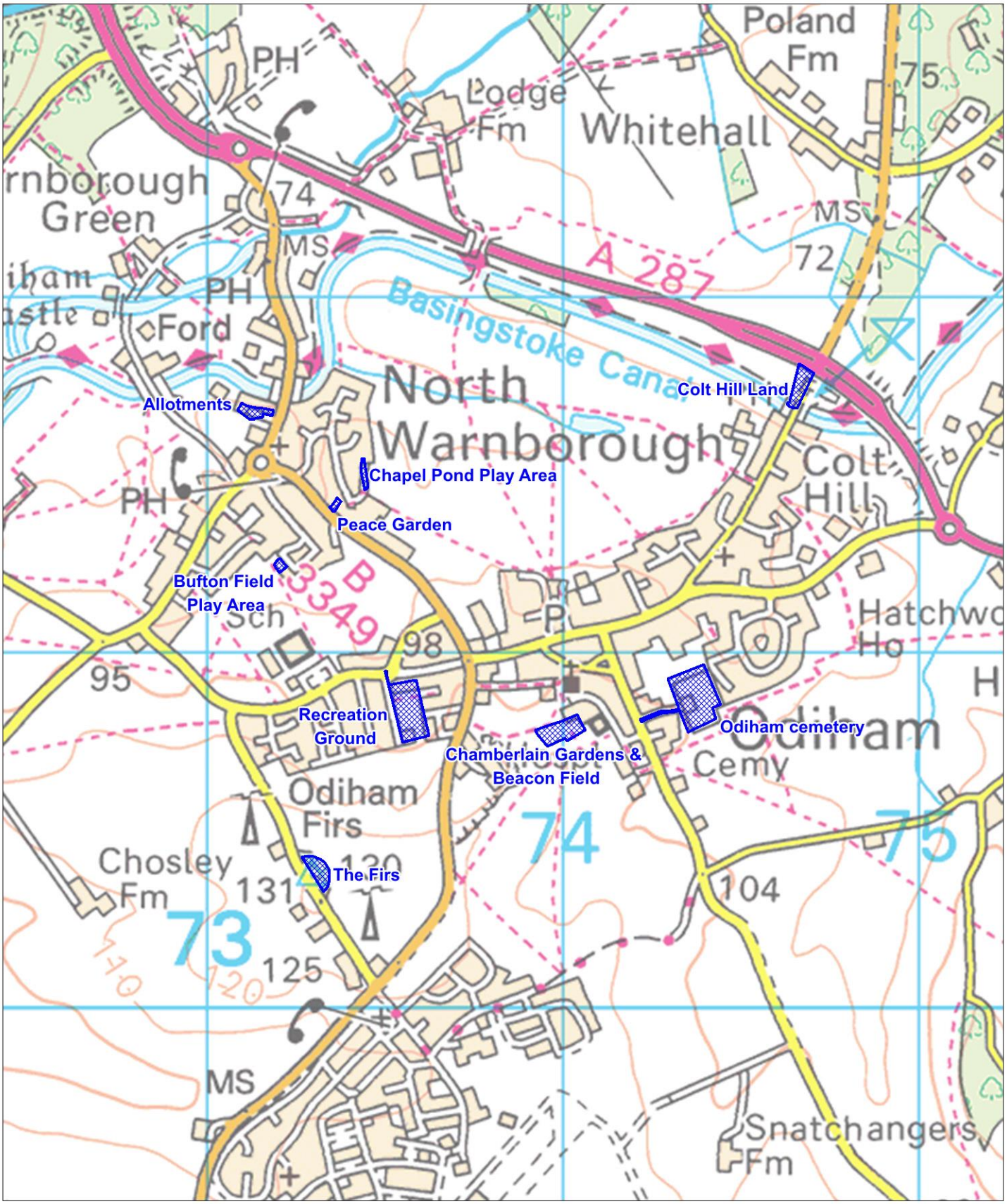




Map 2. Survey Locations

Odiham Parish BAP

Scale 1:15000



N

BAP Priority habitat, notable species and SINC data supplied by the Hampshire Biodiversity Information Centre on behalf of the HBIC Partnership.
Aerial photography courtesy of GetMapping plc. Produced on 27 June 2022 by Sarah Jackson
For enquiries relating to GIS data contact Catherine McGuire, email Catherine.McGuire@hiwwt.org.uk, tel: 01489 774455.

