FRIENDS OF CENTRE VALE PARK

BIODIVERSITY SURVEY
CENTRE VALE PARK, TODMORDEN

- ◊ -

2nd Edition

State of Knowledge: 31/12/18

Charles Flynn

Dip. Ecology, NCH, PGCE

CONTENTS

REASONS FOR PRODUCING A SECOND EDITION OF THE SURVEY

Increase in the number of species recorded

The first edition was completed 30th September 2017 after 12 months of recording the wildlife in the park and woods. Since then another 49 species have been added, so the current list is 10% larger than the original one.

A breakdown of the groups with increased species numbers is printed below: -

Insects: + 12	Fungi: + 16	Herbs & Shrubs: + 13	Bushes +1	Galls: + 3	Birds: + 4*

Information about these groups of species is elaborated in another section later in this document.

* The species involved are the Meadow Pipit , Buzzard, Herring Gull and Common Gull.

There was a flock of pipits on the bund near the children's play area the day after the May 2018 snowstorm. These birds had probably flown into the storm and landed to rest and feed. They were not present on the day after. This is the only record of pipits in the park. Their presence there was due to freak weather conditions, so the meadow pipit is not recorded in the species list. A buzzard was hunting in Buckley Wood 04/12/18, so this bird has been added to the list as a foraging species. Two Herring Gulls, 1 adult and 1 immature, were foraging on the sports fields 22/12/18 and one juvenile Common Gall 29/12/18. These have been added as foraging species in the park.

……

Increased knowledge of the species, numbers of individuals and their behaviour

It in now clear that some species are represented by a very small number of individuals, so their populations are precarious, while others are relatively common and their populations are relatively stable. This also applies to certain insects. See the species lists for more information.

Several bird species forage in the park, but do not nest or roost there. Actual numbers vary according to the weather, treatment of the sports fields and levels of disturbance.

Bird species that fly over the park, but do not land or feed, are not included in the species lists. However, visitors to the park will see these birds, so they are dealt with in a separate section.

Acknowledgements

The following people have supplied valuable input into this survey: -

Barbara Pomfret & Stella Peterson (Friends of Centre Vale Park)

Identification of garden flowers.
Jacqui Matthews (Manager of Todmorden Information Centre).

Establishing the correct name of the hillside woods on the western side of the park, by looking online in the TIC at maps from 1844 to 1950. See the section titled Place Names in the Park (page 3) for more information.

Philip Marshall (Upper Calderdale Wildlife Network).

Identification of non-native broadleaf trees and finding badger setts.

Finding surveys undertaken by Frank Murgatroyd et al (HSS) and Philip Reddell (LWT).

Rosalind Berrington (Upper Calderdale Wildlife Network).

Mammals recorded and others expected in the park.

Stephen Blacksmith (Chair of Halifax Scientific Society).

Identification of Cypresses.

Stephen Hilde (Halifax Scientific Society, Plants Recorder & Mycologist).

Help with the identification of certain fungi.

General Information & Description of Site

Local Authority & Landowner: Calderdale MBC Area: 33 ha Height: 140 to 288 m a.s.l.

Grid. SD 931.246 approx. centre of site.

Centre Vale Park lies between Burnley Road (A646) to the north east, Doghouse Lane to the south, Todmorden Edge to the west and Ewood Lane to the north-west. The River Calder flows south-eastwards between the park and Burnley Road, but it is fenced off and cannot be regarded as part of the park itself.

A cricket ground situated by Burnley Road near the park's southern end is also outside of its boundary. The lodges that stand by each of the two entrances from Burnley Road are now private property, so there is no public access to their gardens.

There is a sports centre in the park on the southern side of Ewood Lane, which provides nesting sites for house martins and resting space for black-headed gulls, but is otherwise of little wildlife interest.

The car-parks and tennis courts in this area are likewise not of great ecological significance. However, these facilities are important for people who like to enjoy the activities provided here and those who come to visit the park by car.

Also in this part of the park are the bowling greens, which provide green space where people can meet each other socially while participating in the games or just watching them. Pied and grey wagtails, among other birds, come here to forage, so the greens also have some value for wildlife.

The Garden of Remembrance, which is near Sigget Lane on the western side of the park, has formal flowerbeds and more of these can be seen beside the path between the southern park entrance and the bowling greens. The flowers in these beds attract numerous bees, butterflies and hoverflies, as well as other insects, which come for the nectar and pollen that these flowers provide.

Sports fields take up most of the land and they are used by birds, including black-headed gulls, jackdaws and woodpigeons, which come here to forage. Migrating swallows fly low over the grass catching insects and at least 30 were seen over the sports fields, tennis courts and bowling greens 30th September 2016.

Mature semi-natural woodland, known as Buckley Wood, occupies the very steep hillside on the south-western side of the park and there is also a narrow band of woodland between the sports fields and the river. Many trees have been planted around the perimeter of the sports fields and along the boundary between the park and the cricket ground and these augment the total area of tree cover. It is in the woods that the greatest biodiversity is found.

For more information about the vegetation in Centre Vale Park, see the section on habitats.

Area Covered by the Biodiversity Survey

The areas included in the biodiversity survey are the whole of the park, which stretches from the boundary with the cricket ground in the south-east to Ewood Lane in the north-west, as well as The Ridge and Buckley Wood.

Place Names in the Park

On the Heritage Cartography Map, Todmorden 1844, all of the woodland on the south side of what is now Centre Vale Park (formerly Centre Vale Estate) is labelled as Buckley Wood. The area to the eastern end of this wood is shown as The Ridge and Mount Pleasant, both of which are labelled as quarries, while the woodland north of the waterfall is labelled as Scaitcliffe Wood. The latter is not included in this Wildlife Survey. The 1960 Ordnance Survey Map SD92 also shows all the woodland as Buckley Wood, but the area, where the quarries used to be, now appears as Cobden.

Both the 2015 South Pennines Map OL21 and the Todmorden Town Map, produced by the Todmorden Information Centre Trust in April 2002, show this area as The Ridge. Moreover, three nearby roads have the word ridge as part of their name and this should be regarded as further evidence that The Ridge is the correct name for this area of land.

The document, printed for the 75th anniversary of the Borough of Todmorden in 1971[1], states that Buckley Wood (about 13 acres = approx. 5.26 ha.)[2] was given to the town by a Mrs. Greenwood of Glen View. Ewood Hall is mentioned as a mansion, but there is no clear reference anywhere to a unit of land called Ewood.

As can be seen from the variation of place names on these maps and in one other document, there is ample scope for confusion. Accordingly, for the sake of clarity in this survey, all the woodland on the western and southern side of the park is referred to as Buckley Wood, except the area at the most south-easterly end of the wood, which will be referred to as The Ridge.

1. Borough of Todmorden 1896 - 1971, 75th Anniversary, the Anniversary Committee, Waddington & Sons (Printers) 1971.

2. The area of land now covered by woodland is probably much more extensive than this.

Species Recorded

Plants

All the trees, including planted aliens and self sown naturalised species, because they provide structure and habitat.

Native and naturalised self-sown shrubs and bushes.

All herbaceous plants, except those planted in flowerbeds. These are mentioned as nectar or pollen sources for insects, although not entered into the corresponding species list.

Insects

These are only recorded, if they are within the park boundaries and have been reliably identified.

Birds

Birds are only recorded if they meet at least one of the following criteria: -

There is evidence of breeding.

They come to the park or woods to feed.

They roost in the trees or bushes.

Birds such as lesser black-backed gulls and pink footed geese, which fly over, but show no interest in the park or woods, are not recorded in the species lists, but they are mentioned in the section headed Vertebrates in the Park (pg. 36).

Mammals and Amphibians

The species listed are those that have been seen and those which can safely be assumed to be there.

Fauna Sightings Document

This is another document, which contains all the author's fauna records going back to 1995 with dates and actual numbers. It is available by email on request.

Evaluation of the Survey

This survey covers Flora, Fungi and Fauna. These are dealt with separately below.

Flora

All the vascular plants, except those planted in flowerbeds, have been identified and listed in tables. They are discussed in the following section of this document. Altogether 38 bryophytes (mosses and liverworts) have been identified and listed in a table in the same way as the vascular plants, but it will not be claimed that all the species have been found. A specialist bryologist would almost certainly have found more.

Fungi

So far 88 fungi, including gall causing and lichenised species, have been identified and listed in tables. However, it is not claimed that this is a comprehensive list. Specialist mycologists and lichenologists would certainly have found and identified more species. The author lacks the expertise to identify all crustose lichens and resupinate fungi with certainty and for this reason only some of these are included in the relevant tables. Moreover, it can never be said with confidence that a fungi survey is complete; more species can continue to be found ten, or even twenty years after the initial survey is finished.

Fauna

The vertebrates (amphibians, birds and mammals) have been covered as comprehensively as possible. However, it is to be expected that some species will decline or be lost, while others increase or colonise the park from elsewhere in the surrounding countryside.

