

WESTBURY WILDLIFE PARK

INITIAL ECOLOGICAL APPRAISAL

1 INTRODUCTION

The aim of this report is: to outline the main features of ecological interest at the Westbury Wildlife Park; to identify features that should be protected if the biodiversity interest of the site is to be maximised; and to identify opportunities for enhancement of the site's biodiversity interest.

The report is based on the findings of a single survey, carried out on 10th November 2020. The timing of the survey meant that the species lists compiled are very incomplete – in particular many species in the woodland ground flora will not have been seen and insect records are almost entirely limited to larval leafmines of moths. The status of this report is therefore provisional and a full assessment will not be possible until further surveys have been carried out.

2 SITE DESCRIPTION

2.1 General

The Wildlife Park was open as a visitor attraction until the 1980s and infrastructure, in the form of buildings, animal enclosures and ponds, remains in various states of repair. It forms a western extension of Badock's Wood and occupies part of the valley of the Westbury Trym, a small river that joins with the Henbury Trym and enters the River Avon at Sea Mills. The underlying rock, which heavily influences the site's ecology, is Carboniferous Limestone.

Badock's Wood is managed as a Local Nature Reserve (LNR) by Bristol Parks and Friends of Badock's Wood and is designated a Site of Nature Conservation Interest (SNCI). The Wildlife Park is designated as a Wildlife Corridor. This is a lower level of designation than SNCI, probably because full survey information was not available; these designations relate to planning policy and do not affect site management. The habitats within the Wildlife Park are similar to those within the LNR.

2.2 Vegetation

2.2.1 Woodland

Much of the park, particularly its eastern part adjoining the LNR and the steepest valley sides, is wooded.

The longer established woodland canopy is largely dominated by mature and semi-mature pedunculate oak (*Quercus robur*), with smaller quantities of mature ash (*Fraxinus excelsior*) and smaller trees of ash, field maple (*Acer campestre*), beech (*Fagus sylvatica*), wych elm (*Ulmus glabra*) and sycamore (*Acer pseudoplatanus*). The north-facing slopes have small quantities of semi-mature yew (*Taxus baccata*) and historic planting is evident in the presence of species such as pine (*Pinus nigra*), poplar (*Populus x canadensis*) and Swedish whitebeam (*Sorbus intermedia*).

Tree regeneration is healthy wherever there are breaks in the canopy and seedlings of pedunculate oak, beech, wild cherry (*Prunus avium*), ash, sycamore and Norway maple (*Acer platanoides*) were all noted.

The understorey under much of the canopy is sparse, but there are old coppice stools of hazel (*Corylus avellana*) and scattered shrubs of wych elm. Sallow (*Salix x reichardtii*) becomes frequent close to the stream. Scrubbier areas of woodland have frequent elder (*Sambucus nigra*), hazel, hawthorn (*Crataegus monogyna*) and wild privet (*Ligustrum vulgare*).

The woodland ground flora could not be fully surveyed but appears to be dominated by Atlantic ivy (*Hedera hibernica*) with patches of dog's mercury (*Mercurialis perennis*) and smaller quantities of other species including male fern (*Dryopteris filix-mas*), hart's-tongue fern (*Asplenium scolopendrium*), wood speedwell (*Veronica montana*) and yellow archangel (*Lamiastrum galeobdolon*). Spring survey would doubtless reveal many further species.

Mosses, including *Brachythecium rutabulum*, *Brachythecium rutabulum* and *Eurhynchium striatum* are frequent except where the tree canopy is dense. Limestone outcrops, particularly on the north-facing side of the valley, support the liverwort *Porella platyphylla* and the moss *Anomodon viticulosus*.

2.2.2 Grassland

There are small areas of grassland on both valley sides in the western part of the site. These have had little if any management in recent years and are showing clear signs of encroachment by bramble (*Rubus fruticosus* agg) and other scrub, including saplings of holm oak (*Quercus ilex*). The dominant grass species is false oat-grass (*Arrhenatherum elatius*) with patches of red fescue (*Festuca rubra*). Herbs are not abundant in the sward, but include black knapweed (*Centurea nigra*), germander speedwell (*Veronica chamaedrys*), perforate St John's wort (*Hypericum perforatum*), hoary ragwort (*Jacobaea erucifolius*) and common calamint (*Clinopodium ascendens*). The most diverse areas of grassland are on the south-facing slopes of the valley, but similar species are present on the north-facing slopes.

2.2.3 Other Habitats

The river, as would be expected in a water course of this size, has little vegetation but its banks have small patches of pedunculate sedge (*Carex pendula*), remote sedge (*Carex remota*) and yellow-flag (*Iris pseudacorus*). Rocks and earth banks by the stream support extensive patches of the liverworts *Pellia endiviifolia* and *Conocephalum conicum* and the moss *Plagiomnium rostratum*.

