

CASTLEMORTON COMMON CONTENTS

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Foreword

Johnny Birks

Following the success of their *Woodford's Meadow* project (published in 2023), members of Malvern U3A Natural History Group have produced another gem of a study on Castlemorton Common. This book is a celebration of the natural treasures to be found in one of Worcestershire's top wildlife sites.

I feel a special affinity with Castlemorton Common because it formed a big part of my work forty years ago. I had just started my first 'proper job' as Assistant Regional Officer for Worcestershire with the then Nature Conservancy Council (now Natural England), and one of my duties was to arrange the renotification of the Castlemorton Common SSSI (Site of Special Scientific Interest) under the Wildlife and Countryside Act 1981. An important bureaucratic exercise, renotification involved reassessing the site's biodiversity value, redefining its boundaries, and contacting all owners and occupiers – including the commoners – to explain their responsibilities under the newly-enacted legislation. I also worked to build a relationship with the then Malvern Hills Conservators to agree details of scrub management in the SSSI, for example.

These responsibilities gave me the perfect excuse to pull on my naturalist's hat and boots to explore this lovely patch of 'Old England'. I soon came to realise that – as with many semi-natural wildlife sites in Britain – retaining Castlemorton Common's special interest relied upon a constant battle to halt or hinder the natural succession process to prevent scrub and trees from overwhelming the grassland to the detriment of sensitive species. So, through a combination of grazing and mechanical scrub control, some sort of dynamic balance was achieved.

This book is a delightful record of the habitats and species to be found on Castlemorton Common (though this mammalogist was left hungry for information on his favourite taxonomic group!). As with *Woodford's Meadow*, the Monthly Notes and accompanying photographs are a fine resource for local and visiting naturalists; and the final section covering more in-depth studies is very good. I especially enjoyed the Stream Study, which demonstrates the huge value to wildlife recording of well-directed citizen science efforts.

Introduction

Mention Castlemorton Common to the people of Malvern and you will get many responses as to which area it covers. Those from outside Worcestershire may recall the infamous Castlemorton Rave of May 1992. It lasted a week, with 20,000 to 40,000 people. The aftermath was the introduction and the passing of the Criminal Justice and Public Order Act 1994. This book, which focusses on Natural History, looks only at the SSSI (Site of Special Scientific Interest). This designation is intended to provide legal protection of what is considered to be an important natural habitat. Castlemorton Common was the first SSSI in Worcestershire, mainly for its flora. It covers an area of nearly 80 hectares (200 acres). As we discovered, there is a mosaic of different habitats. The interest and diversity within them has never ceased to surprise us.

This book has been produced by the Malvern U3A (University of the Third Age) Natural History group. It follows on from a book previously produced for Woodford's Meadow. Rather than looking at the entire SSSI a smaller "study area" was agreed upon, shown on the map on the inside front cover. A group of around twenty studied that area, normally about eight people each visit, between March 2023 and December 2024. In total nearly sixty visits were conducted, each lasting around three hours. A spreadsheet was created with over 520 records. This catalogues each unique species, with location and a photograph.

The book is divided into three distinct sections. The first looks at the History, Landscape, Habitats and Geology. The underlying geology influences the habitats, many of which have changed little in recent times. The second section details what the naturalist can see each month. It is written so that even a newcomer should find something of interest to look for and locate. The final section is a more in-depth look at particular areas of interest. Also included are the more unusual finds. A study on the two streams produced some interesting results. Sections on birds and butterflies are perhaps more popular. We were surprised how good the Common was for fungi, this has its own section. Ephemeral ponds often feature in books on the nature of the Common, there is a short section on them. A section on galls follows, which were certainly not as common as the fungi. Finally a page on Slender Hare's-Ear, found just outside the Castlemorton area, but a unique plant which may be rediscovered on the Common one day.

History

Castlemorton Civil Parish (CP) is a large rural parish of 3,701 acres and stretches from the ridge of the Malvern Hills adjacent to the 'Shire Ditch' which separates Castlemorton, the western most parish of Worcestershire at this point, from Herefordshire to the west. From here the parish incorporates the eastern slopes of the hills and levels out to form the commons stretching towards the Severn plain.

The parishes of Welland and Little Malvern lie to the north and Birtsmorton and Berrow to the south; the eastern parish is Longdon, another large rural parish with marshy areas stretching almost to the River Severn.

Castlemorton is not mentioned in the Domesday Book of 1086, when it was treated as a part of Longdon. It was not until the 19th century that the manor was transferred to the Ecclesiastical Commissioners.

Domesday commissioned by King William 1st (the Conqueror) detailed Royal Forests which were protected lands for the royal hunt, a passion of the King. These 'forests' were managed and 'Shire Reeves' (Sheriffs) held legal courts to administer local law including 'Forest Law'. A forest is an area designated for the Royal Hunt and may have contained a variety of landscapes, not just woodland but heathland, marshes, wasteland, common land, and so on. It was in this way that Malvern Forest came into existence and included the lands of Castlemorton. It is also worth mentioning that commoners still had some rights of pasture (grazing), pannage (pigs allowed to feed on mast, predominantly acorns), estovers (the gathering of fuelwood), turbary (the gathering of turf), and sundry others.

In 1290 the land was granted by King Edward 1st to Gilbert de Clare, Earl of Gloucester, and so lost status as a Royal Forest and became known as Malvern Chase. The management of the land continued much as before, still subject to forest law. This continued until 1478, when the descendants of the Earl of Gloucester were implicated in conspiracy and the Crown reclaimed the land.

So it remained until King Charles 1st, in 1628, had the Forests and Chases assessed and, in 1632, this land was subsequently disafforested. The King kept ownership of 1/3rd to himself. 2/3rd was given to local owners and commoners free from Forest and Chase Laws. This manoeuvre by the King was a preamble to selling his 1/3rd of the former forest to raise money for

the royal coffers. On and around the Malvern Hills are still examples of areas marked on maps with 'Thirds' or 'Kings Thirds'.