While the author has identified and listed a range of invertebrates, these can only be regarded as a small proportion of the species actually present in the park. Invertebrates would be expected to make up c. 60% of all the species present, but at the current state of knowledge they only account for 26% of the 560 species identified in the park. It would need a team of experts and a great deal of time to produce anything approaching a comprehensive list of the myriad species living here. However, were all this additional survey work to be carried out, the overall species tally would probably be in the region of 900.

Continued on next page: -

Habitats & their Conservation Value

All the habitats in the park have some conservation value.

Woodland

In Buckley Wood there are three types of woodland. They do not have precise boundaries and they intergrade with each other. The area between Lover's Walk and Doghouse Lane was planted with trees and shrubs in the late 1930's. [1]

Small-leaved Lime (*Tilia cordata*) - Norway Maple (*Acer platanoides*) Woodland

The following trees are also present: - Small-leaved Elm (*Ulmus minor*), Wych Elm (*U. glabra*) Ash (*Fraxinus excelsior)* and Hawthorn (*Crataegus monogyna*).

Sessile Oak (*Quercus petraea*) Woodland

Sessile Oak with Beech (*Fagus sylvatica*) and Sycamore (*Acer pseudoplatanus*) and also Hawthorn, Holly (*Ilex aquilifolium*), Ash and Wych Elm (*Ulmus glabra*).

Both of these two woodland types have a well vegetated ground layer, consisting mainly of Broad Buckler Fern (*Dryopteris dilatata*), Bracken (*Pteridium aqilinum*), Creeping Soft-Grass (*Holcus mollis)* and Bluebells (*Hyacinthoides non-scripta*). Greater Wood-Rush (*Luzula sylvtica*), Opposite-leaved Golden Saxifrage (*Chrysoplenium oppositifolium*), Wood Sorrel (*Oxalis acetosella*) and Lady Fern (*Athyrium filix-femina*) are found in flushes and other damp areas.

Beech (*Fagus sylvatica*) Woodland

Above Sigget Lane there is an almost monospecific Beech wood (sometimes referred to as Ewood or Ewood Wood) with some Oak and Sycamore along its upper edge. There is almost no vegetation below the trees, but several fungi are quite common here. Below Sigget Lane the Beech wood merges into the Sessile Oak woodland and there is also a more mixed tree cover near Ewood Barn. This is still mainly beech, but ash, lime, horse chestnut (*Aesculus hippocastanum*), oak and holly are also growing here.

Conifers

On The Ridge (part of which is sometimes referred to as the Chimney Field) and between here and the churchyard there are a few conifers of three different species: - Sitka Spruce (*Pica sitchensis*), Scot's and Austrian Pine (*Pinus sylvestris* &. *P. nigra*). A fourth species, the European larch (*Larix decidua*), was here until the summer of 2017, but the trees were diseased and have been felled. The remaining conifers in this area are now too few to justify describing the tree cover here as coniferous or mixed woodland. It is basically broadleaf woodland with a few conifers. However, several Scot's Pines are growing in rather wet ground near the Fielden Statue.

The Cypresses planted around the Memorial Garden and elsewhere in the park provide nesting and foraging habitat for collared doves, coal tits and Goldcrests as well as other birds.

Other Woodland and Groups of Trees

There is another narrow stretch of woodland, consisting mainly of beech, horse chestnut and sycamore, along the eastern side of the park, between the sports fields and the River Calder, although some trees have been, or are being felled.

There are planted trees along paths around the grassland areas. These include Common Lime (*T.* x *europaea*), White Willow (*Salix alba*) and other amenity trees, some of which are not native to the British Isles.

Wet Areas in the Woodland

Within the woodland there are streams, flushes and small areas of marsh. These support their own flora as mentioned above. Small backwaters provide habitat for aquatic insects, but there are more of these where mini-ecosystems have developed in old drinking troughs that were once used by the farms.

Animals in the Woods

As well as the Grey Squirrels (*Sciurus calolinensis*), these woods provide breeding and foraging habitat for many birds and mammals. At the current state of knowledge there is sufficient evidence to produce a final list. The following species are known to breed or forage here: -

Sparrowhawk (*Accipiter nisis*), Tawny Owl (*Stix aluco*), Great-Spotted Woodpecker (*Dendrocopus major*), Woodpigeon (*Columba palumbus*), Wren (*Troglodyytes troglodyytes*) , Dunnock (*Prunella modularis*), Blackcap (*Sylvia atricapilla*), Willow Warbler (*Phylloscopus trochilus*), Chiffchaff (*Ph.collybita*)), Robin (*Erithacus rubecula*), Blackbird (*Turdus merula*), Song Thrush (*T. philomelos*), Redwing (*T.iliacus*), Blue Tit (*Cyanistes caeruleus*), Great Tit (*Parus major*), Coal Tit (*Periparus ater*), Long-tailed Tit (*Aegithalus caudatus*), Nuthatch (*Sitta europaea*), Treecreeper (*Certhia familaris*) Jay (*Garrulus glandarius*), Weasel (*Mustela nivalis*), Badger (*Meles meles*), Red Fox (*Vulpes vulpes)*, Pipistrelle Bat (*Pipistellus pipistrellus*), Common Shrew (*Sorex araneus*), Bank Vole (*Clethrionomys glareolus*) and Woodmouse (*Apodemus sylvaticus*).

Please see the species lists for more detail.

Grassland

Most of the grassland in the park is made up of sports fields. The variety of plants here is small and there are very few forbs. Species variety on the bowling greens is even lower.

However, the grassland that has developed where there used to be a golf course between Sigget Lane and the tennis courts is much more species rich. A vegetation survey carried out here by Philip Reddell of the Lancashire Wildlife Trust, 19th June 2015, produced a list of 43 plants, 22 of which are forbs. Among the graminoids, he recorded field woodrush and four sedges. This area is of conservation value for the plant community itself and for the butterflies, other insects and amphibians[1] that use it.

The wildlife value of the sports fields is expressed mainly in the variety of birds that forage there: black-headed gulls, woodpigeons, rock doves (street pigeons), blackbirds, mistle thrushes, starlings, magpies, jackdaws and crows. When the fields are wholly or partially flooded, mallards and Canada geese also feed here. The bowling greens attract pied wagtails, sometimes 20 or more, and occasionally grey wagtails as well.

House Martins nest on the Sports Centre and forage over the grassland as well as in the air space over and around the trees and woods. On spring and autumn migration swallows also forage low over all the grassland in the park. There can be as many as 30 of them and they are sometimes joined by swifts.

1. Young Common Frogs and Common Toads are numerous here - personal communication, Portia Fincham.

Wild Flower Areas

These areas are mostly on the bank, between the sports fields and the cricket ground. The forbs here include the following: red campion (*Silene dioica*), red clover (*Trifolium pratense*), common birdsfoot trefoil (*Lotus corniculatus*), prickly sow-thistle (*Sonchus asper*), common knapweed (*Centaurea nigra*), yarrow (*Achillea millefolium*) and common catsear (*Hypochaeris radicata*). All these plants are visited by butterflies, bees, hoverflies and other insects. Moreover, the grass is allowed to grow taller here, allowing insects such as grasshoppers and micro moths, to feed and breed.

Note: this bank was mown by Environment Agency staff in July 2017.

Autumn crocus (*Crocus nudiflorus*) grows in grassland near the bandstand.

Flowerbeds

Garden plants in these flowerbeds are an important source of nectar and pollen for insects. For more information see the section entitled "Pollen and Nectar Sources for Insects".

Ponds

There are two very artificial ponds in the park, both of which have some conservation value in their present condition and they seem to be gradually improving.

The one in the Garden of Remembrance supports a big population of water boatmen (*Notonecta glauca*), up to a hundred, together with pond skaters, whirligig beetles, other water beetles and palmate newts. These are probably obtaining some nutrition provided by the pond itself, but they are also feeding on insects and other invertebrates that fall onto the water surface.

The Japanese pond near the depot sometimes has water boatman on its surface and several pond skaters (*Gerris lacustris*) have been seen there. Among other species, an adult male large red damselfly has been seen basking by this pond and this species might have bred there.

Local Wildlife Site (LWS)

All the woodland in Buckley Wood, together with an area of grassland on the site of a disused golf-course, between Sigget Lane and the Garden of Remembrance, was designated as a Local Wildlife Site (LWS) in March this year. For more detail refer to the Local Wildlife Sites and Heritage Trail maps enclosed between the cover and the contents page of this document.

Habitat surveys, carried out by West Yorkshire Ecology, allocated areas of the LWS to the four National Vegetation Classifications (NVC's), which are listed below.

MG9: *Holcus lanatus - Deschampsia cespitosa* Grassland

Yorkshire Fog - Tufted Hair-Grass, Grassland

W10: *Quercus robur - Pteridium aquilinum - Rubus fruticosus* Woodland

Pedunculate Oak - Bracken - Bramble Woodland

Note: Thoroughbred Quercus robur, Pedunculate Oak, is not found in the park.