Bridges and walls by the river support characteristic species such as wall lettuce (*Mycelis muralis*), maidenhair spleenwort (*Asplenium trichomanes*), shining cranesbill (*Geranium lucidum*) and greater celandine (*Chelidonium majus*).

Some of the old ponds still hold water and support water plants including common duckweed (*Lemna minor*), pendulous sedge and various exotic species.

2.3 Fauna

A good variety of bird species was recorded, including great spotted woodpecker, green woodpecker and treecreeper in the woodland and grey wagtail and mallard along the river.

Signs of badger (including a dung pit) and fox activity, but not sett or earth, were seen. An oak on the north-facing side of the valley has old woodpecker holes with scratch marks indicating that they are used by roosting bats.

Insect records were limited to larvae of moths and flies, which are listed below. Yellow meadow ant hills are present in the grasslands.

3 ASSESSMENT

The Wildlife Park has a good range of habitats in a small space, the most important being the woodland and the grassland.

The woodland is an example of the habitat typical of steep slopes on Carboniferous Limestone also seen locally at sites such as Leigh Woods, Blaise Castle and elsewhere in Badock's Wood. The frequency of pedunculate oak is perhaps a vestige of historic timber management but the presence of ash, field maple, wych elm and yew is typical of these woodlands, which are a characteristic feature of the Bristol region but are absent through large parts of England. The limited survey of the ground flora revealed ancient woodland indicator species such as yellow arachangel and wood speedwell and it is highly likely that several further indicator species would be recorded in a spring survey. The limestone outcrops add valuable diversity.

Woodlands such as these, with tree species such as field maple and wych elm, are often valuable for moths and there are good quantities of dead wood, suggesting some value for groups such as beetles.

The woodland is of nature conservation value in a city-wide context.

The grassland patches are small and have suffered from a lack of management, However, they support species such as black knapweed, hoary ragwort and common calaminth that are indicative of unimproved grassland. This is a habitat type that has undergone massive losses (in excess of 98%), largely due to agricultural intensification, and is recognised as a priority for conservation in guidance issued by both local and national government. The low intensity of management, the presence of stands of nectar-rich plants and the presence of features such as earth banks suggest that the grasslands are likely to be of some value for invertebrates.

The grasslands are of nature conservation value in a city-wide context.

The most valuable of the other habitats is the river, which is likely to support a range of invertebrate species and provides a habitat for specialist birds such as mallard and grey wagtail and, possibly, dipper and kingfisher. Its ecological interest is limited by pollution from sources upstream of the Wildlife Park.

4 FURTHER SURVEY

This assessment, and the management recommendations that follow, are based on a very limited amount of survey data and it would be useful to have further data to inform any future decisions. The most useful would be a late spring survey, covering woodland and grassland plants, breeding birds and at least some groups of insects. A series of insect surveys across the summer would be valuable, as no one survey can capture the full range of species present.

5 MANAGEMENT RECOMMENDATIONS

These recommendations are provisional and should be reviewed in the light of further survey.

The most pressing need for management is on the grasslands since these are threatened by tree and scrub encroachment. The priority should be to remove tree saplings, especially those of holm oak which if left will rapidly shade out the remaining grassland, and to cut back bramble patches. It would then be useful to mow small areas of the grassland, leaving other areas tall as a refuge for insects. If grassland is mown it is vital that the cuttings should be gathered and removed. This keeps the soil fertility low, which is vital for species-rich grassland, and prevents cut material forming a mulch that would suppress plant growth.

The woodland will largely maintain its nature conservation value without immediate intervention although spring survey may reveal small areas where the ground flora would benefit from thinning of the tree and shrub layers. Limited thinning around rock outcrops may be beneficial, but this should be carefully assessed.

It is highly likely that ash die-back will affect the site in the near future although the dominance of pedunculate oak, rather than ash, should mean that its impacts are relatively limited. The impact of the disease should be monitored; natural regeneration in most of the wood is good and should provide replacement trees but it may be worthwhile favouring species such as field maple by controlling potentially invasive trees such as holm oak and Norway maple. Where trees die dead wood should be retained as wildlife habitat, preferably standing where health and safety allows, otherwise felled and left as large trunks or stacked into log piles.

There are opportunities for ecological management. The most valuable would be the restoration of further ponds by removal of silt and leaf litter and reinstatement of a water supply. It is worth recognising that ponds that hold water only intermittently can be important for many species of wildlife, so drying out in spells of hot weather is not necessarily a problem.

One unusual feature of the Park is that public access is controlled. Increasing access to the Park is entirely compatible with nature conservation aims but it would be worth considering measures by which, for example, trampling of areas of diverse ground flora could be avoided. Protection of stretches of the river as a refuge would be valuable, as the whole of its length through Badock's Wood is subject to significant disturbance. The ability to control access may mean that wildlife monitoring measures such as the use of static bat detectors and unattended moth traps may be possible

here, which gives opportunities for study and for public engagement that are absent in other similar habitats in Bristol.