In the 1670s most of the lands of the Malvern Chase were enclosed by an Act of Parliament, and only Castlemorton Common and wasteland was omitted. This occurred as there were too many interested parties, and the land was of insufficient value. Over the subsequent centuries the commoners continued to use the land with rights of pasture, pannage, and estovers and so on, as before. The area changed little over this period, although some small parcels of land were enclosed, known as assarts, and converted to arable and other uses, often illegally. So, it was that the Malvern Hills Conservators was formed by an Act of Parliament in 1884 to prevent further legal and illegal encroachment of the commons and hills. At this time approximately 700 acres of Castlemorton Common were included in the act.

Landscape

The area now known and used as Castlemorton Common is mainly owned and managed by the Malvern Hills Trust (MHT), formally known as the Malvern Hills Conservators. It lies within the Malvern Hills Area of Outstanding Natural Beauty (AONB); although all 46 AONBs have recently been rebranded as 'National Landscapes' (in 2023). The Common also contains an area designated, in 1955, a Site of Special Scientific Interest (SSSI), that extends to about 51 acres. The designation begins by saying the site is situated:

"at the foot of the Malvern Hills it lies on drift deposits which overlie the impermeable Keuper marl and consists mainly of low lying rough pasture with marshy areas, streams and frequent patches of scrub. The prime importance of the site is the grassland communities"

The area surveyed for this publication is part of this SSSI, and is adjacent to the B4208 Gloucester Road, and immediately bordering the boundary with Welland CP.

In summary, Castlemorton Common has been a part of a protected landscape since the Norman Conquest of 1066, either as part of a Royal Forest, or a Chase still managed under Forest law. Since disafforestation in

1632, the common land, due to its poor quality and low value, was not subsequently formally enclosed, and continued to be enjoyed by commoners as before. There was likely to have been small amounts of piecemeal enclosures known as assarting until the Act of 1884. This Act formed the Malvern Hills Conservators (now the Trust), which recognised the importance of this landscape, and once again afforded protection.

Castlemorton Common seemingly appears to be a relatively ordinary site. However, when explored weekly over the course of a year or so, it becomes clear that this is not the case. The uniform appearance is an impression created by the dramatic contrast of the abrupt ridge of the hills in comparison to the relatively level land of the Common with its open views.

The Countryside Commission in its 1993 publication 'The Malvern Hills Landscape' describes the 'Area of Outstanding Natural Beauty' in terms of its features, characteristics, importance and associations, saying of the commons:

"their open character and specific vegetation pattern related to the survival of ancient commoners' rights – the land has never been enclosed, and rarely cultivated."

The common land immediately adjacent to the ridge of the hills has a distinct easterly downward slope and is generally of an open aspect; it has little difference in either appearance or vegetation to the level land below, where the Common stretches down to the B4208 Gloucester Road.

Several permanent ponds are found on these higher areas, perhaps maintained as ponds for livestock, and the entire Common has a high water table with many ephemeral ponds and small streams traversing the area.

A landscape descriptive convention describes areas as a 'mosaic' of various features, including a matrix, patches and corridors. So, the Common is a mosaic that comprises a 'matrix' (the dominant interconnected land cover) of coarse grassland pasture. This is interspersed with 'patches' of heathland, scrub, small secondary wooded copses, and wet marshy areas with ephemeral ponds. Corridors of secondary woodland grow along the streamsides connecting some of the scrub and secondary woodland patches. Corridors of grassland in the form of rides, clearings and tracks, divide and separate the wooded streamsides and scrub and heathland patches, forming green pathways through the coarser vegetation. Occasionally, a larger older oak is present, but these are mainly boundary

markers. A noticeable example is the large oak in the hedgerow next to the small rough parking adjacent to the Gloucester Road; this marks the Welland/Castlemorton parish boundary. Other large trees surround some of the settlements, especially farms. Along the streams old mature willows, and most notably male Black Poplars, have been pollarded for centuries for timber and browse.

Where the Gloucester Road crosses the Common, the stretch from the boundary with Welland, up to the right turn heading to Swinyard Hill and Berrow Down is slightly raised above the Common. Here the grassland of the Common dips down along the road-side, forming a long shallow curved channel. The possible significance of this is mentioned later.

The Countryside Commission publication of 1993 refers to patches of regenerating woodland, and how the reduction in the number of active commoners grazing sheep and cattle, has seen an increase in scrub and woodland. The MHT is taking active measures to manage this problem, and with the decline in active commoners they now employ their own livestock and shepherd. Also, in 2007 a Castlemorton Commons Coordinating Committee was formed to represent the interests of the Commons and commoners at a local level. They now organise responsible livestock grazing on the Common. These measures are aimed at both maintaining the visual landscape and also special wildlife habitats.

Habitats and Ecology

The habitats and ecology of the site tend to follow the patterns in the landscape but with a few exceptions.

The grassland, for instance, is the largest part of the Common, but is far from uniform and is constantly trying to evolve into scrub, heath and secondary woodland. This temporal change is for the most part kept in check by the grazing of livestock and the increasing numbers of deer.

Within the study area, the grazed grassland varies between short open grasses to coarse areas less frequented by livestock. The grasses are often characterised by large tall clumps (up to waist and chest high) of Tufted Hairgrass, typifying the damper nature of this ground. Sedges and rushes are also found in these wetter areas, especially where ephemeral ponds occur.

Whilst ephemeral ponds are most prevalent in the study area they are found widely across the Common. Like the high water table, they are no doubt partly maintained by the impermeable soil and many springs for which the Malverns are famous. The ponds are present through winter, often into spring and possibly into summer; long enough for frogs to complete their life cycle.