W15: *Fagus sylvatica - Deschampsia flexuosa* Woodland

Beech - Wavy Hair-Grass Woodland.

Note: Wavy Hair-Grass is very rare here.

W17: *Quercus petraea - Betula pubescens - Dicranum major* Woodland

Sessile Oak - Downy Birch - Greater Fork-Moss Woodland

Note. Dicranum major, Greater Fork-Moss, has not yet been found in the park.

General Note

The last three of these NVC's are not perfect fits. This is often the case and the plant communities in question are often allocated to the NVC's that are the nearest fit, provided that the correspondence is deemed sufficient. This is what has been done here.

Continued on next page: -

Naturalised Plants

There are several introduced plant species in Centre Vale Park which are to a greater or lesser extent naturalised. These are dealt with individually below.

Acer pseudoplatanus - Sycamore

Clive Stace, in New Flora of the British Isles, describes this tree as fully naturalised and "one of the most abundant trees in a wide range of habitats throughout the British Isles". It is self-seeding in the park, but it can be controlled here, if necessary or desirable.

It should be taken into consideration that as long as they are not too numerous or become dominant, sycamores can have significant benefits for nature.

They are favoured by epiphytic lichens and bryophytes and these in turn provide habitat for numerous invertebrates. The habitat structure that these trees provide is good for breeding wood warblers and the aphid population on their leaves and branches is a good food source for birds on passage in late summer and autumn.

A. platanoides - Norway Maple

This maple is described by Stace as "abundantly planted and often self-sown ..... throughout lowland British Isles". It is therefore less naturalised than sycamore, but where it has been planted in Buckley Wood it is now self-seeding.

Quercus cerris - Turkey Oak

In an article entitled "The Spread of Turkey Oak in the British Isles" in the February 2017 edition of British Wildlife, Ben Rose provides a map showing the hectad distribution of this tree up to 1965 and hectads in which it has been recorded between 1965 and 2015. Most of the squares in England north as far as Lancaster are shown as having been occupied by Turkey Oak during this second period. Moreover, he states that ".... it is now so widespread that eradicating it would be impossible, even if that was desirable." As yet there is only one self-seeded Turkey Oak in the park, but this needs monitoring.

Mahonia aquifolium - Oregon Grape

Stace describes this "shrub" as "naturalised in scrub, woodland and hedges etc. throughout Britain north to Central Scotland". However, it does not appear to be spreading in the park.

Symphoricarpus albus ssp. *laevigatus* - Snowberry

This plant is an introduction, originating from western North America. Several bushes have been planted in the park, but they do not appear to be spreading. Stace says that it is only rarely self-sown, but "well naturalised from suckers".

***Tellima grandiflora* - Fringecups**

This is another introduction from America which is grown as a garden plant in the UK. Stace says that it is well naturalised in woods and damp hedgerows and scattered through most of the British Isles. In 2016 there were several patches growing in flower beds in front of the Garden of Rememberance. They had not been planted and were all weeded out, presumably by gardening staff. It is naturalised in several places in Todmorden, but would have to be managed, were it to reappear in the park.

Pollen and Nectar Plants for Insects

Insects from the following orders have been seen visiting flowers in the park for nectar and pollen: -

Lepidoptera (Butterflies & Moths), Diptera (Flies), Hymenoptera (Wasps & Bees).

Wild plants growing in the park, important as nectar and/or pollen sources for insects, are listed below: -

In the Spring

Goat Willow & Grey Willow (*Salix caprea & S. cinerea*)

Wild Cherry & Bird Cherry (*Prunus avium* & *P. padus*)

Crab Apple (*Malus sylvaticus*)

Hawthorn (*Crataegus monogyna*)

Rowan (*Sorbus aucuparia*)

Whitebeam & Swedish Whitebeam (*S. aria & S. intermedia*)

Norway Maple (*Acer platanoides*)

Elder (*Sambucus nigra*)

Buttercups (*Ranunculus* spp.)

Cuckooflower (*Cardamine pratensis*)

Dandelion (*Taraxacum* agg.)

Daisy (*Bellis perennis*)

Bluebell (*Hyacinthoides non-scripta*)

Goat and grey willows (also known as sallows) are visited by queen bumblebees very early in the year. The other trees and shrubs, listed above, flower later and are visited by a wider range of insects, including various hoverflies, bees and wasps.

Late Summer and Autumn

Redshank (*Persicaria maculosa*)

Meadowsweet (*Filipendula ulmaria*)

Bramble (*Rubus* agg.)

Common Birdsfoot Trefoil (*Lotus corniculatus*)

White and Red Clovers (*Trifolium repens* & *T. pratense*)

Ivy (*Hedera helix*)

Wild Angelica (*Angelica sylvestris*)

Selfheal (*Prunella vulgaris*)

Creeping Thistle (*Cirsium arvense*)

Common Knapweed (*Centaurea scabiosa*)

Autumn Hawkbit (*Scorzoneroides autumnalis*)

Ragwort (*Senecio jacobaea*)

Ivy (Hedera)

Ivy is listed above as an important late summer and autumn nectar source. This is especially so, if it is growing in a well lit situation. The plants growing on the wall between the bowling greens and the Fielden Centre were swarming with insects in the early autumn of 2016 and 2017. This patch of ivy is therefore of great importance to the wildlife biodiversity in the park and any plans to remove it should be resisted.

Garden Plants and Insects

The range of wild flowers, available as nectar sources for insects during mid-summer, is generally wide, although many bees, wasps, hoverflies and butterflies will already be visiting garden plants as well. However, in late summer and early autumn many of the wild plants are going to seed, so garden plants become a more important resource for the insects, especially if flower-rich grassland has been mown and wild plants, such as common knapweed (*Centaurea scabiosa*) and autumn hawkbit (*Scorzoneroides autumnalis*), have in consequence been lost as sources of nectar.

Continued on next page: -

Plants providing nectar and pollen in some of the park's flowerbeds are as follows: -

Anemone x *hybrida* 'Honorine Jobert' (Japanese Anemone)

Bistorta amplexicaulis (Red Bistort)

Echinacea purpurea cultivar (Eastern Purple Coneflower)

Helenium autumnale cultivar (Sneezeweed)

Helianthus x *laetiflorus* 'Lemon Queen' (Perennial Sunflower)

Rudbeckia laciniata 'Herbstsonne' (Coneflower)

During late September and early October 2016, as well as late October and early November 2017, these plants were being visited by numerous insects, especially hoverflies, bumblebees, honeybees and wasps. Moreover, more butterflies were seen on these flowers than anywhere else in the park. The importance of these plants to the park's insect biodiversity cannot be overstated.

SPECIES LISTS

Books used for Identifying Species

Collins Complete Guide to British Insects, Michael Chinery, Harper Collins 2004

Field Guide to the Dragonflies and Damselflies of Great Britain and Ireland, Steve Brooks & Richard Lewington, British Wildlife Publishing 1997

Aphids on Deciduous Trees, Tony Dixon & Thomas Thieme, Richmond Publishing Co. Ltd 2007

Collins Guide to the Moths of Great Britain and Ireland, Martin Townsend, Paul Waring and Richard Lewington, British Wildlife Publishing 2007

Field Guide to the Micro-Moths of Great Britain and Ireland, Phil Sterling, Mark Parsons and Richard Lewington, British Wildlife Publishing 2007

Britain's Hoverflies, A Field Guide, Stuart Ball and Roger Morris, Princeton University Press, 2nd edition 2015

Field Guide to the Bees of Great Britain and Ireland, Steven Falk and Richard Lewington, British Wildlife Publishing 2015

Collins Pocket Guide, Freshwater Life, Britain and Northern Europe, Malcolm Greenhalgh and Denys Ovenden, Harper Collins 2007

Collins Complete Guide to British Mushrooms and Toadstools, Paul Sterry and Barry Hughes, Harper Collins 2009

Mushrooms, Roger Philips, Macmillan 2006

Lichens, An Illustrated Guide to the British and Irish Species, Frank S. Dobson, Richmond Publishing Co. Ltd., 4th edition 2000
Mosses and Liverworts of Britain and Ireland, A Field Guide, British Bryological Society, 2010

British Mosses and Liverworts, E. V. Watson, CUP, 3rd edition, reprinted 1995

The Liverworts of Britain and Ireland, A. J. E. Smith, CUP 1990

Collins Flower Guide, David Streeter et al, Harper Collins 2010 (paperback edition)

Harrap's Wild Flowers, Simon Harrap, Bloomsbury 2013

Wild Flowers of Britain and Ireland, Marjorie Blamey et al, Bloomsbury Publishing 2013

Order and Names of Species

The following publications were used to put species in systematic order with their recognised scientific and English names.

Bryophytes (Mosses & Liverworts)

A Checklist and Census Catalogue of British and Irish Bryophytes, M O Hill et al, BBS 2008.

Vascular Plants

New Flora of the British Isles (3rd Edition), Clive Stace, CUP 2010.

