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# THORNBURY GREEN SPACES

# ECOLOGICAL ENHANCEMENT PLANS

## SUMMER 2022

## For

## THORNBURY TOWN COUNCIL

# ST MARY'S CHURCHYARD

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# ECOLOGICAL ENHANCEMENT PLAN

## 1 INTRODUCTION

This plan is one of a series commissioned by Thornbury Town Council with the aim of identifying measures by which the biodiversity interest of green spaces in the town might be enhanced, whilst maintaining their value for both formal and informal recreation.

A site survey was carried out on 7th September 2022. It covered vegetation types and plant species, insects and birds, and potential for other groups was assessed.

## 2 SITE DESCRIPTION

### 2.1 Summary

The churchyard consists largely of mown grassland between graves; the composition of the grassland varies between different areas of the churchyard but most areas are at least moderately species-rich. There are also scattered trees, with more continuous lines of woody vegetation on the site boundaries.

The churchyard is close to the north-western edge of Thornbury and provides a link between habitats around the castle and in the open countryside and more urban sites, including the playing fields at Chantry Road and around The Castle School and Oakleaze Green and St Mary's Primary School.

### 2.2 Vegetation

The areas described below are shown on the attached map.

Area 1

The grassland between the graves is dominated red fescue (*Festuca rubra*) with other grass species including creeping bent (*Agrostis stolonifera*) and smooth meadow grass (*Poa pratensis*). Herb species make up a high proportion of the sward, with frequent species including common catsear (*Hypochaeris radicata*), white clover (*Trifolium repens*), common daisy (*Bellis perennis*), ribwort plantain (*Plantago lanceolata*) and mouse-ear hawkweed (*Pilosella officinarum*), as well as the moss *Rhytidiadelphus squarrosus*. Less frequent species include hoary plantain (*Plantago media*), black knapweed (*Centaurea nigra*), lesser hawkbit (*Leontodon saxatils*) and rough hawkbit (*Leontodon hispidus*).

Most of the graves are open but a few are overgrown with scrub, most commonly ivy (*Hedera helix*) and dogwood (*Cornus sanguinea*). Most of the headstones and tombs support a good growth of lichens: frequent species include *Caloplaca flavescens, Caloplaca saxicola* and *Aspicilia caesiocinerea*; less frequent species include *Opegrapha gyrocarpa* and *Melanelixia fuliginosa*.

Mature and semi-mature trees are scattered through the area. Species include lime (*Tilia x vulgaris*), Montpellier maple (*Acer monspessullanum*) and various whitebeams (*Sorbus spp*). There are heavy growths of mistletoe (*Viscum album*) on some of the whitebeams.

Area 2
A small patch of taller grassland by the church door has some additional herb species, including yellow rattle (*Rhinanthus minor*) and ox-eye daisy (*Leucanthemum vulgare*).

Area 3
The grass is taller in the western part of the churchyard. False oat-grass (*Arrhenatherum elatius*) is frequent here with other grass species including red fescue and Yorkshire fog (*Holcus lanatus*). Herb species in this area include ribwort plantain, common catsear and germander speedwell, with patches of tall herb vegetation dominated by rosebay willowherb (*Chamaenerion angustifolium*). Scrub is encroaching across parts of the area, the most frequent species being bramble (*Rubus fruticosus agg*), buddleia (*Buddleja davidii*) and holly (*Ilex aquifolium*).

A small part of the area, close to the bird feeders, is more diverse with additional species here including wild carrot (*Daucus carota*), black knapweed, ox-eye daisy, bird's-foot trefoil (*Lotus corniculatus*), hedge bedstraw (*Galium album*) and salad burnet (*Poterium sanguisorba*).

Another small area has been planted with a pollinator mix; plants surviving from this include California poppy (*Eschscholzia californica*) and radish (*Raphanus raphanistrum*), with associated ruderals including spear thistle (*Cirsium vulgare*) and hoary willowherb (*Epilobium parviflorum*).