Near the large ephemeral pond, near the parish boundary, there is evidence of an area of wet, heavy, undisturbed pasture where a patch of Dyer's Greenweed grows amongst Tufted Hair-grass and rushes. Nearby is a large extensive area of Lousewort, a hemiparasite also associated with heavy wet soils. In the wet spring of 2024, following a wet winter, these flowered extensively for several months, covering an area of over an acre between the road and the stream. It was a wonderful floral sight.

The survey area to the west of the stream also contains ephemeral ponds but more noticeably many hundreds of Yellow Meadow Ant hills. Although these occur in other parts of the Common, the high density (with hundreds present) in this location indicates a very old undisturbed pasture. This is confirmed by the high number of waxcap fungi appearing in the autumn.

The areas of scrubland comprise much gorse, with varying amounts of bramble and smaller trees like hawthorn and birch. This provides a windbreak and important shelter for nesting birds and breeding invertebrates. Many of these were seen and heard, especially in sheltered sunny alcoves within the scrub patches and grassy corridors. Butterflies, moths, dragonflies and other insects were often observed despite the cool wet weather characterising the study period. Here, the gorse and bramble blossom also provides a valuable long-lasting source of nectar. Both Grass Snake and Common Lizard were also recorded, and they would use the scrub for shelter and the adjacent open grass for basking in the sun.

The streams are in places adjacent to the grassland pastures. They have well-trodden banks and livestock drink in these accessible areas. In other locations the scrub grows along the streamsides and sometimes reaches across from both sides and in so doing forms a tunnel over the stream. This protected area provides shelter and secluded access for wildlife. The narrow band of riverine woodland that follows the stream has a few easy grassy accesses on the western side where the river terraces are visible and newly planted Black Poplars are establishing. Here, Hemp Agrimony and several species of water-dropwort and Water Mint are to be found.

This streamside secondary woodland features mainly small trees such as Hawthorn, Field Maple, and shrub-like Goat Willows. In places, some Ash trees (showing signs of dieback) and less numerous Alders show above the understorey, and notably some old, pollarded male Black Poplars. The woodland edge mainly features gorse, bramble and dog rose forming a scrubby border where it meets the grassland.

The water in the stream seemed to be generally clean and clear, flowing strongly in wetter months with distinct meanders and pool and riffle sequences. Generally, the maximum depth did not exceed two feet, but during summer the depth decreased considerably and some shallow sections became dry, as did the ephemeral ponds elsewhere. Despite this, Minnows were seen along with larvae of stoneflies and damselflies, indicating good water quality.

The ephemeral ponds also seemed to be clear and Floating Sweet-grass and Water Crowfoot being obvious plants along with breeding frogs. Pond Skaters, Water Boatmen and Diving Beetles were also noted.

The linear shallow ditch running alongside the road and edge of the Common was where the majority of the Autumn Lady's-tresses were found. Over 100 were seen forming a ribbon stretching some 50 plus metres along the roadside eastern boundary. Despite some assiduous searches, nothing was discovered on the western side within the survey area. This plant is associated with old pastures in coastal areas, but like several other unusual plant species found on the Malvern hills and commons it has local outlier populations here. It might be speculated that this is due to the tidal effect of the River Severn, which historically reached much further inland before man-made weirs changed and limited the tidal reach.

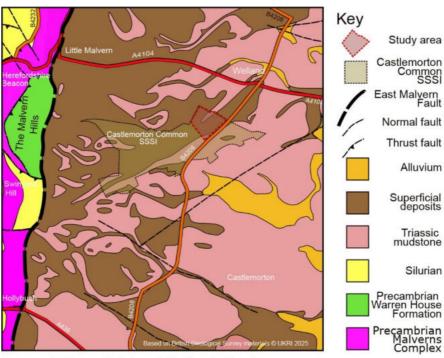
Along with ephemeral ponds and the single patch of soil where Dyer's Greenweed grows, there are also other microhabitats created by the ancient Yellow Meadow Ant hills. Their drainage and undisturbed nature has created conditions for specialist plants like Blinks and Parsley Piert, and fungi such as waxcaps and earth-tongues. Lady's Bedstraw was also present in this area, growing almost entirely on the anthills, and here Hummingbird Hawkmoth caterpillars were found in both years of the survey. This moth is not known to breed regularly in England but seems to be benefitting from a generally ameliorating climate and increased migrating from the continent.

Geology



 The view across Castlemorton Common to the Malvern Hills

The Malvern Hills rise steeply above the fairly level surface of Castlemorton Common. The hills are underlain by old hard Precambrian rocks, resistant to erosion. The rock of the hills is separated from that underlying the Common by a major geological fault, the East Malvern Fault on which the total movement has been 2.5 kms, forming a rift valley in the Severn Valley.



2. Superficial and Bedrock Geology

Most of the Malvern Hills are formed of Precambrian intrusive igneous rocks (shown in purple): the Malverns Complex. These are present on Swinyard Hill and the Herefordshire Beacon where they cooled and crystallised from molten magma deep in the Earth's crust. The rock has been dated as 667 million years old.

The area of Broad Down and Hangman's Hill has Precambrian extrusive igneous rocks (shown in green): the Warren House Formation. These rocks formed when volcanoes erupted in an island arc and are dated as 566 million years old.

There is an area on the lower slopes of the hills, below Swinyard Hill, with Silurian rocks (shown in yellow) about 440 million years old. These are sedimentary rocks laid down as layers of sediment in warm shallow seas when this area was south of the equator. There are sandstones and limestones some of which were exposed when a trench for electricity cables was dug in the 1950s. Fragments are seen in streams crossing the Common

Generally, the lower parts of the Common are underlain by red Triassic mudstones of the Mercia Mudstone Group. These are deposits laid down on an arid land surface when this area was at the latitude of the Sahara Desert, about 200 million years ago.