Field Flora of the British Isles, Clive Stace, CUP 1999 (Reprinted 2005) - for classification.

In view of their structural and ecological importance in determinig habitats, an exception from the systematic is made in that broadleaf trees and bushes are listed separately from herbs and shrubs.

Fungi

Mushrooms, Roger Philips, Macmillan 2006.

Dragonflies

Dragonflies and Damselflies of Great Britain and Ireland - as in the section above.

Lepidoptera (Moths and Butterflies)

Butterflies and Moths of Yorkshire, S L Sutton & H E Beaumont, YNU 1989.

Hoverflies

Britain's Hoverflies, A Field Guide - as in the section above.

Bees

A Field Guide to Bees of Great Britain and Ireland - as in the section above.

All other Insects

The Royal Entomological Society Book of British Insects, Peter C. Barnard, Royal Entomological Society 2011.

Collins Complete Guide to British Insects - as in the section above.

Insects of Britain and Western Europe, Michael Chinery, Wm Collins Sons & Co.1986.

Amphibians (Frogs, Toads and Newts)

Britain's Reptiles and Amphibians, Howard Inns, Wild Guides 2009.

Birds

Yorkshire Bird Report, Craig Thomas et al, YNU 2013.

Mammals

Wild Animals of Britain and Europe, Helga Hofmann, Harper Collins 2001.

Continued on next page: -

Abbreviations Used in the Tables that Follow

Fauna: B - breeding F - foraging R - resident S - summer W - winter

Flora: d - dominant a - abundant f - frequent o - occasional r - rare.

v - very l - local(ly) † - extinct. ? - frequency uncertain.

Note: For some tree species the total number is given instead of a DAFOR frequency.

FLORA

MARCHANTIOPHYTA & BRYOPHYTA (38 spp.)		
Bryophyta - Mosses (30 spp.)		
Haircaps etc. 2 spp.		
Atrichum undulatum	Common Smoothcap	o-lf
Polychiastrum formosum	Bank Haircap	f-la
Acrocarps (Pincushions etc.) 18 spp.		
Grimmia pulvinata	Grey-cushioned Grimmia	vlf
G. trichophylla	Hair-pointed Grimmia	r.
Fissidens viridulus	Green Pocket-Moss	o-lf
Dicranoweisia cirrata	Common Pincushion	f.
Dicranella heteromalla	Silky Forklet-Moss	o.
Campylopus flexuosus	Rusty Swan-neck Moss	o-vla
Barbula convoluta	Lesser Bird's Claw Beard-Moss	vl
Tortula subulata	Awl-leaved Screw-Moss	vl
Orthotrichum affine	Wood Bristle-Moss	o.
O.anomalum	Anomalous Bristle-Moss	r.
O. stramineum	Straw Bristle-Moss	o-vla
Ulota crispa	Crisped Pincushion	o.
U. bruchii	Bruch's Pincushion	o.

Bryum capillare	Capillary Thread-Moss	o-lf
Pohlia nutans	Nodding Thread-Moss	o.
Mnium hornum	Swan's Neck Thyme-Moss	lf-vld
Rhizomnium punctatum	Dotted Thyme-Moss	o-vlf
Plagionium undulatum	Hart's-tongue Thyme-Moss	o.
Pleurocarps (Feather-Mosses etc.) 10 spp.		
Thuidium tamariscinum	Common Tamarisk-Moss	r.
Rhynchostegium confertum	Clustered Feather-Moss	lf
Kindbergia praelonga [1]	Common Feather-Moss	f-la
Brachythecium rutabulum	Rough-stalked Feather-Moss	f-la
Hypnum cupressiforme	Cypress-leaved Plait-Moss	f-la
H. andoi [2]	Mamillate Plait-Moss	f-la
H. jutlandicum	Heath Plait-Moss	lf-vla
Rhytidiadelphus squarrosus	Springy Turf-Moss	a.
Plagiothecium undulatum	Waved Silk-Moss	o-lf
Isothecium myosuroides	Mouse-tail Moss	o-lf

1. formerly *Eurhyncium praelongum*

2. formerly *H. mammillatum*

Marchantiophyta - Liverworts (8 spp.)		
Thallus Liverworts (5 spp.)		
Lunularia cruciata	Crescent-Cup Liverwort	o-vld
Marchantia polymorpha [1]	Common Liverwort	vr
Pellia epiphylla	Overleaf Pellia	f-la
Metzgeria furcata	Forked Veilwort	lf
M. violacea	Blue Veilwort	r.
Leafy Liverworts (3 spp.)		
Lepidozia reptans	Creeping Fingerwort	o-lf
Lophocolea bidentata	Bifid Crestwort	o.
Diplophyllum albicans	White Earwort 38	o-la

PTERIDOPHYTES (11 spp.)		
Sphenopsida - Horsetails		
Equisetum arvense	Field Horsetail	o.
E. sylvaticum	Wood Horsetail	f-la
Pteropsida - Ferns		
Pteridium aquilinum	Bracken	f-ld
Asplenium scolopendrium [1]	Hartstongue	vla
Asplenium ruta-muraria	Wall Rue	r.
Oreopteris limbosperma	Lemon-scented Fern	vr
Athyrium filix-femina	Lady Fern	f.
Blechnum spicant	Hard Fern	o.
Dryopteris filix-mas	Male Fern	f.
D. dilatata	Broad Buckler-Fern	f-la
Polypodium vulgare	Common Polypody	o.

1. Formerly *Phyllitis scolopendrium*

PINOPSIDA - CONIFERS (8 spp. 7 extant)		
Picea sitchensis	Sitka Spruce	4
Larix decidua	Larch	†
Pinus sylvestris	Scots Pine	≥ 14
P. nigra Ssp. nigra	Austrian Pine	5
Taxus baccata	Yew	r.
Chamaecyparis lawsoniana [1]	Lawson's Cypress	vl
Ch. pisifera [2]	Sawara Cypress	vl
Thujopsis dolobrata	Hiba	vl

1. All trees with golden foliage belong to the same variety.
   The others belong to 2 varieties: 'Filifera & 'Minima'.

2. All these trees are var. Boulevard.

Magnoliidae - Dicotyledons		
Part 1 - Trees and Bushes (48 spp. Incl. 2 hybrids)		
Mahonia aquifolium	Oregon Grape	o.
Prunus avium	Wild Cherry / Gean	o.
P. padus	Bird Cherry	lf
P. lusitanica	Portugal Laurel	lf
Malus sylvestris	Crab Apple	1
Sorbus aucuparia	Rowan	o-lf
S. intermedia agg,	Swedish Whitebeam	3
S. aria	Whitebeam	1
X. *Crataemespilus* [1]	Smith's Medlar	1
Crataegus monogyna	Hawthorn	o-lf
Ulmus glabra	Wych Elm	≥ 18
U. minor subsp.*sarniensis*	Small-leaved Elm	c. 6
Fagus sylvatica [2]	Beech	o-ld
Quercus cerris	Turkey Oak	4
Q. ilex [3]	Holme Oak	1
Q. petraea	Sessile Oak	lf - ld
Q. frainetto	Hungarian Oak	1
Betula pendula	Silver Birch	2
B. pubescens	Downy Birch	o.
B. utilis	Himalayan Birch	6
Alnus glutinosa	Alder	o.
A. incana	Grey Alder	r.
A. cordata	Italian Alder	2
Carpinus betulus var. *fastigiata*	Hornbeam	1
Coryllus avellana	Hazel	o-lf
Tilia cordata	Small-leaved Lime	lf -ld
T. x *europaea*	Common Lime	lf
Populus nigra var. *italica*	Lombardy Poplar	1
P. x *canadensis* var. *serotina* [4]	Black Italian Poplar	o.
Salix alba	White Willow	c. 12
S. viminalis	Osier	1
S. caprea	Goat Willow	o.

S. x *reichardtii* [5]	Goat x Grey Willow	f.
S. cinerea	Grey Willow	o-lf
A. aurita	Eared Willow	1
Aesculus hippocastanum	Horse Chestnut	12
Acer campestre	Field Maple	3
A. plantanoides	Norway Maple	lf
A. pseudoplatanus	Sycamore	o - lf
A. saccharinum	Silver Maple	5
Rhododendron ponticum	Rhododendron	lf-ld
Liriodendron tulipifera	Tulip Tree	1
Fraxinus excelsior	Ash	o-lf
Ligustrum vulgare	Wild Privet	o.
Ilex aquilifolium	Holly	o-lf
Ilex. x *altaclerenis* [6]	Highclere Holly	o.
Viburnum opulus	Guelder Rose	2
Sambucus nigra	Elder	2
Symphoricarpos albus [7]	Snowberry	o.