PHOTOGRAPHS

Photograph 1. Allotments

Photograph 2. Beacon Field

Photograph 3. Bufton Field Play Area

Photograph 4. Chamberlain Gardens

Photograph 5. Chapel Pond Play Area

Photograph 6. Colt Hill Land

Photograph 7. Odiham Cemetery burial plots

Photograph 8. Odiham Cemetery scattered trees

Photograph 9. Odiham Cemetery wildflower area

Photograph 10. Orchard

Photograph 11. Peace Garden

Photograph 12. Recreation Ground

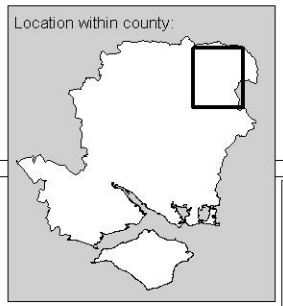
Photograph 13. The Firs

APPENDICES

Appendix 1:
Extent of background data search area

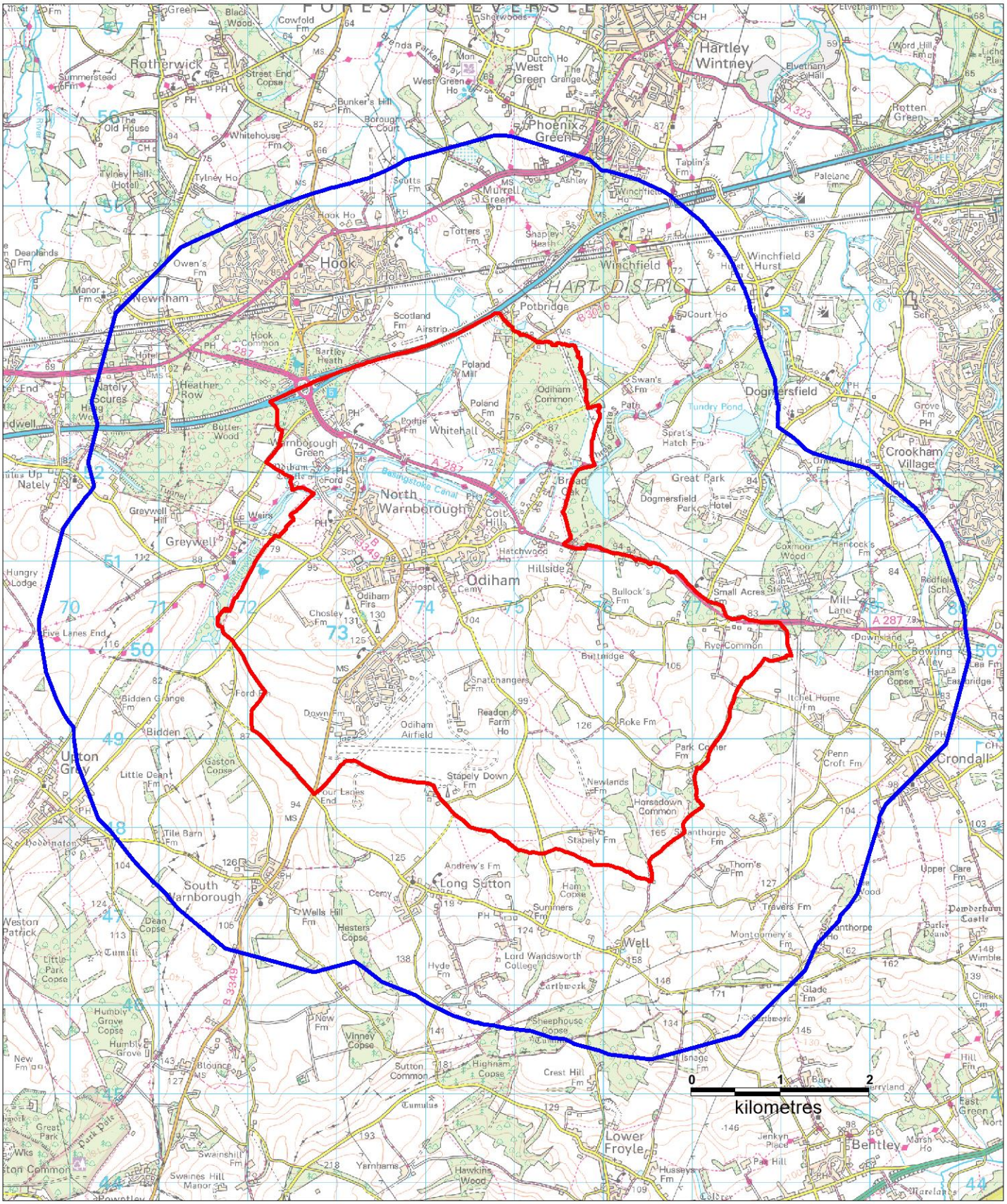
Appendix 1. Map showing extent of background data search area