Area 4
The eastern boundary has a line of trees, which include lime (*Tilia x vulgaris*) and laburnum (*Laburnum anagyroides*), over a ground flora dominated by ivy with some stinking iris (*Iris foetidissima*).

### 2.3 Fauna
Signs of badger and fox activity were seen in the north-eastern corner of the churchyard.

The following bird species were recorded: blue tit, chiffchaff, great tit, long-tailed tit, jackdaw, magpie and wood pigeon.

The insect species recorded were: speckled wood butterfly; common carder bee; and *Coreus marginatus* and *Pinalitus viscicola* bugs.

### 2.4 Amenity
The southern part of the churchyard forms part of the approach to St Mary's Church, which is in active use. The rest of the churchyard also appears to be well visited; it

offers opportunities for quiet recreation, access to historic gravestones and views over part of the Thornbury Castle.

# 3 EVALUATION

## 3.1 Introduction

Various criteria are used in assessing the biodiversity value of sites. These include rarity, in terms of either habitats or species, which can be viewed in a range of contexts from international to local and also degree of threat: some species remain widespread but are of conservation concern because their populations have declined rapidly. Some habitats take many centuries, or require very specialised conditions, to develop their full diversity and those that cannot be recreated are more highly valued than those that can be readily created. The extent and connectivity of habitats is of importance, since many species rely on large areas of habitat or on having access to different habitat types at different stages in their life cycle. This can be particularly important in urban areas, where species can be lost from small and isolated areas of habitat, even if these remain in good condition. Conversely, sites can have value in a wider context if, for example, they allow wildlife to colonise gardens and other sites in the surrounding area or if they allow wildlife to move into and across otherwise inhospitable areas. In accessible urban areas the public appeal or visibility of wildlife is also a factor in contributing to public enjoyment and wellbeing.

Guidance on site evaluation is given in various publications, including the South Gloucestershire Biodiversity Action Plan (BAP) and the 2006 Natural Environment and Rural Communities (NERC) Act, and has been followed here.

## 3.2 Habitats

The grassland across almost all of the churchyard is moderately diverse. The plants present here include several species that are indicative of unimproved grassland, a habitat type that has undergone serious declines, largely as a result of agricultural intensification and is recognised as a priority for conservation in BAPs and the NERC Act. The indicator species recorded widely across the churchyard include black knapweed, hoary plantain, mouse-ear hawkweed, lesser hawkbit and rough hawkbit; species that are more localised within the churchyard include ox-eye daisy, yellow rattle, bird's-foot trefoil, salad burnet and wild carrot. The diversity of micro-habitats within the site, provided by grassland of different lengths, graves, trees and shrubs, suggests that the grassland is likely to be of some value for invertebrates.

Gravestones within the churchyard support a reasonable quantity and diversity of lichens and a full survey may reveal species of interest.

The bug *Pinalitus viscicola*, which is associated with mistletoe, has not been recorded previously in South Gloucestershire (or elsewhere in the former County of Avon) although this may in part be due to the difficulty of sampling mistletoe plants high in trees.

Pinalitus viscicola

The churchyard is of nature conservation value in a South Gloucestershire context.

### 3.3 Protected and Invasive Species

The only protected species recorded was badger: foraging signs were seen near the north-eastern corner of the churchyard.

It is likely that bats use the churchyard, especially the tree line on the eastern boundary, for foraging and commuting.

The churchyard has suitable habitat for reptiles, in particular slow worm.

No scheduled invasive species were recorded on the site.

### 3.4 Summary

| Feature | Scale of Interest | Features of Interest |
|---|---|---|
| Grassland | South Gloucestershire context | Diverse vegetation, including indicator species of unimproved grassland |
| Monuments | Local context, possibly greater | Lichen populations |
| Trees | South Gloucestershire context | Bug species associated with mistletoe |

## 4 MANAGEMENT

### 4.1 Aims

To maximise the biodiversity interest of the site whilst maintaining its role as a churchyard.

### 4.2 Objectives

To maintain species-rich grassland on the site.