1. *Crataegus laevigata* x. *Mespilus germanica*
2. Incl. trees with copper leaves
3. aka Evergreen Oak
4. *P. nigra* x. *P. deltoides* (Cottonwood).
5. *S. caprea* x. *S. cinerea.*
6. *I. aquilifolium* x. *I. perado*
7. subsp. *laevigatus*

Part 2 - Forbs & Shrubs (96 spp. extant)		
Papaver somniferum	Opium Poppy	vl
P. rhoeas	Common Poppy	vl
Ranunculus acris	Meadow Buttercup	lf
R. repens	Creeping Buttercup	f-la
Ficaria verna [1]	Lesser Celandine	f-la
Chrysoplenium oppositifolium	Opposite-leaved Golden - Saxifrage	lf
Lotus corniculatus	Common Birdsfoot Trefoil	o-vlf
gLotus penduculatus	Greater Birdsfoot Trefoil	vl
Vicia cracca	Tufted Vetch	r.
V. sepium	Bush Vetch	r.

Lathyrus pratensis	Meadow Vetchling	?
Trifolium repens	White Clover	f-la
T. hybridum	Alsike Clover	vr
T. pratense	Red Clover	o.
Filipendula ulmaria	Meadowsweet	lf
Rubus idaeus	Raspberry	lf
R. fruticosus agg.	Bramble	lf
Potentilla erecta	Tormentil	o.
P. reptans	Creeping Cinquefoil	vl
Geum rivale	Wood Avens	lf
Alchemilla glabra	Hairless Lady's Mantle	o.
Urtica dioica	Common Nettle	lf
Oxalis acetosella	Wood Sorrel	o.
Geranium sylvaticum	Wood Cranesbill	lf
G. dissectum	Cut-leaved Cranesbill	†
G. robertianum	Herb Robert	o.
Epilobium hirsutum	Great Willowherb	lf
E. parvifolium	Hoary Willowherb	vl
E. montanum	Broad-Leaved Willowherb	o-lf
E. palustre	Marsh Willowherb	o-lf
Chamerion angustifolium	Rosebay Willowherb	lf
Hibiscus syriacus	Hibiscus sp.	vlf
Capsella bursa- pastoris	Shepherd's Purse	o.
Cardamine pratensis	Cuckooflower	f.
C. flexuosa	Wavy Bittercress	o-lf
Lobularia maritima	Sweet Allison	vl
Brassica napus	Rape	r.
Sinapsis arvensis	Charlock	vl
Sisymbrium officinale	Hedge Mustard	o.
Persicaria maculosa [2]	Redshank	o.
Polygonum arviculare agg.	Knotgrass	o.
Fallopia japonica	Japanese Knotweed	vl
Rumex acetosella	Sheep's Sorrel	o.
R. acetosa	Common Sorrel	lf-la

R. sanguineus	Wood Dock	vlf
R. obtusifolius	Broad-leaved Dock	lf
Stellaria media	Common Chickweed	o.
S. holostea	Greater Stichwort	vl
S. alsine	Bog Stichwort	lf-la
Cerastium fontanum	Common Mouse-ear	o-lf
Sagina procumbens	Procumbent Pearlwort	o-lf
Agrostemma githago	Corncockle	vl
Silene dioica	Red Campion	o.
S. flos-cuculi	Ragged Robin	o-lf
Chenopodium album	Fat Hen	r.
Ch. bonus-henricus	Good King Henry	r.
Montia fontana	Blinks	vl
Iberis amara	Wild Candytuft	vl
Galium album	Hedge Bedstraw	vl
G. saxatile	Heath Bedstraw	vlf
Echium vulgare	Viper's Buglos	vl
Borago officinalis	Borage	vl
Myosotis arvensis	Field Forgetmenot	o.
Calystegia silvatica	Large Bindweed	vl
Solanum lycopericum	Tomato	r.
Veronica officinalis	Heath Speedwell	lf
V. beccabunga	Brooklime	la
V. serpyllifolia	Thyme-leaved Speedwell	r.
V. filiformis	Slender Speedwell	lf
V. persica	Common Field Speedwell	vl
Plantago major	Greater Plantain	o -lf
Scrophularia auriculata	Water Figwort	vl
Prunella vulgaris	Selfheal	lf-la
Lamium purpureum	Red Dead-Nettle	vlf
Lycopus europaeus	Gypsywort	vl
Cirsium arvense	Creeping Thistle	vlf
Centaurea scabiosa	Common Knapweed	o-vlf
Centaurea cyanus	Cornflower	vlf

Lapsana communis	Nipplewort	o.
Hypochaeris radicata	Common Catsear	lf
Scorzoneroides autumnalis [3]	Autumn Hawkbit	o -la
Sonchus asper	Prickly Sow-Thistle	o.
Taraxacum agg.	Dandelion	lf
Conyza canadensis	Canadian Fleabane	vlf
Bellis perennis	Daisy	lf-la
Atemisia vulgaris	Mugwort	vl
Achillea ptarmica	Sneezewort	vl
A. millefolium	Yarrow	o.
Chrysanthemun segetum	Corn Marigold	lf
Matricaria discoidea	Pineappleweed	o-lf
Tripeurospermum inodorum	Scentless Mayweed	o-vlf
Senecio jacobaea	(Common) Ragwort	o.
S. vulgaris	Groundsel	o-vlf
Eupatorium cannabinum	Hemp Agrimony	vl
Hedera helix	Ivy	vl
Foenicum vulgare	Fennel	r.
Angelica sylvestris	Wild Angelica	vl

1. Formerly: *Ranunculus ficaria*
2. Formerly: *Polygonum persicaria.*
3. Formerly: *Leontodon autumnalis.*

Liliidae - Monocotyledons		
All Herbs (41 spp. 39 extant)		
Crocus nudiflorus	Autumn Crocus	vl
Hyacinthoides non-scripta	Bluebell	f-la
Juncus articulatus	Jointed Rush	lf
J. bufonius	Toad Rush	vl
J. effusus	Soft Rush	lf-la
J. conglomeratus	Compact Rush	vlf
Luzula sylvatica	Great Wood-Rush	lf-ld
L. campestris *	Field Woodrush	o-la
Carex remota	Remote Sedge	lf-la
C. leporina [1]	Oval Sedge	o-vlf
C. riparia	Greater Pond Sedge	vlf

C. flacca	Glaucous Sedge	lf
C. demissa *	Common Yellow-Sedge	?
C. nigra *	Common Sedge	r.
Schedonorus giganteus	Giant Fescue	o.
x *Schedonorus loliaceum* [2]	Rye-Grass x Meadow Fescue	?
Lolium perenne	Perennial Rye-Grass	f.
Festuca rubra agg.	Red Fescue	lf
Vulpia myuros	Rat's tail Fescue	vl
Cynosurus cristatus	Crested Dogstail	o.
Poa annua	Annual Meadow-Grass	lf
P. trivialis	Rough Meadow-Grass	f-la
Dactylis glomerata	Cocksfoot	o-lf
Deschampsia cespitosa	Tufted Hair-Grass	vlf
D. flexuosa	Wavy Hair-Grass	r.
Holcus lanatus	Yorkshire Fog	f-ld
H. mollis	Creeping Soft-Grass	lf-la
Anthoxanthum odoratum	Sweet Vernal-Grass	f-la
Phalaris arundinacea	Reed Canary-Grass	vl
Agrostis capillaris	Common Bent	o.
Polypogon viridis	Water Bent	vl
Alopecurus pratensis	Meadow Foxtail	o-lf
A. geniculatus	Marsh Foxtail	f-la
Phleum prantense	Timothy	o.
Glyceria fluitans	Floating Sweet-Grass	o-lf
Bromus secalinus	Rye Brome	†
Anisantha sterilis [3]	Barren Brome	?
Bromopsis ramosa [4]	Hairy Brome	?
Elytrigia repens [5]	Common Couch	vl
Triticum aetivum	Bread Wheat	r.
Echinochloa crus-galli	Cockspur Grass	†

1. Formerly: *Carex ovalis* 2. *Lolium perenne* x *Schedonorus pratensis* 3. Formerly: *Bromus sterilis*

4. Formerly: *Bromus ramosus* 5. Formerly: *Agropyron repens.* † Extinct here. * Philip Redell - June 2016

FUNGI & LICHENS

The DAFOR status indicators in the table below are based on the numbers of sporophores recorded for each species. This does not necessarily correspond to the actual relative status of the fungi themselves, but it should at least indicate which species are common or rare.