Odiham Parish BAP



2km Buffer

Parish Boundary



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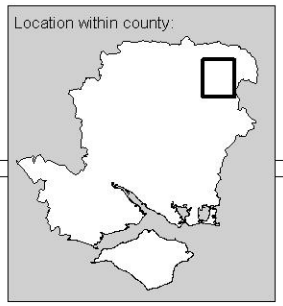
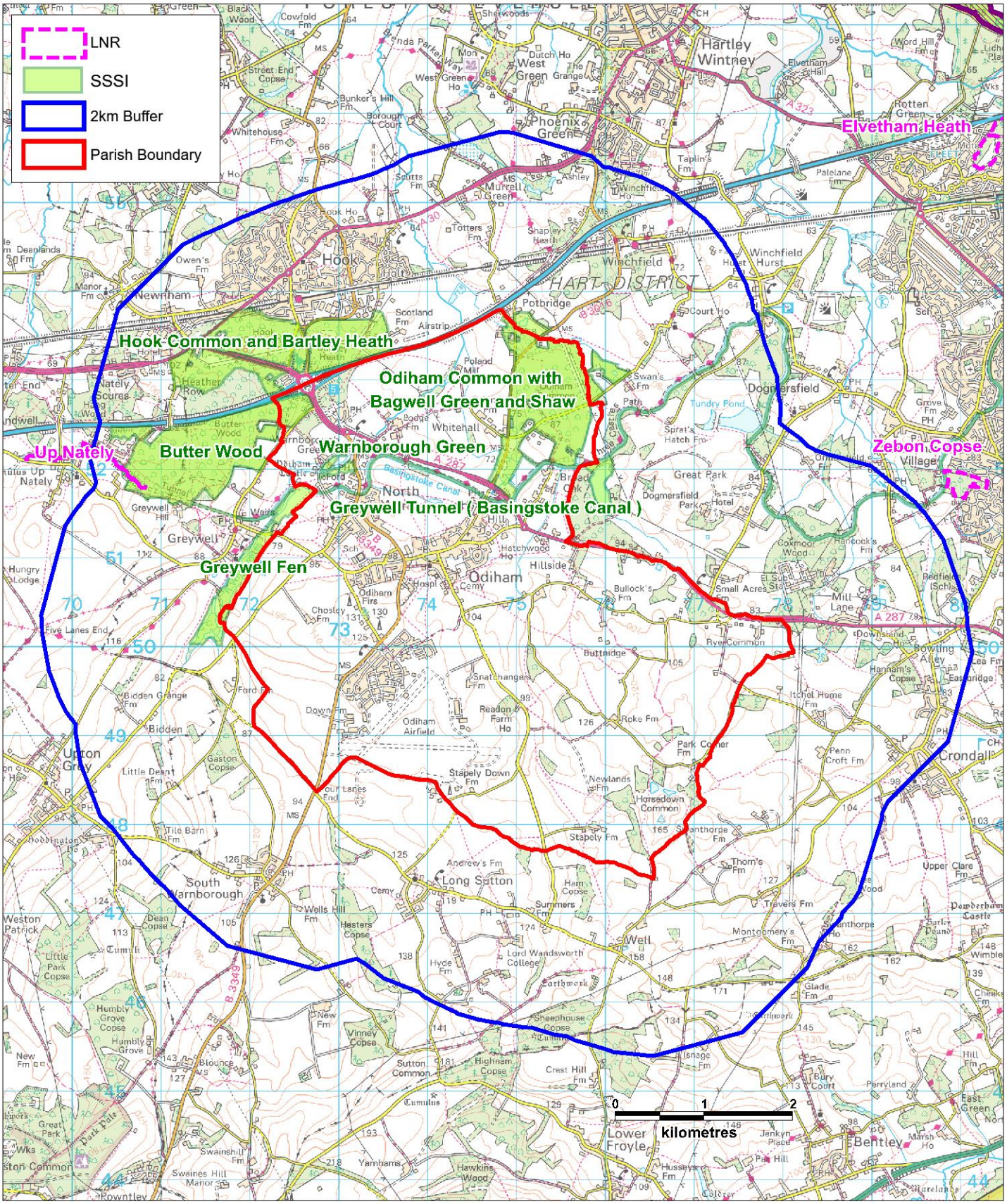
Appendix 2:

Map showing location of statutory designated sites



Appendix 2. Map showing location of statutory designated sites

Odiham Parish BAP



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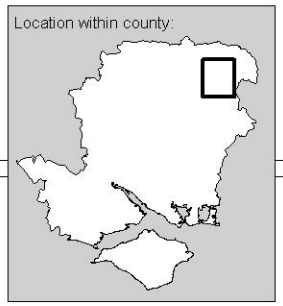
Appendix 3:

Map showing location of non-statutory designated sites



Appendix 3. Map showing location of non-statutory designated sites

Odiham Parish BAP

SINC

2km Buffer

Parish Boundary

0 1 2 kilometres

N

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Appendix 4:

Botanical species list compiled during Phase 1 habitat survey with a qualitative measure of abundance based on DAFOR scale

Appendix 4. Botanical species list compiled during Phase 1 habitat survey with a qualitative measure of abundance based on DAFOR scale.

The DAFOR scale provides an assessment of the abundance of particular species.
D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare. Species can also be Locally Dominant (LD) or Locally Abundant (LA) meaning there is a particularly dense patch but it does not extend to an entire area, for example a nettle bed.

English Name	Scientific Name		DAFOR										
		Allotments	Beacon Field	Bufton Field Play Area	Chamberlain Gardens	Chapel Pond Play Area	Colt Hill Land	Odiham Cemetery - grassland	Odiham Cemetery - hedges	Orchard	Peace Garden	Recreation Ground	The Firs
alder	*Alnus glutinosa*						O					A	
annual meadow grass	*Poa annua*	A	A		A	A		A		F	A		
apple	*Malus* sp.				R								
ash	*Fraxinus excelsior*			R			F	O	O	R	O		
bamboo	*Bambusoideae* sp.												
barren brome	*Bromus sterilis*			O	R		R	R					O
beech	*Fagus sylvatica*				R			R			O	R	A
birch species	*Betula* sp.			O									
black bryony	*Dioscorea communis*								R				
black medick	*Medicago lupulina*							R			F	F	
blackthorn	*Prunus spinosa*						O	R			R		
box species	*Buxus* sp.								LD				
bramble	*Rubus fruticosus*	R			LA		O	R	R	O		O	O
bristly oxtongue	*Helminthotheca echioides*										R		
broad-leaved dock	*Rumex obtusifolius*	O			R			R	R	R	R		R
buddleia	*Buddleia davidii*							R					