3. Mudstone seen in bank of stream

The mudstone rocks are soft and are a red-brown colour due to the iron minerals in them oxidising. There are occasional pale greenish grey spots where the iron minerals have been reduced, either in wetter areas or where there was organic material. This gives clues to the biodiversity of these arid areas 200 million years ago.

These mudstones are seen

occasionally in the banks of streams crossing the commons.



4. Gorge cut in mudstone rock



Malvern Gravels



6. Gravels overlying mudstone

In the overgrown wooded area, south of the footbridge, there is a narrow gorge cut into mudstone rock at SO 78963 39537.

During the Ice Age, Malvern Hills were exposed above the ice in the valley to the east. The bare rock on the hills was frost shattered. Angular rock fragments were sluiced down the slopes onto the lowlands. These gravels were deposited over the permafrost ground in the area of the commons.

Many types of rock make up the Malvern Gravels as can be seen in the banks of the stream on Castlemorton Common. These are angular rock fragments set in a finer matrix seen in Figure 5.

Figure 6 shows the variety of angular rock fragments in the gravels that have formed in a matrix overlvina Paler mudstone. reduction spots can be seen at the water level. This photo is from the site where measurements of the velocity of flow of the stream were taken during the study at SO 78939 39532. In drier periods, in summer, there is very little water in the stream.



7. Rock fragments in gravels

1. Angular fragments of crystalline rocks from Swinyard

Figure 7 shows some

of the types of coarser from

gravels present in the

the

rocks

study area.

Precambrian igneous Hill and the Herefordshire Beacon (British

- Camp), pink granites and darker diorites.
- 2. Fragments of Precambrian volcanic lavas and ash from Hangman's Hill coated with pale green epidote.
- 3. Pieces of layered Silurian sedimentary rock, limestone and sandstone, from the lower slopes of Swinyard Hill.

At the end of the Ice Age, when the weight of ice sheets was no longer present and the land rose relative to sea level, rivers started to erode deeper valleys, working back from the sea towards their source. Remnants of the valley floor at successively lower levels are covered with river terraces deposits. A 'knickpoint' gradually worked its way upstream from the coast. On Castlemorton Common, the deeper valleys are found further from the hills and the knickpoint has not yet reached as far upstream as the Malvern Hills. Consequently the valleys are very shallow on the upper parts of the Common. The lowest part of the stream in the study area is incised where a deeper valley cuts down through the gravels and the terrace deposits into the underlying mudstone. Part of this lower component of the stream valley has a tree cover established and thick undergrowth by the stream. In this area of the study there are remains of badger setts and other burrows. The stream cuts down deeply below the surface of the anthill meadow which is on one of the river terraces.

The knickpoint is at SO 788 394, where the road bridge across the Common crosses the stream. Upstream of this the stream flows on the surface of the Common. Below the knickpoint there are incised meanders.



8. Meanders above the footbridge

The stream meanders through the wooded area, cutting into the bank on the outside of the meanders and depositing gravel banks on the inside of the meander bend. This picture shows the stream just above the footbridge at the northern end of the study area.

A Local Geological Site (LGS) formerly called a Regionally Important Geological and Geomorphological Site (RIGS) has been designated in this area. Worcester Nature Conservation Trust has also designated the Common a Special Wildlife Site (SWS). The LGS was designated for its scientific, educational and aesthetic value. The stream has a series of meanders, which cut down into different terrace levels showing the stages of downcutting. These incised meanders show features seen in large rivers like the River Wye but here seen in miniature in a small area, making it an excellent site for educational visits. There are three separate terrace levels and an abandoned meander scar.



9. The LGS in 2005

Figure 9 shows the area of the LGS in 2005 with the stream meandering across the Common cutting into different terrace levels. Note the area of grass to the top left of the Figure which is now tree covered. It is important that there should be knowledge and appreciation geodiversity features so that these can be protected as well as biodiversity.



10. The LGS in 2024

Figure 10 shows the area in 2024 looking south. Two young black poplar trees can be seen in the background on terraces 1 and 2. The higher terrace on the left of the Figure now has a growth of trees, brambles and other vegetation which has become established since 2005.



11. The Meander Scar

Figure 11 shows the area just to the right of that in Figure 10, looking in the opposite direction towards the north. Three Black Poplars were planted on a terrace next to the of abandoned scar an meander. One of these poplars has been pollarded and has a growth of larger leaves than the original two poplars.



 Incised meander cutting into cliff of Triassic mudstone

In Figure 12, the stream in the woodland at SO 79008 39614 can be seen meandering across the present-day flood plain. The incised meander is cutting down into the Triassic mudstone. The level surface of a higher terrace above was a former valley floor.

Monthly notes

January	18
February	21
March	24
April	27
May	30
June	33
July	37
August	41
September	45
October	48
November	52
December	55



January

January and February are probably not the most interesting months to explore the Common for wildlife. But there is always something to be found.

This is a good time to look for birds, with wintering migrants and no leaves on the trees. We often saw birds around the car park with the ephemeral pond. A Grey Wagtail was seen on one occasion. The Alder trees at the southern end of the SSSI are worth exploring (around SO 7801 3906). Siskins are frequent, and Redpolls were occasionally seen. To get there the ground can be wet, wellingtons are recommended. Stonechats are moderately common in that area in the gorse bushes (as they are on much of the Common).

It is always worth looking up, perhaps some winter thrushes, Redwings and Fieldfares. Both have a direct flight, a number of fast flaps interspersed with short glides. Buzzards and Kestrels are the commonest birds of prey but Red Kites are seen increasingly on the hills: look out for the forked tail.