FUNGI (75 spp.)		
Note: another 5 species are listed in the Plant Gall section.		
Fungi with Gills (45 spp.)		
Russula atropurpurea	Purple Brittlegill	o.
R. cyanoxantha	Charcoal Burner	o.
R. ochroleuca	Ochre Brittlegill	o-lf
R. fellea	Geranium Brittlegill	lf
R. nigricans	Blackening Brittlegill	lf
Lactarius quietus	Oakbug Milkcap	o-lf
L. blennius	Beech Milkcap	r.
Baeospora myosura	Conifercone Cap	r.
Mycena polygramma	Grooved Bonnet	o.
M. galopus	Milking Bonnet	o.
M. vitilis [1]	Snapping Bonnet	o.
M. flavescens	A Bonnet	o.
M. flavoalba	Ivory Bonnet	o.
Clitocybe geotropa	Trooping Funnel	vlf
Armillaria cepistipes	Mullet Honey Fungus	lf-la
A. ostoyae [2]	Dark Honey Fungus	?
Lacaria laccata	The Deceiver	f.
L. amethystina	Amethyst Deceiver	f.
Flammulina velutipes	Velvet Shank	vlf
Oudemansiella mucida	Porcelain Fungus	la
Marasimus androsaceus	Horsehair Parachute	vl
Collybia peronata	Wood Wollyfoot	o.
Amanita muscaria	Fly Agaric	lf
A. rubescens	The Blusher	o.
Entoloma sericeum	Silky Pinkgill	o.
Pluteus cervinus	Deer Shield	vlf

Cortinarius armillatus	Red-banded Webcap	o.
Pholiota aurivella	Golden Scalycap	vl
Ph. squarrosa	Shaggy Scalycap	lf-la
Hebeloma crustuliniforme	Poison Pie	r.
Inocybe cookei	Straw Fibrecap	o.
Hypholoma fasciculare	Sulphur Tuft	lf-la
Psathyrella micorhiza	Rootlet Brittlestem	?
Coprinus comatus	Shaggy Inkcap	vl
C. atramentarius	Common Inkcap	vlf
C. micaceus	Glistening Inkcap	vl
Parasola plicatilis	Pleated Inkcap	r.
Panaeolus fimicola [3]	Turf Mottlegill	vl
P. papilonaceus	Petticoat Mottlegill	r.
Pleurotus pulmonarius	Pale Oyster	vlf
P. cornucopiae	Branching Oyster	?
Crepidotus variabilis [4]	Variable Oysterling sp.	vl
C. cesatii [4]	" "	"
C. applanatus	Flat Oysterling	vl
Cantharellus cibarius	Chanterelle	r.
Fungi with Pores or Teeth (13 spp.)		
Boletus badius	Bay Bolete	o.
Meripilus giganteus	Giant Polypore	vl
Epichloë typhina	Choke	vlf
Laetiporus sulphureus [5]	Sulphur Polypore	vl
Fistulina hepatica	Beafsteak Fungus	?
Ganoderma australe	Southern Bracket	lf
Piptoporus betulinus [6]	Birch Polypore	lf
Inonotus cuticularis	Clustered Bracket	vl
Stereum hirsutum	Hairy Curtain Crust	lf
Trametes gibbosa	Lumpy Bracket	o-lf
T. versicolor	Turkeytail	lf-la
Bjerkandera adusta	Smoky Bracket	lf
Hydnum repandum	Wood Hedgehog	vl

Stomach Fungi (2 spp.)		
Scleroderma citrinum	Common Earthball	o-lf
S. areolatum	LeopardEarthball	o.
Various (12 spp.)		
Clavulina coralloides	White Coral	o.
C. rugosa	Wrinkled Club	vl
Auricularia auricula-judae	Jelly Ear	vl
Arrhenia retiruga	Small Moss Oysterling	o.
Sarcoscypha austrica	Scarlet Elfcap	vl
Aleuria aurantia	Orange Peel Fungus	vl
Neobulgaria pura	Beech Jellydisc	lf-la
Ascocryne sarcoides	Purple Jellydisc	vl
Xylaria hypoxylon [7]	Candlesnuff Fungus	lf-vla
Hypoxylon fragiforma	Beech Woodwart	lf-la
Kretzschmaria deusta [8]	Brittle Cinder	lf
Epichloë typhina	Choke	vlf
Micro-Fungi (4 spp.)		
Phragmidium violaceum	Blackberry Rust	lf-la
Rhytisma acerinum	Sycamore Tarspot	lf-la
Uncinula bicornis	Maple Mildew	lf
Ersiphe alphitoides	Oak Mildew	lf

1. Formerly: *Mycena filopes*
2. Formerly: *A. polymyces*
3. Formerly: *P.ater*
4. Not distinguishable in the field
5. Aka: Chicken of the Woods
6. Aka: Razorstrop Fungus
7. Aka: Stag's Horn
8. Formerly: *Ustulina deusta*

LICHENS

As yet there is no recognised systematic order for lichens. However, they can be grouped according to their habit of growth and they are listed correspondingly in three columns in the table below. Crustose (encrusting) species are not included, because it would need a specialist lichenologist to identify them correctly. The genus Cladonia does not fit well into any of these growth categories, so it appears in a column of its own.

Foliose	Fruticose	Cladonia
(leafy)	(shrubby)	(as above)
Hypogymnia tubulosa	*Evernia prunastri*	*Cladonia fimbriata*
Parmelia caperata	*Ramalina farinacea*	
P. sulcata	*Usnea subfloridana*	
Platismatia glauca		
Xanthoria parietina		

FAUNA

Abreviations

F - foraging R - resident M - migrant S - Summer P - Passage

c - common s- scarce r - rare l - local(ly) v -very ? - Status not clear

BL - recorded by Brian Leecy using a lamp in 2009.

Note: For the following reasons some insects are listed with a question mark indicating status unclear. Flies and dragonflies live in different habitats as larvae and adults, so it is generally unclear whether they are using larval habitats in the park or somewhere else. The macro-moths that were lured to light and recorded by Brian Leecy in 2009 could also have come from quite far away. All the these moths except the Silver Y, Silver-ground Carpet & Straw Dot are in this category.

INVERTEBTATES (118 spp.)			
Note: 7 species of mite are listed in the Plant Gall section.			
Miscellaneous	**Assorted invertebrates**		
Tardigrada sp. [1]	A Water Bear	R	?
Nematoda sp. [1]	A Nematode	R	?
Thomisidae sp.	A Crab Spider	R	?

INSECTS (115 spp).			
Note: another 13 species are listed in the Plant Gall section			
Collembola	**Springtails (1 sp.)**		
Tomocerus vulgaris [1]	A Springtail	R	?
Odonata	**Dragonflies (5 spp.)**		
Pyrrhosoma nymphula	Large Red Damselfly	R	r.
Aeshna juncea	Common Hawker	F	r.
A. grandis	Brown Hawker	F	r.
A. mixta	Migrant Hawker	M	r.
Sympetrum striolatum [2]	Common Darter	F	r.
Orthoptera	**Grasshoppers etc. (1 sp.)**		
Omocestus viridulus	Common Green Grasshopper	R	c.
Hemiptera	**Bugs (11 spp.)**		
Elasmostethus interstinctus	Birch Shieldbug	R	r.
Palomena prasina	Green Shieldbug	R	r.
Pentatoma rufipes	Forest Bug	R	r.
Leptopterna dolabrata	Meadow Plant Bug	R	c.
Lygus rugulipennis	Tarnished Plant Bug	R	c
Velia caprai	Water Cricket	R	c.
Notonecta glauca [3]	Water Boatman	R	c.
Gerris lacustris	Common Pond Skater	R	c.
Philaenus spumarius	Common Froghopper	R	c.
Aphis fabae (or congener)	Black Bean Aphid / Blackfly	R	c.
Drepanosiphum platanoides	Sycamore Aphid	R	vc
Coleoptera	**Beetles (11 spp.)**		
Staphylinidae sp.	A Rove Beetle (in moss)	R	?
Gyrinus natator	CommonWhirligig	R	c.
Gastrophysa viridula	Green Dock Beetle	R	c.
Pyrrhalta viburni	Viburnum Leaf-Beetle	R	vlc
Agelastica alni	Alder Leaf Beetle	R	vl
Meligethes aeneus	Pollen Beetle	R.	lc
Cantharis livida	A Soldier Beetle	R	lc
Rhagonycha fulva	" "	R	vc
Halyzia 16-*guttata*	Orange Ladybird	R	c.