English Name	Scientific Name		DAFOR										
		Allotments	Beacon Field	Bufton Field Play Area	Chamberlain Gardens	Chapel Pond Play Area	Colt Hill Land	Odiham Cemetery - grassland	Odiham Cemetery - hedges	Orchard	Peace Garden	Recreation Ground	The Firs
bugle	*Ajuga reptans*							O					
cherry	*Prunus* sp.				R		R	O	LD				O
cherry laurel	*Prunus laurocerasus*				R								
cleavers	*Galium aparine*			O	O		F	O	R	R		R	
cock's-foot	*Dactylis glomerata*	A	F	F			F	A		F	O	F	F
common bent	*Agrostis capillaris*					O							
common chickweed	*Stellaria media*				O								
common hogweed	*Heracleum sphondylium*	O	O		R			O		R			O
common knapweed	*Centaurea nigra*						F						
common mallow	*Malva sylvestris*										R		
common mouse ear	*Cerastium fontanum*	F	O		R	O		O			O	O	
common nettle	*Urtica dioica*	LA		F	O		F	O	R				O
common ragwort	*Senecio jacobea*	R	R	O	R	R					O	R	
common sorrel	*Rumex acetosa*							R					
conifer (cypress) species	*Cupressus* sp.							F					
copper beech	*Fagus sylvatica f. purpurea*				R			R					
cotoneaster species	*Cotoneaster* sp.							LA					
cow parsley	*Anthriscus sylvestris*	R	O	F	LA		F	O			R	R	R
cowslip	*Primula veris*							LF					
creeping bent	*Agrostis stolonifera*							O					
creeping buttercup	*Ranunculus repens*	F	F		O	F	O	F		O	O	F	

English Name	Scientific Name		DAFOR										
		Allotments	Beacon Field	Bufton Field Play Area	Chamberlain Gardens	Chapel Pond Play Area	Colt Hill Land	Odiham Cemetery - grassland	Odiham Cemetery - hedges	Orchard	Peace Garden	Recreation Ground	The Firs
creeping cinquefoil	*Potentilla reptans*										F		
creeping thistle	*Cirsium arvense*	O			R		R	R		O	R		R
curled dock	*Rumex crispus*	R			R		O			O	R		
cut-leaved crane's-bill	*Geranium dissectum*		O					R					
daffodil	*Narcissus* sp.										F		
daisy	*Bellis perennis*	O	F	O	O	F	R	F		O	F	A	
dandelion	*Taraxacum* agg.	O	F	F	O	O	O	F				O	
dog rose	*Rosa canina*												O
Dog's mercury	*Mercurialis perennis*						LA						
dogwood	*Cornus sanguinea*		LA										R
elder	*Sambucus nigra*		R		O		F	O				O	R
fescue species	*Festuca* sp.		O		R			R			O		R
field maple	*Acer campestre*			O			O		R			R	O
garlic mustard	*Alliaria petiolata*			O	R		F	R			R		R
germander speedwell	*Veronica chamaedrys*		O		O	R		O		O		O	
greater plantain	*Plantago major*		O		O		R	O			O	O	
greater stitchwort	*Stellaria holostea*												R
green alkanet	*Pentaglottis sempervirens*	R								R	R		
ground elder	*Aegopodium podagraria*			O									
ground-ivy	*Glechoma hederacea*					R	O	O			R		R
groundsel	*Senecio vulgaris*	O						R		O			

English Name	Scientific Name		DAFOR										
		Allotments	Beacon Field	Bufton Field Play Area	Chamberlain Gardens	Chapel Pond Play Area	Colt Hill Land	Odiham Cemetery - grassland	Odiham Cemetery - hedges	Orchard	Peace Garden	Recreation Ground	The Firs
hawthorn	*Crataegus monogyna*						O		O	R	R	LA	O
hazel	*Corylus avellana*				R								F
hedge bindweed	*Calystegia sepium*											R	
hedge woundwort	*Stachys sylvatica*									R			R
hedgerow crane's-bill	*Geranium pyrenaicum*		R			R					O	R	
herb-robert	*Geranium robertianum*				O		R	O					O
hoary plantain	*Plantago media*							R					
holly	*Ilex aquifolium*							R	F	R		O	O
honeysuckle	*Lonicera periclymenum*								O				
hornbeam	*Carpinus betulus*		R										
horse chestnut	*Aesculus hippocastanum*				R					R			
horsetail species	*Equisetum* sp.			O									
ivy	*Hedera helix*		LA		LA		LA		LA	LA		F	LA
larch	*Larix* sp.												O
lesser celandine	*Ficaria verna*						O						
lesser trefoil	*Trifolium dubium*											R	
lime	*Tilia* sp.								O	R			
lords and ladies	*Arum maculatum*			R	R		R						R
meadow buttercup	*Ranunculus acris*		O					O				O	R
mistletoe	*Viscum album*									R			
oxeye daisy	*Leucanthemum vulgare*							O					