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Bristol Naturalists Society

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SPECIES LISTS

Vascular Plants: Woodland

Trees and Shrubs

Acer campestre	Field maple
Acer platanoides	Norway maple
Acer pseudoplatanus	Sycamore
Cornus sanguinea	Dogwood
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Fagus sylvatica	Beech
Ligustrum vulgare	Wild privet
Pinus nigra	Pine
Populus x canadensis	Poplar
Prunus avium	Wild cherry
Prunus domestica	Plum
Prunus spinosa	Blackthorn
Quercus ilex	Holm oak
Quercus robur	Pedunculate oak
Rubus fruticosus agg	Bramble
Salix x reichardtii	Sallow
Sambucus nigra	Elder
Sorbus intermedia	Swedish whitebeam
Taxus baccata	Yew
Ulmus glabra	Wych elm

Ground Flora

Alliaria petiolata	Hedge garlic
Anthriscus sylvestris	Cow parsley
Arum maculatum	Cuckoo-pint
Asplenium scolopendrium	Hart's-tongue fern
Brachypodium sylvaticum	Wood false-brome
Dryopteris filix-mas	Male fern
Geum urbanum	Wood avens
Hedera helix	Ivy
Hedera hibernica	Atlantic ivy
Hypericum perforatum	Perforate St John's wort
Lamium galeobdolon	Yellow archangel
Lapsana communis	Nipplewort
Mercurialis perennis	Dog's mercury
Poa trivialis	Rough-stalked meadow-grass
Polystichum setiferum	Soft shield fern
Rumex sanguineus	Wood dock
Silene dioica	Red campion
Smyrniolus olusatrum	Alexanders

Stachys sylvatica
Veronica hederifolia
Veronica montana

Hedge woundwort
Ivy-leaved speedwell
Wood speedwell

Vascular Plants: Grassland

Grasses

Arrhenatherum elatius
Cynosurus cristatus
Dactylis glomerata
Festuca rubra
Holcus lanatus
Lolium perenne
Poa trivialis
Schedonorus arundinaceus

False oat-grass
Crested dogstail
Cocksfoot
Red fescue
Yorkshire fog
Perennial rye-grass
Rough-stalked meadow grass
Tall fescue

Herbs

Achillea millefolium
Arctium minus
Centaurea nigra
Cerastium fontanum
Clinopodium adscendens
Dipsacus fullonum
Geranium dissectum
Jacobaea erucifolius
Jacobaea vulgaris
Medicago lupulina
Oenothera glazioviana
Plantago lanceolata
Prunella vulgaris
Ranunculus repens
Rumex acetosa
Trifolium pratense
Veronica chamaedrys
Vicia sativa
Vicia sepium

Yarrow
Lesser burdock
Black knapweed
Common mouse-ear
Common calamint
Teasel
Cut-leaved cranesbill
Hoary ragwort
Common ragwort
Black medick
Large-flowered evening primrose
Ribwort plantain
Selfheal
Creeping buttercup
Common sorrel
Red clover
Germander speedwell
Common vetch
Bush vetch

Vascular Plants: Walls etc

Asplenium scolopendrium
Asplenium trichomanes
Campanula poscharskyana
Chelidonium majus
Cymbalaria muralis
Geranium lucidum
Geranium robertianum

Hart's-tongue fern
Maidenhair spleenwort
Trailing bellflower
Greater celandine
Ivy-leaved toadflax
Shining cranesbill
Herb robert

Mycelis muralis

Wall lettuce

Bryophytes

Mosses

Amblystegium serpens
Anomodon viticulosus
Brachythecium populeum
Brachythecium rutabulum
Calliergonella cuspidata
Cryphaea heteromalla
Didymodon vinealis
Eurhynchium striatum
Fissidens taxifolius
Homalothecium sericeum
Kindbergia praelonga
Plagiomnium rostratum
Plagiomnium undulatum
Rhynchostegiella tenella
Rhynchostegium confertum
Syntrichia intermedia
Thamnobryum alopecurum

Liverworts

Conocephalum
conicum
Metzgeria furcata
Pellia endiviifolia
Porella platyphylla

Birds

Blackbird
Blue tit
Carrion crow
Dunnock
Goldcrest
Goldfinch
Great spotted woodpecker
Great tit
Green woodpecker
Grey wagtail
Long-tailed tit
Magpie
Mallard

Raven
Redwing
Robin
Wood pigeon
Wren

Invertebrates

Micro-moths

Lyonetia clerkella
Phyllonorycter coryli
Phyllonorycter maestingella
Phyllonorycter messaniella
Phyllonorycter nicellii
Phyllonorycter tristigella
Stigmella aurella
Stigmella basiguttella
Stigmella floslactella
Stigmella hemargyrella
Stigmella microtheriella
Stigmella tityrella

Flies

Phytomyza agromyzina