Subcoccinella 24-*punctata*	24 Spot Ladybird	R	r.
Harmonia axyridis	Harlequin Ladybird	R	c.
Neuroptera & Mecoptera	**Lacewings etc. (2 spp.)**		
Chrysoperla carnea	A Green Lacewing	?	r.
Panorpa sp.	A Scorpion Fly	R	r.
Lepidoptera 1	**Micro-moths (10 spp.)**		
Tischeria ekabladella	Oak Carl	R	vc
Nemophora degeerella	Yellow-barred Longhorn	R	vl
Adela reaumurella	Green (Oak) Longhorn	R	c.
Roeslerstammia erxlebella	Copper Ermel	R	?
Celypha lacunana [4]	Common Marble	R	?
Crambus perlella	Satin Grass-Veneer	R	c.
Agriphila straminella	Straw Grass-Veneer	R	c.
A. tristella	Common Grass-Veneer	R	c.
Pyrausta aurata	Small Purple and Gold	R	vl
Hypsophia costalis	Gold Triangle	R	r.
Lepidoptera 2	**Butterflies (17 spp.)**		
Thymelicus sylvestris	Small Skipper	R	r.
Ochlodes venata	Large Skipper	R	r.
Pieris brassicae	Large White	R	c.
P. rapae	Small White	R	c.
P. napi	Green-veined White	R	vc
Anthocharis cardamines	Orange Tip	R	c.
Neozephyrus quercus	Purple Hairstreak	R	r.
Lycaena phlaeas	Small Copper	R	s.
Celastrina argiolus	Holly Blue	R	r.
Vanessa atalanta	Red Admiral	M	c.
V. cardui	Painted Lady	M	r
Aglaiis urticae	Small Tortoiseshell	R	?
Inachis io	Peacock	R	?
Polygonia c-album	Comma	R	r.
Pararge aegeria	Speckled Wood	R	c.
Maniola jurtina	Meadow Brown	R	vc
Aphantopus hyperantus	Ringlet	R	vc

Lepidoptera 3	**Macro-Moths (14 spp.)**		
Thyatira batis	Peach Blossom	BL	?
Habroyne pyritoides	Buff Arches	BL	?
Xanthorhoe montanata	Silver-ground Carpet	R	c.
Colostygia pectinarea	Green Carpet	BL	?
Opisthrogaptis luteolata	Brimstone	BL	?
Campaea margaritata	Light Emerald	BL	?
Noctua pronuba	Large Yellow Underwing	?	c.
Diasia mendica	Ingrailed Clay	BL	?
Pseudoips fagana	Green Silver Lines	BL	?
Diachrysia chrysitis	Burnished Brass	BL	?
Autographa gamma	Silver Y	M	c.
A. pulchrina	BeautifulGolden Y	M	?
Scoliopteryx libatrix	The Herald	BL	?
Rivula sericealis	Straw Dot	M?	c.
Diptera - Syrphinae	**Hoverflies (21 spp.)**		
Melanostoma scalare	A hoverfly	?	s.
Platycheirus albimanus	" "	?	c.
P. scutatus	" "	?	s.
Chrysotoxum festivum	" "	?	r.
Sphaerophoria scripta	" "	?	r.
Scaeva pyrastri	" "	?	r/c
Episyrphus balteatus	Marmalade Fly [7]	?	r.
Syrphus ribesii	Common Banded Hoverfly *	?	c.
Rhyngia campestris	A hoverfly.	?	r.
Eristalis pertinax	" "	?	s.
E. nemorum	" "	?	c.
E. horticola	" "	?	c.
E. tenax	Drone Fly	?	vc
Helophilus pendulus	Sunfly [8]	?	vc
Merodon equestris	Narcissus Fly	?	vc
Sericomyia silentis	A hoverfly.	?	r.
S. superbiens	" "	?	vr
Vollucella bombylans	" "	?	r.

V. pellucens	" "	?	r.
Syritta pipiens	" "	?	s.
Xylota segnis	" "	?	r.
Diptera cont.	**Other Flies (9 spp.)**		
Bibio marci	St Mark's Fly	R	vc
Pericoma sp.	An Owl Midge	R	?
Culex pipiens	A Midge	R	lc
Tipula spp.	Craneflies	R	?
Poecilobothrus nobilitatus	A Dolichopid Fly	R	lc
Sarcophaga carnaria	Flesh Fly	(R)	r.
Lucilia caesar (or congener)	Greenbottle sp.	R	c.
Mesembrina meridiana	Muscidae	R	r.
Phytomyza ilicis	A holly leaf-mining fly	R	r.
Hymenoptera (13 spp.)	**Sawflies, Wasps & Bees etc.**		
Urocerus gigas	Horntail sp.	R	r.
Pontania proxima	A Sawfly	R	r.
Amblyteles armatorius [5]	An Ichneumon Fly	R	r.
Vespula vulgaris	Common Wasp	R	r.
Bombus cryptrarum	Cryptic Bumblebee	R	c.
B. hortorum	Garden Bumblebee	R	r.
B. hypnorum	Tree Bumblebee	R	c.
B. lapidarius	Red-tailed Bumblebee	R	r.
B. pascuorum	Common Carder Bee	R	c.
B. terrestris	Buff-tailed Bumblebee	R	c.
B. campestris	Field Cuckoo Bee	R	r.
B. vestalis	Vestal Cuckoo Bee	R.	r.
Apis mellifera [6]	HoneyBee	R	c.

1. found among bryophyte samples
2. Two seen: 1♀ Oct.'16 & 1♂ Sept. '17
3. aka Common Backswimmer
4. formerly *Olethreutes lacunana*
5. or congener
6. many "native" black honey bees

7. English names from A Naturalist's Guide to Garden Wildlife of Britain and Northern Europe.

8. This English name is in use by the The Wildlife Trusts.

In the table that follows a number in the fourth column indicates how many territories are held by the bird species in question, except for the house martin, where the number of nests is indicated instead. Where a species only comes to the park to forage, or is only present in winter, it does not hold a territory, so a nought appears in this column.

VERTEBRATES			
BIRDS (50 Spp. 49 Extant)			
Branta canadensis	Greater Canada Goose	F	0
Anas platyrhynchos	Mallard	F	0
Accipiter nisus	Sparrowhawk	F	0
Buteo buteo	(Common) Buzzard	F	0
Chroicocephalus ridibundus	Black-headed Gull	W	0
Larus canus	Common Gull	F	0
L. argentatus	Herring Gull	F	0
Columba livia	Feral Pigeon / Rock Dove	F	0
C. palumbus	Woodpigeon	R	2
Streptopelia decaocto	Collared Dove	F	0
Strix aluco	Tawny Owl	F	0
Apus apus	Swift	F	0
Picus viridis	Green Woodpecker	F	?
Dendrocopus major	Great Spotted Woodpecker	R	1
Pica pica	Magpie	R	2
Garrulus glandarius	Jay	R	1
Corvus monedula	Jackdaw	F	0
C. corone	(Carrion) Crow	R	1
Regulus regulus	Goldcrest	R	1
Cyanistes caeruleus	Blue Tit	R	4
Parus major	Great Tit	R	≥ 2
Periparus ater	Coal Tit	R	1
Hirundo rustica	Swallow	P	0
Delichon urbicum	House Martin	S	≥ 5
Aegithalus caudatus	Long-tailed Tit	R	1
Phylloscopus sibilatrix	Wood Warbler	†	0
Ph. collybita	Chiffchaff	B	2

Ph. trochilus	Willow Warbler	B	2
Sylvia atricapilla	Blackcap	B	2
Sitta europaea	Nuthatch	B	1
Certhia familiaris	Treecreeper	R	≥ 1
Troglodytes troglodytes	Wren	R	≥ 6
Turdus merula	Blackbird	R	3
T. pilaris	Fieldfare	W	0
T. philomelos	Song Thrush	R	2
T. iliacus	Redwing	W	0
T. viscivorus	Mistle Thrush	F	0
Erithacus rubecula	Robin	R	2
Prunella modularis	Dunnock	R	1
Passer domesticus	House Sparrow	?	0
Motacilla cinerea	Grey Wagtail	F	0
M. alba	Pied Wagtail	F	0
Anthus pratensis	Meadow Pipit	F	0
Fringilla coelebs	Chaffinch	R	1
F. montifringilla	Brambling	W	0
Carduelis chloris	Greenfinch	F	0
C. carduelis	Goldfinch	R	2
C. spinus	Siskin	W	0
C. cabaret	Lesser Redpoll	W	0
Pyrrhula pyrrhula	Bullfinch	F	?

*15/03/18: 2 on sports field west of children's play area. (Flew in with 2 pied wagtails, neither of which landed). 17/03/18: c. 30 in same area. 18/03/18: None. All grassland covered in snow.

(20/03/18: c. 40 in fields near Sourhall).

AMPHIBIANS & MAMMALS (13 Spp.)		
Amphibians (3spp.)		
Rana temporaria	Common Frog	F
Bufo bufo	Common Toad	F
Lissotriton helveticus	Palmate Newt	R

Mammals (10 spp)		
Sorex araneus	Common Shrew	B
Pipistrellus pipistrellus	Common Pippistrelle	?
Sciurus carolinensis	Grey Squirrel	B
Clethrionomys glareolus	Bank Vole	B
Apodemus sylvaticus	Wood Mouse	B
Vulpes vulpes	Red Fox	F
Mustela erminea	Stoat	F
M. nivalis	Weasel	B
Meles meles	Badger	B
Capreolus capreolus	Roe Deer	R

From the list above the following species have been seen: - common frog, common toad, palmate newt, mole (molehills), grey squirrel, red fox, stoat and roe deer.

There are two badger setts in Buckley Wood. (Re: Philip Marshal).

The remaining species are known to be seen in gardens and woods in the area and it can be safely assumed that they are also present in Centre Vale Park.

INVERTEBRATES IN THE PARK

All but 3 of these are insects.

As would be expected, there are more of these than there are vertebrates. When gall causing species are included, 160 insects have been recorded in the park. This is 28% of all the organisms so far found there. However, some of these are present in quite small numbers and 30 of these insects have only been seen on one day. These include 1 dragonfly, 2 bugs, 8 moths, 3 butterflies, 5 bees and 5 beetles, which gives a total of 24 species.