Perhaps, surprisingly, we found a number of fungi species on the anthill meadow. Global warming means an extended fruiting period for some species. We found a superb Mosaic Puffball at the end of its life, spreading a huge number of spores. This large species seems to be frequent on the Common. The Latin name is *Lycoperdon utriforme*, the species name meaning uterus-shaped. Another good find was Crested Coral (*Clavulina cristata*). The sharp or fringed tips to the ends of the arms distinguish it from Wrinkled Club. As one of the club fungi (*Clavariaceae*) it adds to our ever growing list of fungi, that show that the anthill grassland is of high conservation value.

Early flowering plants were in evidence. We found a single Daisy, the first we had seen in the study. On our previous study, Woodford's Meadow, we didn't find a single one. Considering how common they are, this is perhaps surprising. The only flowering plant we saw on the anthill meadow was Common Whitlowgrass. This very early plant is not in fact a grass, it is a crucifer (new name Brassica), with four tiny white flowers, deeply cleft.

Mole hills seem to be more easy to see at this time of year. Moles do not hibernate, and in the winter their permanent burrows may become frozen, so they dig new shallow ones looking for food. Consequently, their presence may become more obvious than in the summer months.



Anthill meadow



Male Siskin



Female Siskin



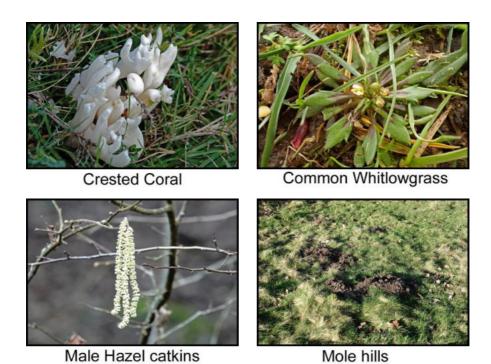
Male Stonechat



Red Kite



Mosaic Puffball



20

February

Like January, this is a good time for the birdwatcher. As the month progresses, birds sense that spring is close and become more active. There is a Rookery just north of the study area, visible from the car park bridge. The rooks become more vocal and start finding nesting material. They are the commonest bird on the anthill meadow. Rooks have a varied diet, primarily worms, beetles and other small invertebrates. Explore the edges of the small copse around the stream. A number of small birds use this area. We saw a male Bullfinch, picked out by its rather plaintive whistling call. Many other common birds were also seen.

This is a good time to look for Snipe on the Common, both Common Snipe and the smaller Jack Snipe. These birds are winter visitors, probing for food in the reeds and sedges around the more marshy areas. Walk along the long, wide, cleared area in the southern part of the SSSI between SO 7839 3935 and SO 7791 3916. Wellingtons are useful. Walk along the edges of the rushes and see what is flushed out. Common Snipe, with a long bill, are noisy and fly high, landing some way off. Jack Snipe have a smaller bill, are silent when flushed and only fly a few dozen yards. Good luck.

On the gorse, which is everywhere, we noticed what looked to be a delicate spider's web. On closer examination these were produced by Gorse Spider Mites. These small, red mites, less than a millimetre long, appear to be rather unusual in Worcestershire. In the centre of the study area we found Mistletoe growing on a Hawthorn tree, which also seems to be unusual on the Common.

We found few flowers in bloom. In the anthill meadow the Common Whitlowgrass is joined by the small leaves of Parsley Piert. The latter has small white flowers that will appear in April. But, signs of spring being around the corner should be evident. We found frog spawn in the ephemeral pond by the main car park. The first catkins appeared on the Goat Willow bridge at the southern end of the study area.

Far fewer fungi are seen in February. The anthill meadow, normally a good bet to find them, was almost devoid. One good find was a clump of the common Velvet Shank (a fungi) found near the car park bridge. This is also aptly called Winter Fungus. In wet weather it has a very slimy cap. It can be distinguished from other similar fungi by its dark velvety stem and white gills.



Rookery



Rook with nesting material



Male Bullfinch



Carrion Crow



Gorse Spider Mite



Gorse Spider Mite close-up



Mistletoe growing on Hawthorn



Common Whitlowgrass with Parsley Piert



Frog Spawn



Goat Willow catkin



Velvet Shank



Velvet Shank

March

March heralds the arrival of the first summer bird migrants. Listen out for the distinctive song of a Chiffchaff calling its own name. They like to sing from the taller trees and scrub, so with few leaves in the trees, this is a good time to pick them out.

A few more flowering plants also put in an appearance in March. A patch of Lesser Celandine under the large oak tree near the car park, flowering at least a month later than elsewhere, was surprising. On the anthills on anthill meadow look out for Field Wood-rush, also called Good Friday Grass. The leaves have long white hairs, above which are chestnut-brown flowers with long bright yellow anthers. It is a good time for catkins. As well as the Goat Willow, now in full bloom, search for the dark red catkins of the male Black Poplar. This tree is a speciality of the Common. Being dioecious it has the male and female parts on separate trees. The vast majority of the Black Poplar trees on the Common, if not all, are male. Also of interest is the yellow Mistletoe pollen, that is shed under the trees containing Mistletoe.

Some new fungi appear on the anthill meadow. The conical-shaped Brown Mottlegill grows on almost any short turf, so named because when the gills are separated, they have dark brown spots where the spores are. As with all small brown fungi there are confusing other species, but this is probably the most common. Two new species for us were fungi parasitic on lichens. They were brightly coloured, both on oak, on separate trees but close to each other. Both use the same host, Fringed Rosette Lichen (*Physcia tenella*). The bright crimson one was *Illosporiopsis christiansenii*, the yellow one *Erythricium aurantiacum*. They have no English names.

With twice the average rainfall in February and March 2024, the ephemeral ponds were full at the end of the month, in contrast to the year before, when some of the smaller ones were almost empty. In 2023, we found some interesting plants such as Marsh Bedstraw and Water-starwort. But, having some significant amounts of water present in 2024, there was some good pond life, such as the pictured Common Pond Skater.