English Name	Scientific Name		DAFOR										
		Allotments	Beacon Field	Bufton Field Play Area	Chamberlain Gardens	Chapel Pond Play Area	Colt Hill Land	Odiham Cemetery - grassland	Odiham Cemetery - hedges	Orchard	Peace Garden	Recreation Ground	The Firs
pedunculate oak	*Quercus robur*								R				O
perennial rye grass	*Lolium perenne*	R			O	O							
pignut	*Conopodium majus*			R									
prickly sow-thistle	*Sonchus asper*	R											
privet	*Ligustrum* sp.							O	O			F	R
red clover	*Trifolium pratense*		O					O				O	
ribwort plantain	*Plantago lanceolata*	F	O		O	R		O		O	O	O	
rose	*Rosa* sp.				R		R	R	R	R		R	
rough hawkbit	*Leontodon hispidus*							R					
rough meadow grass	*Poa trivialis*	R			O		O	R					
scarlet pimpernel	*Anagallis arvensis*										R		
scots pine	*Pinus sylvestris*							R					
smooth meadow grass	*Poa pratensis*									O			O
smooth sow-thistle	*Sonchus oleraceus*								R		R		
Spanish bluebell	*Hyacinthoides hispanica*				R		R					R	R
spear thistle	*Cirsium vulgare*	O		R	R					O	R		
stinking iris	*Iris foetidissima*							O					R
sweet chestnut	*Castanea sativa*				R								
sweet vernal grass	*Anthoxanthum odoratum*									R			
sycamore	*Acer pseudoplatanus*		O	O	O		O	O	R	R		O	O
Timothy	*Phleum pratense*	R						R					

English Name	Scientific Name		DAFOR										
		Allotments	Beacon Field	Bufton Field Play Area	Chamberlain Gardens	Chapel Pond Play Area	Colt Hill Land	Odiham Cemetery - grassland	Odiham Cemetery - hedges	Orchard	Peace Garden	Recreation Ground	The Firs
Traveller's joy	*Clematis vitalba*		R	R									R
variegated holly species	*Ilex* sp.				R								
viper's bugloss	*Echium vulgare*						R						
walnut species	*Juglans* sp.		O		R								
white bryony	*Bryonia dioica*								R				
white clover	*Trifolium repens*		F		F			F			O		
white dead nettle	*Lamium album*	R					R	R		R		R	
willow sp.	*Salix* sp.						O				R		
wood avens	*Geum urbanum*			R	O		R	R					F
wood forget-me-not	*Myosotis sylvatica*	O		O			O						
wood mellick	*Melica uniflora*												O
wood speedwell	*Veronica montana*							R					
yarrow	*Achillea millefolium*	F	O		O			O		F	F	O	
yew	*Taxus baccata*		R		R				F		LD		
Yorkshire fog	*Holcus lanatus*	O			O		R			F		O	O

Appendix 5:
Habitat creation

Appendix 5. Habitat Creation

Native Wildflower Species

The choice of wildflower species should reflect the local habitat of the parish. They should be sourced locally when possible.

A mix containing some acid grassland and heathland species would be suitable for parish, reflecting its location. However, soil testing should also be undertaken to ensure the correct seed mix is chosen to maximise chance of establishment. Species the mix could include are:

- Betony *Stachys officinalis*
- Black knapweed *Centaurea nigra*
- Common bird's-foot trefoil *Lotus corniculatus*
- Common cat's-ear *Hypochaeris radicata*
- Devil's-bit scabious *Succisa pratensis*
- Harebell *Campanula rotundifolia*
- Heath bedstraw *Galium saxatile*
- Lady's bedstraw *Galium verum*
- Meadow buttercup *Ranunculus acris*
- Selfheal *Prunella vulgaris*
- Sheep's sorrel *Rumex acetosella*
- Tormentil *Potentilla erecta*
- Wood sage *Teucrium scorodonia*

Further advice about buying native flora can be found in the Flora locale advice note
https://cieem.net/wp-content/uploads/2019/07/Buying-native-flora-a-Flora-locale-advisory-note.pdf

Sources of seeds include:
Emorsgate Seeds https://wildseed.co.uk/home
Charles Flower Wildflowers http://www.charlesflower-wildflowers.co.uk/

Pond Creation

Pond design

The pond should be at least 1 metre deep at one point to stop it from freezing in winter and have stepped banks with sloping sides, to create different habitats within the pond and access for wildlife.

Ponds can be dug at most times of the year but a pond started in spring will establish more quickly than at other times. When you start to dig, strip the turf and keep it for lining the edge of the pond. It is worth checking the level of the pond while digging, as some gardens are on a slope and the level of the pond will look very strange if this is not allowed for. If the pond is on a slope, some of the spoil from the hole can be used to create a bank on one side to ensure correct levels.

Spoil can also be used to create a bund area around one edge of the pond, creating different aspects and micro-climates for plants and invertebrates.

A liner may be required depending on the underlying substrate. If it is over clay a liner shouldn't be required, however a layer of children's play sand or washed gravel to provide a substrate for plants and burrowing invertebrates is recommended to at least partially cover the base of the pond.

Use of baskets for pond plants will help keep the spread contained and reduce management requirements. Pond maintenance should be conducted no more than once a year, and with only a quarter to a third of the pond area cleared of plants. Ponds should have areas of open water and vegetation to provide maximum habitat diversity.

Planning permission may be required, therefore talk to the planning authority before starting the project to establish if it is necessary, or any other possible constraints.