Many of these insects are short-lived and/or quite rare, so they are only likely to be recorded, if a competent naturalist is lucky enough to be present in the right place at the right time to record them.

As far as the author is aware, only 16 invertebrates, other than insects, have been recorded in the park. These are a Water Bear, a Nematode a Crab Spider and 13 Gall Mites and it has not been possible to identify any of these to species.

Continued on next page: -

VERTEBRATES IN THE PARK

Three amphibians and 10 mammals inhabit Centre Vale Park, but the Grey Squirrel is the only one that is guaranteed to be seen. The other species are mainly nocturnal or crepuscular.

Birds of the following species fly over the park, but never land or forage there.

Pink-footed Goose (*Anser brachyrhyncus*)

Grey Heron (*Ardea cinerea*)

Lesser Black-backed Gull (*Larus fuscus*)

Raven (*Corvus corax*)

The Pink-footed Geese fly over the park in a westerly direction during their autumn migration to the marshes by Morecambe Bay.

The other three species generally fly in a northerly or southerly direction over the park, between their roosting or nesting sites and their foraging areas.

These birds would be pointed out to people on a guided walk as a matter of interest, but not as species that belong in the park.

There are other birds that forage in the park, but do not roost or breed there. These are as follows: - Canada Goose, Mallard, Sparrowhawk, Black-headed Gull, Collared Dove, Tawny Owl, Swift, Green Woodpecker, Jackdaw, Swallow, Mistle Thrush, Grey Wagtail, Pied Wagtail, Greenfinch and Bullfinch.

The three species with their names printed in blue are very infrequent visitors to Centre Vale Park.

Another six species are generally only seen in the park in the autumn and winter: Woodpigeon, Fieldfare, Redwing, Brambling, Siskin and Lesser Redpoll. There can be up to 50 Woodpigeons in the woods in autumn, but there are only two breeding pairs. The Black-headed Gull is in this category as well as the one above.

The numbers of foraging birds on the sports fields varies considerably. There are sometimes as many as 100 black-headed gulls here, but the typical range is between 15 to 50 during the months April to August. Numbers tend to be highest after persistent heavy rainfall, when the fields have been mown, or aerated by a tractor drawn apparatus. In the latter case the birds concentrate on the places that have been treated and made it easier for them to find invertebrates. When they are not foraging, the gulls rest on the Sports Centre and High School roofs.

Jackdaws behave similarly, but usually in smaller numbers. However, in order to escape disturbance by dogs and crows, they fly up into trees rather than landing on roofs. The other birds that regularly forage on this grassland are crows, magpies, woodpigeons and rock doves, but these are hardly ever present in numbers above six.

Three amphibians and 10 mammals inhabit Centre Vale Park, but the Grey Squirrel is the only one that is guaranteed to be seen. The other species are generally only active during the night, or at dawn or dusk.

PLANT GALLS & CAUSERS (30 spp.)

Note: In this section (♀♀) indicates the asexual (agamic) generation. This only applies to gall wasps.

Caused by Fungi (5 spp.)

Cumminsiella mirabilissima - A Rust

Pale yellow areas raised above leaf surfaces on mahonia (aka Oregon Grape).

23/08/15: very locally frequent.

Taphrina alni - An ascomycete

Tongue-like growths on female catkins of alder.

24/04/17: c. 100 galls on catkins of a tree near Sports Centre.

T. betulina - An ascomycete

Witches brooms on birches.

2016: 2 brooms on 2 downy birches in Buckley Wood.
2017: 3 brooms on a tree near the Garden of Remembrance.

T. tosquinetti - An ascomycete

Rumpled leaves on alders.

05/08/17: many galls in leaves of at least 2 trees in Buckley Wood.

Urocystis ranunculi - A Smut

Galls in the leaves or leaf-stalks of Creeping Buttercup *Ranunculus repens.*

22/07/17: Many blisters, each containing a mass of dark spores. Very locally common.

Continued on next page: -

Caused by Bacteria (1 sp.)

Agrobacterium tumefaciens

Galls on trunks and branches of trees.

2016: numerous swellings on a birch near the Garden of Remembrance.

2017: 2 huge bulges on oaks growing by Sigget Lane.

Caused by Mites (9 spp.)

Aceria pseudoplatani

Felt galls on Sycamore leaves.

2012: ≥ 7 galls on 2 leaves of one tree.

2015: widespread, but nowhere common.

2016: galls on lower leaves of trees by Lovers Lane & Sigget Lane.

26/06/17: widespread, but nowhere very common.

A. cephaloneus

Red pustules on Sycamore leaves.

2017: galls very local.

26/06/17: numerous galls on many leves of one tree near the sports centre.

A. myriadeum

Galls on leaves of Field Maple.

10/09/18: locally common.

A. nalepai

Galls on Alder leaves in vein angles.

2015: infestation on 3 small trees.

2016: galls numerous on many leaves of trees near the skate-boarding area.

2017: galls locally frequent.

A. nervisequa

Felt galls on undersides of beech leaves.

2013: local infestation on many leaves of one tree.

06/10/16: found on many leaves of one tree.

Eriophyes laevis

Pustules scattered on upper sides of alder leaves.

2017: galls locally common.

E. leiosoma

Felt galls on Lime leaves.

2013: galls scattered on a few leaves of one tree.

2015: widespread, but nowhere common.

2017: very locally frequent on common lime.

Hartigiola annulipes

Pouch galls on leaves of beech.

26/09/17: 1 gall found on 1 leaf on a low branch. Numerous round holes in leaves of another tree nearby were probably evidence of galls having fallen to the ground.

Phyllocoptes sorbeus

Felt galls on Rowan leaves.

2017: felt galls numerous on at least 2 trees.

Caused by Aphids (1 sp.)

Rumpled leaves on Red Currant bushes.

Cecidophyosis ribis

26/06/17: several rumpled leaves on *Ribes rubrum* Redcurrant.

Caused by Psyllids (Jumping Plant Lice) 1 sp.

Psyllopsis fraxinii

Leaf roll galls on leaves of ash.

2016: c. 15 galls on leaves of trees by the path from the graveyard to skate-boarding area.

26/06/17: ≥ 22 galls on one tree by the grassland and c. 5 galls on a tree near the marsh.

20/07/17: 182 galls. Many small trees affected.

Caused by Gall Flies & Midges (4 spp.)

Chirosia betuleti

Mop-head galls on fronds of dryopterid ferns.

2016: ≥ 7 galls on Broad Buckler Fern.

2017: ≥ 5 galls on Broad Buckler Fern & 1 on lady Fern

Ch. grossicauda

Roll galls on pinnules of Bracken.

2016: ≥ 30 galls on many fronds.

2017: ≥ 14 galls found.

Dasineura fraxini

Pustules on the leaf midribs of Ash.

26/06/17: 1 gall.

06/07/17: ≥ 3 galls in leaves of one small tree. 20/07/17: 3 galls on separate trees.

02/09/17: 3 more galls found in leaflets of 1 small tree.

D. urticae

01/09/18: swellings in nettle leaves locally common.

Caused by Sawflies (2 spp.)

Eupontania pedunculi

Globular to ovoid galls on undersides of leaves of sallows

20/09/17: 6 galls on leaves of *Salix caprea* Goat Willow.

Pontania proxima

Red bean galls visible on both sides of leaves of narrow-leaved willows

16/09/18: ≥ 12 galls in leaves of an osier in front of the Garden of Remembrance.

Caused by Gall Wasps (7 spp.)

***Andricus fecundatrix* (♀♀)**

Artichoke Galls on oak buds.

02/09/17: 1 found on the ridge.

***A. kollari* (♀♀)**

Marble Galls on oak buds.

02/09/17: 1 old gall found on the ground on the Ridge.

***A. lignicolus* (♀♀)**

Cola Nut Galls on oak buds.

2016: 2 old galls found on a tree on the Ridge (Chimney Field).

***A. quercuscalicis* (♀♀)**

Knopper Galls on acorns.

18/08/17: c. 100 galls on acorns of two sessile oaks near the Well Lane entrance to the park.

Continued on next page : -

***Neuroterus anthracinus* (♀♀)**

Egg-shaped or spherical galls on leaf veins on the underside of oak leaves.

2016: 1 gall found on a leaf in September; many others had fallen to the ground. Other very small galls found in early October 2016.

***N. numismalis* (♀♀)**

Silk button galls on oak leaves.

October 2016: very locally common on oak leaves, but much less common than galls of the following species.

12/07/17: very locally abundant on leaves of one small oak in the wet area. 20/07/17: now on leaves of several trees.

***N. quercusbaccarum* (♀♀)**

Common Spangle Galls on oak leaves.

28/10/16: numerous galls on many leaves of 2 young trees near the Well Lane entrance to the park.

15/08/17: infestation on leaves of several trees near the Well Lane entrance to the park.

25/09/17: numerous galls on leaves of rather small trees in the woods near the car-park.