Finally, some concealed insects were found. The commonest micro moth leaf miner is probably the Golden Pigmy. Its larvae hide between the upper and lower epidermis of Bramble leaves. Secondly, we have the Oak Marble Gall. The wasp, *Andricus kollari*, produces marble shaped growths on oak twigs and the wasp larvae feed inside it.



Lesser Celandine



Field Wood-rush



Chiffchaff



Black Poplar catkins



Mistletoe pollen



Black Poplar



Illosporiopsis christiansenii fungi



Erythricium aurantiacum fungi



Brown Mottlegill



Common Pond Skater



Golden Pigmy leaf miner



Oak Marble Gall

April

Our stream study continued through April and May, and this consumed around half of our time. The results are presented in the section commencing on page 58.

Perhaps of most interest in the month of April were the flora of the anthills which provide their own unique micro-habitat. Many plants are small and tricky to pick out. Look out for Blinks with its succulent spoon-shaped leaves and small white flowers. If lucky, you may see their strange black seeds. Easier to find is Wall Speedwell, with its small deep blue flower, and the multi-coloured flowers of Changing Forget-me-not. There are many more, including Sticky Mouse-ear, Dove's-foot Cranesbill and Mouse-ear-hawkweed to name just a few. The anthills also provide a good habitat for moss; a common species found there being Neat Feather-moss.

Moving across the stream to the wetter areas of the Common look for Common Lousewort with its delicate pinkish flowers. It is a semi-parasitic plant and a rarity in the south of the county. More usual is the Cuckooflower (or Lady's Smock), a plant typical of wet meadows. It is the main food plant of the Orange Tip butterfly. At the northern end of the stream, on a bank, Great Scented Liverwort may be found.

The oak trees burst into bud at the start of the month. We noticed this on the 3rd April 2024. This budburst has been monitored elsewhere over the years and is now three and a half weeks earlier than in 1950, due to global warming. It is always worth looking at the leaves and trunk of our native oaks, they harbour more diverse life than any other tree in the UK. We found an Oak Gall Moth (*Pammene argyrana*) on the trunk of one. There are a few UK moths that make use of galls for protection.

April is also a good time to see Common Gorse in flower. It mainly flowers from January to June, with a peak in April to May. The yellow flowers, with their smell of coconut, are a highlight of the Common. Western Gorse also occurs on the Common, but flowers later, from July to November.

A speciality on the Common is the Emperor Moth. These large moths are moderately frequent in the county, and Castlemorton Common has always been a good place to see them. April is the key month. We saw two, one female resting on the ground and one male that we attracted using a pheromone lure.



Common Gorse



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Lousewort



Cuckooflower



Great Scented Liverwort



Common Oak budburst



Oak Gall Moth



Emperor Moth

May

Look out for some unusual plants of the anthills. Search for Upright Chickweed, a flower that only comes out in full sunlight. The sepals have conspicuous white edges. It is scarce and declining. Two unusual plants that are often seen with it are Slender Trefoil and Bird's-foot. We saw both, the latter just south of the car park pond, where we also found Heather. Heather is an unusual plant on the Malverns, the only other place it is found is on the Herefordshire Beacon. Another scarce plant on the anthills is Little Mouse-ear. Encountered on the southern end of the study area, it is small, glandular-hairy, with slightly notched petals and broad silvery margins to the sepals.

Away from the anthills, a single Green-winged Orchid was observed, just south of the parking area. This was the first of four orchid species seen. Easier to spot is the Common Water-crowfoot in the car park pond and the yellow Lesser Spearwort around it. May was also a key time for seeing sedges. Six different species were observed, with the marshy area south of the car park particularly good. We found Carnation Sedge which is most uncommon in Worcestershire. It likes waterlogged ground, and is more often seen on the eastern side of the Malverns.

On a sunny day spring butterflies should appear. Orange Tip and Holly Blue emerged in mid-April and should be visible throughout the month. Dragonflies are around the stream. Large Red Damselflies were seen mating and a Beautiful Demoiselle. On the banks of the main stream look out for stoneflies such as Common Yellow Sally, which are unable to fly far.

Hawthorn should be in full flower at the start of the month. Goat Willow may also be flowering along the stream area of the SSSI. They are dioecious, the male and female plants growing on separate trees. Now is a good time to separate them, the male catkins turn yellow and are roundish in shape, the females are long, slender and green.

The meadow should be full of flowering buttercups. Look in the flowers for beetles and other insects. One of the commonest is Swollen-thighed Beetle. The hind legs on the femur of the male have huge bulges. They sit in their territory waiting for females to appear and are excellent pollinators. Some bumblebees were seen, including the Tree Bumblebee. This was first recorded in the UK in 2001 and is rapidly increasing its range. Also observed was Yellow Shell, a day-flying moth, commonly seen flying in the Malverns.



Large Red Damselfly in cop DT



Upright Chickweed GD



Slender Trefoil



Bird's-foot seed pods GD



Green-winged Orchid GD



Carnation Sedge seeds GD



male Beautiful Demoiselle DT



female Goat Willow catkins



Swollen-thighed Beetle DT



Tree Bumblebee



Yellow Shell

June

The stream study and ephemeral anthill flora have been the main interest over the last two months. By June the wetter areas (the main stream and south of the study area) are developing more botanical interest. Look for Ragged Robin, Meadowsweet and Brooklime, and many others may be in flower. Most of the area to the east of the stream remained damp, with associated flora. Here there are some Common Spotted Orchids, a few Heath Spotted Orchids and an occasional hybrid between the two. Also here is Marsh Pennywort, which is rare in Worcestershire, look out for the tiny white flowers and circular leaves.