To maintain graves and monuments in a suitable condition for lichen growth.

To retain a mix of grassland sward length.

### 4.3 Constraints

The main constraints on management for biodiversity here are the need to agree any changes in management with the church and to ensure the good condition of the monuments, some of which have listed status. For these and general amenity reasons it is appropriate to maintain the grassland around most of the site in a fairly formal condition.

### 4.4 Rationale

The churchyard is currently of high interest for biodiversity and significant changes to existing management practices are not recommended.

The main biodiversity objective here is to ensure that species-rich grassland survives in the churchyard. This requires management of the grassland, which is normally in the form of either grazing or mowing. Grazing is not possible here so a mowing regime should continue.

There are at present two approaches to grassland management employed on the churchyard. Most of the area is mown fairly frequently to maintain a short sward but the western part of the churchyard has been allowed to grow taller; plant diversity, including the diversity of indicator species of unimproved grassland, is higher in the area that is mown frequently. It is not possible to say whether this is due to differences in the management regime or whether other factors such as differences in soil fertility are responsible. It is likely, however, that the shorter turf favours species such as mouse-ear hawkweed, hoary plantain and lesser hawkbit. On the other hand, some species such as wild carrot and ox-eye daisy are favoured by a taller sward. The longer sward probably supports a greater diversity of invertebrates than does the shorter sward, but the latter is probably of value for groups such as solitary bees.

The shorter sward also keeps monuments in better condition by discouraging vegetation growth across stones and by allowing access to stones for management. This has benefits for lichen populations, as well as for heritage and amenity reasons.

In summary, both approaches to grassland management have benefits but at this site there are probably more benefits associated with maintaining a shorter sward. It is important, whatever approach to mowing is taken, that the fertility of the grassland is kept low.

Parts of the grassland is threatened by scrub encroachment and, whilst scrub has some value for wildlife, scrub should be controlled in order to reverse this trend.

The churchyard has a good balance of trees and open habitats, and this should be maintained – additional tree planting is not recommended but any lost trees should be replaced. Retention of mistletoe should allow the population of *Pinalitus viscicola* to survive.

Several measures have been taken to enhance the site for biodiversity in recent years. These include provision of a bug hotel, sowing a small area with flowers for pollinators, and possibly measures to enhance area 2.

### 4.5 Management Proposals

1 No fertilisers or herbicides of any kind should be used on any area of grassland.

2 Continue grassland mowing across area 1. In order to allow low-growing plants to flower, whilst maintaining a formal appearance and protecting graves, mow once a month from April to September.

3 Continue to keep monuments clear of scrub and ivy.

4 Mow area 2 once a year in August. Gather and remove arisings.

5 Clear bramble and other scrub from area 3 as shown on the map below.

6 Mow the more diverse part of area 3, as shown below on the map and on photograph 5, annually in August. Gather and remove arisings.