Suitable Plants for Ponds

Taken from 'Creating garden ponds for wildlife' by Pond Conservation & World of Water, 2011

Type of Plant	Species	Comments
Plants next to the pond (for use in wildflower areas adjacent to pond)	• Cow parsley • Devil's-bit scabious • Hemp agrimony • Teasel • Purple loosestrife • Red valerian • Yarrow	Provision of food and cover next to the pond Links to other habitats e.g. hedgerows
Low-growing wetland grasses (planted on dry ground or in a few cm of water)	• Creeping bent • Small sweet-grasses	
Marginal herbs & rushes (2-10cm depth of water)	• Lesser spearwort • Marsh pennywort • Water forget-me-not • Water mint • watercress	Water mint can spread rapidly
Marginal plants with attractive flowers & architecture (2-10cm depth of water)	• Marsh cinquefoil • Marsh woundwort • Marsh-marigold • Pendulous sedge • Purple loosestrife • Ragged-robin • Water dock • Yellow iris	Pendulous sedge can become dominant
Tall emergents (2-10cm depth of water)	• Branched bur-reed • Bulrush • Greater pond-sedge • Hard rush • Lesser reedmace • Reed sweet-grass • Soft rush	Can become dominant in small ponds so regular cutting back necessary
Floating-leaved plants (15-30cm of water)	• Amphibious bistort • Broad-leaved pondweed • Fringed water-lily • Yellow water-lily	Would generally avoid as can become dominant / require more regular management
Submerged plants (Float in deep water)	• Common water-starwort • Curled pondweed • Rigid hornwort • Spike water-milfoil • Water-crowfoot	Rigid hornwort is a particularly good native oxygenator

Further advice on pond creation is available for sources such as the Freshwater Habitats Trust – Pond Creation Toolkit https://freshwaterhabitats.org.uk/projects/million-ponds/pond-creation-toolkit/

Bog Garden Creation

Bog gardens are excellent habitats for wildlife, such as for young frogs, due to the dense, damp vegetation they support. They can be stand-alone features, or adjacent to a pond to create an extensive area of suitable wildlife habitat.

Bog gardens need to be permanently damp, so should be created in a naturally wet area or where run-off can collect e.g. in a natural depression. If the area for creation is not naturally wet/damp, this can be achieved by using a leaky hose pipe buried into the soil that is blocked at one end and connected to

a tap or water butt (further details can be found on the RHS link below). Ideally bog gardens should be located in an area that receives full sunlight for at least part of the day.

Method

- Dig a hole approximately 30 to 45cm deep and to the desired width and length;
- Line the hole with butyl pond liner or polythene sheeting. The liner should extend at least 30cm beyond the edge of the hole to allow for settling;
- Weigh down the edge of the liner with bricks/large stones;
- Pierce the liner at 1 metre intervals using a garden fork. This means water will be retained but some drainage can occur to stop water pooling;
- Line the hole with gravel;
- Refill the newly lined hole with the extracted soil.

Native plants with attractive flowers:

- Bugle (*Ajuga repens*)
- Common skullcap (*Scutellaria galericulata*)
- Cowslip (*Primula verris*)
- Lady's smock (*Cardamine pratensis*)
- Lesser spearwort (*Ranunculus flammula*)
- Marsh woundwort (*Stachys palustris*)
- Meadowsweet (*Filipendula ulmaria*)
- Purple loosestrife (*Lythrum salicara*)
- Ragged robin (*Lychnis flos-cuculi*)

The list above has avoided large, vigorous growing species, as unless the bog garden is very large, they will dominate and out-compete other species.

Sources of information:

- Natural England – Garden ponds and boggy areas: havens for wildlife http://www.wlgf.org/ne27garden_ponds[1].pdf
- Royal Horticultural Society – Bog gardens https://www.rhs.org.uk/advice/profile?PID=356#section-3

Stag Beetle Log Pile

Example of a stag beetle log pile taken from the PTES Stepping stones for stags guide (https://stagbeetles.ptes.org/how-to-build-a-log-pile/)

Sward Enhancement

The following document provides advice on enhancing existing areas to increase botanical diversity.

Sward enhancement: diversifying grassland by oversowing and slot seeding

Sward enhancement refers to management techniques which aim to increase the botanical diversity (mainly the wildflower component) of species-poor grassland. Such work can be funded under Environmental Stewardship Higher Level Scheme (HLS). Oversowing and slot seeding are two methods of sward enhancement. Other techniques of spreading species-rich green hay and planting pot-grown transplants and plug plants are described in separate information notes.

Key points

- Suitable sites must be selected to ensure the best chance of success.
- Seed must be carefully chosen for a particular site.
- The site should be prepared prior to oversowing to achieve a short sward with 50% bare ground.
- When oversowing, seed must be broadcast on the surface and then bedded in.
- Slot seeding requires specialist machinery, which may have to be adapted, for example, to attach a band sprayer.
- Subsequent site management is important.

Introduction

Not all grassland is suitable for enhancement. The main requirements include low soil fertility and low/no weed burden. Enhancement methods usually involve disturbance to the sward. The benefits of enhancement, must be balanced against the risk of erosion or damage to other features for example, where there is buried archaeology or bird interest. If in doubt consult your Natural England adviser.

Six-spotted burnet moth on common knapweed

For more information see Technical Information Notes TIN061 - *Sward enhancement: selection of suitable sites* and TIN062 - *Sward enhancement: choice of methods*.

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On the right sites, both oversowing and slot seeding can be very effective techniques of diversifying grassland. Oversowing is the more commonly used method, as slot seeding requires specialist machinery.

Timing

Both oversowing and slot seeding should be undertaken in late summer or early autumn (ideally early August to mid September). This favours autumn-germinating species, and seeds of species such as cowslip *Primula veris*, which require a period of cold to break their dormancy before they germinate in the spring.

Later sowings should be avoided because of the risk of frost damage to seedlings. Spring sowings are possible, but many species will not germinate in the first year, and there is greater risk of failure due to drought.

Seed mixes

The species chosen must be suited to the site conditions and should be appropriate for the area. Where possible seed should be of local origin ie collected from grassland close to the site where it is to be sown. Wildflower seed should always be of British native origin.