Returning to the study area, the marshy zone south of the parking area has some Dyer's Greenweed. This is an unusual location for this plant which may indicate that here there are base rich soils. The marshy area is a good area for rushes, with Soft, Hard, Compact and Sharp-flowered varieties. In the drier area, near the anthills, the most attractive bright crimson Grass Vetchling can be seen. Red and White Clovers are very common. Although there are less interesting plants on the anthills, many are topped with a purple crown of Wild Thyme. Now is a good time to identify grasses as many are in flower. Look out for Crested Dog's-tail with its purple anthers, the soft Yorkshire Fog, Quaking Grass and Tufted Hair-grass, ubiquitous in the wetter areas. Of course, many other species of grass were present.

The second half of June is the start of the main butterfly season. Meadow Browns are the most common but look out for Marbled White on the wetter areas in the SSSI. Less frequent are Ringlet and Large Skipper.

With good weather this should be a good time for other insects. Meadow Grasshopper is common. The colour can be variable, it is the only flightless grasshopper in the UK. Note the parallel sides to the pronotum. Walking around, you are likely to disturb many small white micro moths in the grass. These are grass-veneers (renamed grass-moths in the latest micro moth book). At this time of year the most likely is Garden Grass-moth (*Chrysoteuchia culmella*). Bumblebees are common, the workers should now have appeared. Many other bees can be seen; we saw Ashy Mining Bee, a solitary species which is easy to identify due to its striking black and white colouration. In the remaining wet ephemeral ponds or wet areas look out for Semaphore Flies. The males have white tips to their wings and use them in an elaborate courtship ritual.



Main stream - south of study area



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Common Spotted Orchid



Heath Spotted Orchid GD



Grass Vetchling



Wild Thyme on anthill



Ringlet IH



Large Skipper



Crested Dog's-tail



Quaking-grass



Meadow Grasshopper



Garden Grass-moth



Ashy Mining Bee



male Semaphore Fly

July

There is much floral interest along the bed of the main stream and in the wetter areas in the SSSI as a whole. Here, one can see Parsley Water-dropwort, rare in Worcestershire, a plant more accustomed to brackish water habitats. Common but worth looking out for are Water Forget-me-not, Great Willow-herb, Water Figwort, amongst many more.

Away from the wetter areas, different species of plant are found. Harebell is frequent around the eastern side of the stream (in the study area). Also, in that area is Sneezewort, a close relative of Yarrow, Red Bartsia and Gypsywort, with small white flowers and leaves resembling a nettle. In the drier areas look out for Upright Hedge Parsley, an umbellifer taking over from Cow Parsley at this time of year.

July is a good month for butterflies. In the second half of the month Gatekeepers become very common. There is a second brood of Common Blue, these seem particularly common in the drier regions of the study area, the road side of the stream. Dragonflies and day-flying moths are more difficult to find. We did manage to photograph a Common Darter, as the name implies one of the more common dragonfly species. Also, a newly emerged Six-spot Burnet moth. It was sitting waiting for its wings to fully expand before it could fly. However they are particularly vulnerable at this time. The Six-spot is the commonest of the Burnet moths. One surprise was to find a caterpillar of a Hummingbird Hawk-moth. Originally only an immigrant to the UK, these caterpillars are occasionally found. This Hawk-moth is not considered to be a permanent breeder in the UK.

There should be plenty of birds around. The warblers should have finished with their nesting and the youngsters should be visible. Listen for the repetitive "shweeet" of the young Chiffchaffs in the brambles and the copse around the stream. Don't forget to look skywards; a mewing call is likely to be a Buzzard circling the area.

If you are fortunate with the weather you are likely to see many insects, bees and spiders. We found a Black and Yellow Longhorn beetle. The larvae of this large beetle live in rotten wood. Most Longhorn beetles are well marked and not difficult to identify. Bumblebees should be present, look out for the easy to identify Red-tailed bumblebee. The distinctive funnel shaped webs of Labyrinth spiders are easy to spot, they are scattered around the undergrowth. The actual spiders, within the tunnel, are somewhat trickier.



Study area stream in full bloom



Parsley Water-dropwort



Water Forget-me-not GD



Greater Bird's-foot-trefoil



Water Figwort GD



Harebell



Sneezewort



Gatekeeper



Common Blue



female Common Darter IH



Six-spot Burnet moth



Hummingbird Hawk-moth DT



juvenile Chiffchaff



Buzzard



Black and Yellow Longhorn beetle



Red-tailed bumblebee



Labyrinth spider IH

August

Ponder the difference between the vegetation in the stream in the study area and in the main part of the SSSI (first picture below, around SO 7863 3925). In the first area the stream cuts a deeper channel and the edges mostly have a number of trees. In the second area there is often no channel and the water is not constrained, making it much wetter. Also, there is only the occasional tree. In this area, between this stream and hills, the vegetation is now quite overgrown, waist high in places. More flowers are at their peak. It is easy to see large areas of yellow Common Fleabane, named supposedly for its ability to repel fleas. Another yellow flower here is Hoary Ragwort, with cottony hairs on the undersides of the leaves. Look for Water-pepper; taste a small amount and you will see where it gets its name from. The mauve flowers of Water Mint smell as you would imagine. Tall strands of Hemp Agrimony grow amongst these. It is poorly named as it is neither a hemp nor an agrimony. All four of these are easy to see. More difficult to find are the mauve flowers of Devil's-bit Scabious. Very easy to find is Wild Carrot which likes the drier areas. And finally, look out for the seeds of Dyer's Greenweed (see June entry) with their characteristic green colour, most unlike the black seeds of Gorse.