7 If possible, mow the remainder of area 3 every three years in August. Gather and remove arisings.

8 Trim back trees on the edge of area 4 where these are encroaching across grassland and tombs.

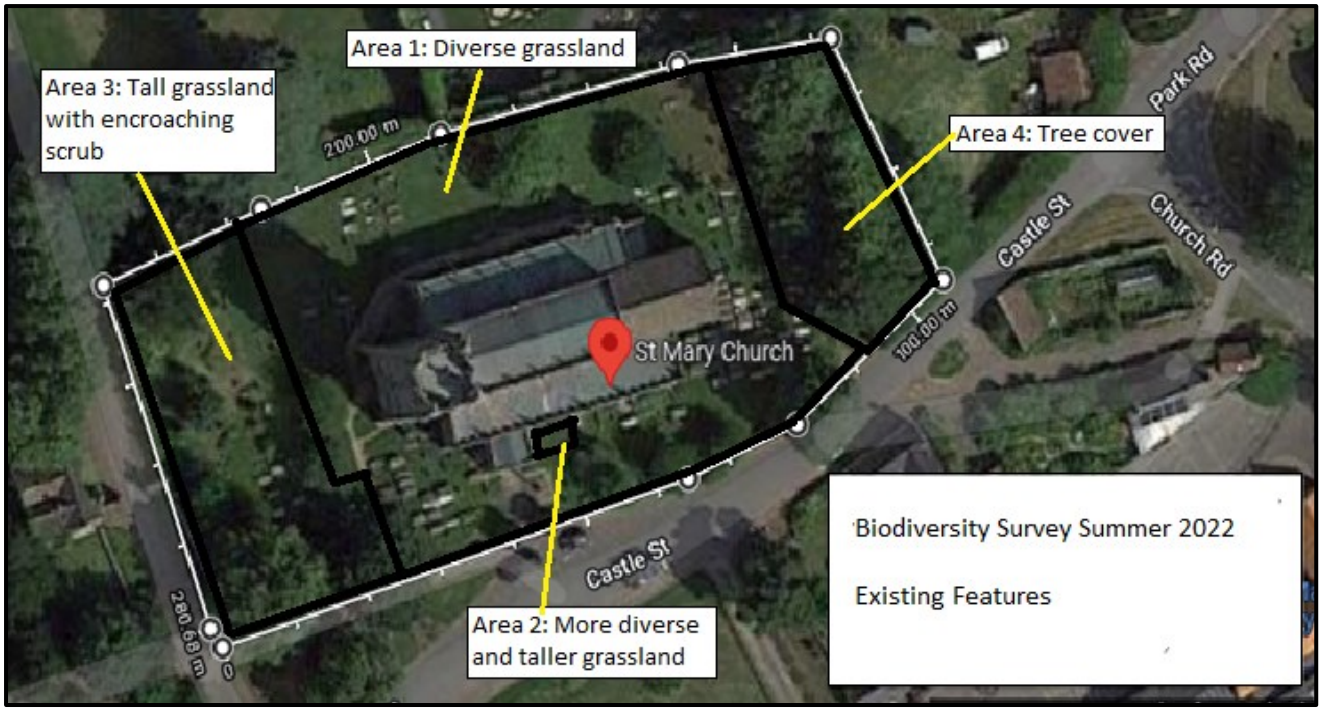
9 Fit bird and bat boxes to trees in area 4, the eastern part of the site. Boxes can be either purchased commercially or made by the local community or schools.

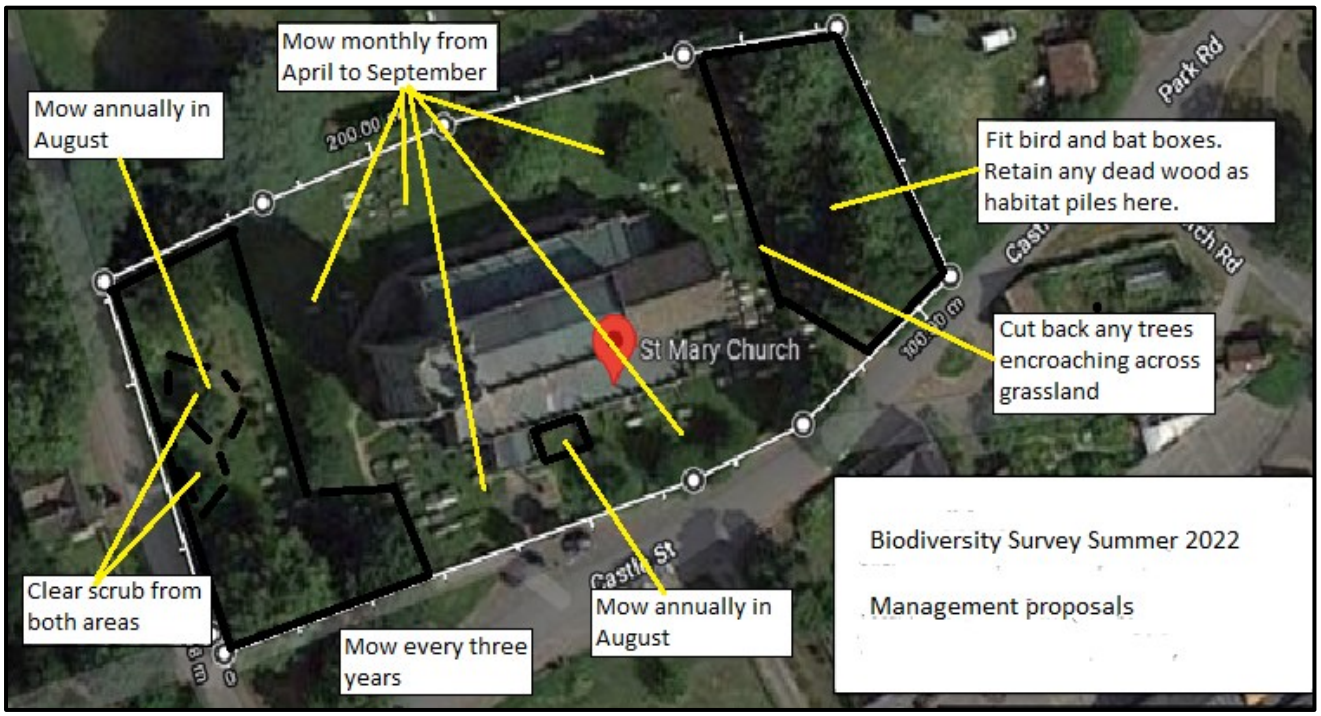
10 Maintain bug hotel and bird and bat boxes as necessary.