For more information see Technical Information Note TIN038 *Seed sources for grassland restoration and re-creation in Environmental Stewardship.*

For sites in the early stages of restoration, it may not be worthwhile sowing species which are more difficult to establish – see section on successive sowing.

Weed control

All pernicious weeds present in the sward should be controlled before ground preparation. Any application of herbicide should be by spot treatment or weed wiping to avoid damaging non target species.

Spear thistle *Cirsium vulgare*, ragwort *Senecio jacobaea* and other weeds with wind-blown seeds should be controlled where they occur on adjacent areas, as they can quickly invade once the sward has been opened up.

Oversowing

The success of oversowing depends on the presence of gaps in the sward which are large and persistent enough for seeds to germinate and establish free from competition. Seeds must land and then be pressed into the bare soil in the gaps with sufficient moisture to germinate and sustain them.

Ground preparation

In the majority of cases, ground preparation will be required prior to oversowing. Sowing onto a closed sward is extremely unlikely to be successful. Seed may fail to come into contact with the soil and die, and any seedlings which germinate may be out-competed by the existing sward.

The starting point is a short sward, created by cutting (with cuttings removed) or grazing. The aim is then to create 50% bare ground, using livestock (the ‘hoof and tooth’ method) or machinery.

This may seem drastic but research and experience has shown this to be necessary to reduce competition from the existing sward. Within a few months (or even less) the sward will recover and very little bare ground will remain. However, if there are known archaeological sites in the area, consult your historic environment advisor to ensure archaeological features are not damaged.

Where livestock are used to create bare ground, cattle are most effective as their hooves more easily break up the sward. Sheep can also be effective on damp ground. As a guide there should be frequent gaps of at least 10 cm in diameter.

Where livestock are unavailable, or where the ground is too dry for them to be effective, bare ground can be created using a power harrow or set of discs.

Mechanical sward disturbance may release nitrogen from the soil and stimulate herbage

growth which should be controlled – see section on subsequent management. It may also stimulate the weed seed bank, so it should only be undertaken on sites with very low or no weed burden.

In a few cases, notably in upland hay meadows, there may be sufficient bare ground and soil moisture following the hay cut for seed to be sown without further ground preparation. However, such cases are likely to be rare.

Seeding

The following seed rates are recommended:

- 5-10 kg/ha of a wildflower and grass seed mix (usually including at least 10% wildflower seed).
- 1-2 kg/ha of a pure wildflower seed mix.

Seed can be sown either over the whole field or in patches. Patch sowing may be appropriate where:

- seed is in short supply;
- certain parts of the field are being targeted (for example, areas with lighter soils); or
- there is a risk of soil erosion.

The seed must be sown on or only just below the surface. The most appropriate method is to broadcast the seed using for example, a fertiliser spreader, slug pellet applicator, grass seed box or one of the modern arable seed drills with the coulters lifted up. Slug control may be needed – see later section.

For small areas, seed can be sown by manual broadcasting using a hand-held lawn fertiliser applicator, seed fiddle or seed barrow.

Seeds of different sizes and weights may settle out or become partitioned during sowing, causing a patchy sowing distribution. A more even coverage can be obtained if the seed is bulked up with an inert carrier for example, barley meal, silver sand, fine sawdust, or poultry chick crumbs, and then sown at half rate in two directions. Light coloured carriers make it easier to see which areas have been sown.

Bedding in the seeds

After sowing, seed must be bedded in to ensure good contact with the soil, by trampling with livestock (preferably cattle) or light rolling.

Successive sowing

Successive sowing, which introduces new species over several years, may be a good approach since many plant species vary greatly in their ease of establishment.

TIN050 – *Selecting indicators of success for grassland enhancement* categorises species according their ability to colonise new sites.

Those in Group 1 are relatively easy to establish. It is thought that some of these (for example, red clover) are ‘facilitator species’ which over time can create soil and sward conditions which speed up subsequent colonisation by species in Group 3 which are difficult to establish.

It will often be useful to sow yellow rattle (a Group 2 species) which parasitizes more competitive species, such as white clover, perennial ryegrass and Yorkshire fog but seed must be very fresh (For more information see TIN060 *The use of yellow rattle to facilitate grassland diversification*).

In the early stages of restoration the cost of sowing Group 3 species may not be justified.

Successive sowing will not be appropriate every year, as plants should be given time to establish before the sward is disturbed again. Some of the introduced species may not appear in the sward for several years, so the success of sward enhancement should not be judged too soon.

Slot seeding

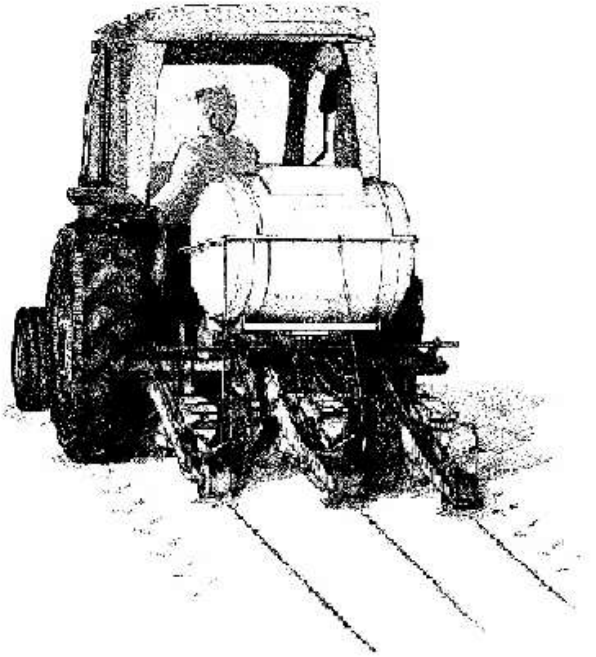
Slot seeding was originally developed as a technique for increasing the productivity of grassland by introducing species such as white clover *Trifolium repens* and ryegrass *Lolium perenne*. The method has been used with some success to introduce wildflowers.