11 Retain any dead wood as a habitat feature, place in partial shade in area 4. Logs should be kept in as large sections as possible, because this makes them difficult to move and also provides optimal habitat for wildlife.

## 4.6 Work Planner

| Task | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|
| Mow area 1 | Monthly, Apr-Sept | Monthly, Apr-Sept | Monthly, Apr-Sept | Monthly, Apr-Sept | Monthly, Apr-Sept |
| Keep monuments clear of ivy and scrub | As necessary | As necessary | As necessary | As necessary | As necessary |
| Mow area 2, gather and remove arisings | August | August | August | August | August |
| Clear scrub in area 3 | Sept-Feb | | Sept-Feb | | Sept-Feb |
| Mow diverse part of area 3, gather and remove arisings | August | August | August | August | August |
| Mow remainder of area 3, gather and remove arisings | Aug | | | Aug | |
| Trim back trees on edge of area 4 | Nov-Jan | | Nov-Jan | | Nov-Jan |
| Fit bird and bat boxes to trees in area 4 | January | January | | | |
| Check bird and bat boxes, and replace as necessary | | | January | January | January |
| Maintain bug hotel | As necessary | As necessary | As necessary | As necessary | As necessary |
| Create dead wood piles in area 4 | As dead wood becomes available | As dead wood becomes available | As dead wood becomes available | As dead wood becomes available | As dead wood becomes available |


Area 1: Diverse grassland
Area 3: Tall grassland with encroaching scrub
Area 4: Tree cover
Park Rd
Castle St
Church Rd
St Mary Church
Area 2: More diverse and taller grassland
Biodiversity Survey Summer 2022
Existing Features


Mow monthly from April to September
Mow annually in August
Fit bird and bat boxes. Retain any dead wood as habitat piles here.
Park Rd
St Mary Church
Cut back any trees encroaching across grassland
Clear scrub from both areas
Mow annually in August
Mow every three years
Biodiversity Survey Summer 2022
Management proposals

Photograph 1: Part of area 1 with the taller grassland in area 3 visible in the background

Photograph 2: Part of area 1.

Photograph 3: Part of area 1. Ivy should be kept off the monuments, which are of value for lichens. Tree growth on the edge of area 4 should be controlled.

Photograph 4: Area 2.

Photograph 5: Part of area 1. The more diverse part of area 3 (marked by frequent wild carrot seedheads), bird feeder in foreground.