Slot seeding requires specialist machinery which drills seed into shallow slots, up to 15 mm deep, cut into the turf. Suitable machinery includes:

- a sugar beet drill (for example, Stanhay/Gibbs drill);
- a Howard Rota seeder; and
- a Gallagher/Aitchison Seedmatic.

Normal arable direct drills are usually unsuitable, either because they are unable to penetrate hard ground, or they bury seed too deeply. In addition, these drills are not designed to create gaps or to reduce sward competition.

It is essential to control competition from the existing sward in order for seedlings to establish and survive. The best means of doing this is by fitting the slot seeder with a band sprayer which applies a narrow strip of contact herbicide to the sward at the same time as the seed is sown.



Slot seeding with adapted Stanhay/Gibbs drill

Some machines have a rotovating attachment, which serves a similar purpose by removing the existing sward. However, rotovating may release nitrogen from the soil and stimulate the weed seed bank.

A major advantage of slot seeding is that good results can be achieved with very low seed rates. However, the stripes of the drill lines may be visually unappealing and can take several years to disperse. The use of herbicide or a rotovator also risks the loss of desirable species from the sward.

The method is not recommended on poorly drained soils because slots can smear or fill with water, and there is a greater risk to seedlings of slug damage and damping off. It is also unsuitable where there are visible archaeological features.

Ground preparation

Before slot seeding create a short sward by cutting (with the cuttings removed) or hard grazing. Allow the sward to green up slightly to provide a target for the herbicide.

Seeding

Avoid undertaking the work when the ground is too hard or too wet.

A wildflower seed rate of 1-2 kg/ha is recommended. Seed should be bulked with a suitable inert carrier to aid spreading.

Where lines are widely spaced, ie >30 cm apart, consider cross drilling at half rate in two directions.

Successive slot seeding

Successive slot seeding is not recommended because of the risk of destroying the plants already introduced.

Slug control

Slugs can devastate wildflower seedlings and populations should be carefully monitored. Control is particularly likely to be necessary when slot-seeding as slugs will readily follow the sown strips and eat the seedlings.

Rolling can help control slugs. Alternatively, slug pellets can be used - ideally drilled into the slots at the time of seeding. Slug pellets must be used in accordance with statutory instructions and directions for use on the product label. For land in agri-environment scheme agreements, prior approval will be needed from your local adviser.

Subsequent management (both methods)

In the period immediately after sowing (usually September - November), the sward should be kept short so that light can help germination.

This is best done by short periods of intensive grazing. Alternatively the sward can be cut and the cuttings removed. Prolonged grazing should initially be avoided in order to reduce the risk of seedlings being selectively grazed.

In the first spring, it may be necessary to cut or graze the sward to prevent seedlings being shaded out by the existing vegetation.

A short period of intensive grazing, or cutting (with the cuttings removed) is recommended. However, this may not be appropriate on all sites and care should be taken to avoid damage to other interests on the site, for example, birds and invertebrates.

Any perennial weeds which have colonised should be controlled early on, for example, by spot treatment with herbicide. Any annual weeds are likely to be controlled by the regular cutting or grazing outlined above.

Subsequently, if the field is to be managed as a hay meadow it should be cut late (for example, after mid July), with swath turning or tedding undertaken to assist seed shedding. The use of livestock, particularly for aftermath grazing, is important because they create gaps in the sward and trample in the seed, which helps the introduced species to spread.

Where the field is managed as pasture, plants must be allowed to flower and set seed by reducing the grazing pressure for a period of about eight weeks in spring and summer.

Inorganic fertilisers or widespread application of herbicides should not be applied after sowing or seeding.

Commitment to an appropriate long term management is essential if a grassland enhancement project is going to succeed and be maintained.

Further information

Natural England Technical Information Notes are available to download from the Natural England website: **www.naturalengland.org.uk**. In particular see:

- TIN035: Soil sampling for habitat recreation and restoration in agri-environment schemes
- TIN036: *Soils and agri-environment schemes: interpretation of soil analysis*
- TIN038: *Seed sources for grassland restoration and re-creation in Environmental Stewardship*
- TIN060: *The use of yellow rattle to facilitate grassland diversification in agri-environment schemes*
- TIN061: *Sward enhancement: selection of suitable sites*
- TIN062: *Sward enhancement: choice of methods*
- TIN063: *Sward enhancement: diversifying grassland by spreading species-rich green hay*
- TIN065: *Sward enhancement: diversifying grassland using pot-grown wildflowers or seedling plugs*

For further information contact the Natural England Enquiry Service on 0300 060 0863 or e-mail **enquiries@naturalengland.org.uk**.

This note does not supersede prescriptions in agri-environment scheme agreements. If there is any conflict between the information in this note and your agreement please contact your Natural England Adviser.

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