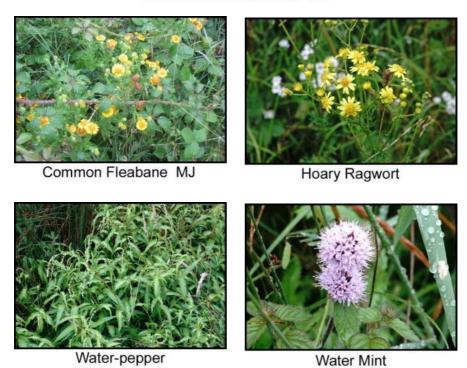
August is still a great month for butterflies with many Gatekeepers and Meadow Browns. Look for the less frequent Small Heath and the second brood of Holly Blue. The larvae of this second brood eat Ivy, not Holly like the first brood. There are not many species that live on Gorse, which is so prevalent on the Common. We did discover the tiny Common Gorse Moth (*Cydia ulicetana*), whose larvae feed internally in the seedpods of Gorse. A few dragonflies were around; Common Darter possibly the most frequent, and the larger Southern Hawker, the commonest of the Hawkers.

Common Frogs are easy to see now they that have left the water. The ephemeral pond by the car park is a good place for frogs but many will no doubt not survive for long. August is the start of bird migration, look out for Barn Swallows and other hirundines on the wires.

The Orbweaver spiders (*Metellina sp.*) are moderately easy to see, the two shown below (page 44) are probably Autumn Orbweavers (*M. segmentata*) due to the timing and location. They have a characteristic orb web which can be distinguished from the more common webs as there is a hole in the centre. The web can be horizontal or vertical.



SSSI marsh in full bloom MJ





Hemp Agrimony



Devil's-bit Scabious



seeds of Dyer's Greenweed



Wild Carrot



Small Heath



Holly Blue



Common Gorse Moth



Southern Hawker



Common Frog



Barn Swallow



Orbweaver spider from front



Orbweaver spider from below

September

We start with some rarities. After finding Parsley Water-dropwort in July we found Tubular Water-dropwort after extensive searching. This was located in the unwooded area of the west bank of the stream, in the study area. We never found Narrow-leaved Water-dropwort which is mentioned in the SSSI notification. A speciality of the Common is Autumn Lady's-tresses. This is our fourth orchid and the last to flower. In Worcestershire it is a rare plant, late August and early September are the best times to find them. Look for them on the east side of the roadside bank on the B4208 around the study area car park. We also found a few in the study area. The rosette next to the dying plant contains the next year's growth.

One plant of Bilbao Fleabane (*Erigeron floribundus*) was found in the study area. A native of South America, it arrived in the UK in 1992 and Worcestershire in 1999. Similar to the common Canadian Fleabane, an urban weed in the UK, Bilbao is more robust and has a darker green cast. It is scarce in the UK but spreading rapidly in rural areas.

For butterflies, Gatekeepers and Meadow Browns have now mostly gone. The second brood of the whites, and the final broods of Speckled Wood and Small Copper are still present. With the Small Copper look out for the unusual blue-spotted aberrant form, var *Caeruleo-punctata*. Finally, those butterflies that hibernate as adults, such as Comma, Peacock and Small Tortoiseshell, can be seen.

In September, we saw the only two reptiles found during the study. Firstly, a Common Lizard, which, when it heard us, quickly got into cover. Secondly, a young Grass Snake that was warming itself up on the tarmac road by the Goat Willow bridge (possibly not a good plan). This is a good month for hoverflies, which often feed on the nectar of umbellifers. Some of the larger ones are called droneflies and their markings make them a Honey Bee mimic. There are a few species and taking pictures, from different angles, helps with identification. We saw Plane-faced and Stripe-faced Droneflies as well. Also frequent, is the so-called Footballer Hoverfly, named after the yellow and black makings, which resemble a footballer's shirt.

Apart from the common 7-spot Ladybird, other species of ladybird were surprisingly absent. Consequently it was nice to see the small Pine Ladybird. This fairly common species feeds on hawthorn when pine is absent.



Autumn Lady's-tresses



Autumn Lady's-tresses rosette



Tubular Water-dropwort



Bilbao Fleabane



Small Copper v. Caeruleo-punctata



Comma



Common Lizard IH



Grass Snake



Plain-faced Dronefly



Stripe-faced Dronefly



Footballer Hoverfly



Pine Ladybird IH

October

In October we explored a new area, around SO 7797 3925. This is just to the north-east of where we saw the orchids in June. There was a lot of Common Fleabane, as well as Parsley Water-dropwort, Devil's-bit Scabious, Hoary Ragwort and Wood Small-reed. Hoary Ragwort can be distinguished from Common Ragwort by its grey-green leaves, which have cottony hairs (especially on the underside) and the ends of the leaves, which come to a sharp point. This area can be wet in the winter.

October and November are the two best months for fungi and we were surprised how good the study area was. Almost by accident, we discovered what turned out to be our favourite area, a large Common Oak surrounded by Silver Birches. Located at SO 79136 39599, we christened it "birch grove". On each visit we found a good collection of new species. Our two visits in October produced 14 new agaric (gilled) species. Perhaps, the most recognizable is the Fly Agaric, common when birch trees are present. Below are several images of fungi: the pretty Amethyst Deceiver, the not-so-pretty Ugly Milkcap which exudes latex as all the milkcaps do, and The Deceiver, living up to its name as more difficult to identify.

Moving onto the anthill meadow, it is easy to find the second most recognised mushroom, the Parasol. They are particularly common, and obvious, on the Malverns. Around the drier, southern end of the study area, is best. The most frequent puffball observed was the rather substantial Mosaic Puffball. The January picture shows it at the end of its life. The white Snowy Inkcap can be seen growing on dung. As all inkcaps do, the black gills liquefy, or deliquesce, to aid spore dispersal. Another common mushroom is the Yellow Fieldcap. Starting bright yellow it becomes flattened into a parasol like shape, often splitting, maintaining the yellow only in the centre. The fragile stem is pale yellow or ivory which helps identification.

In the second half of the month, a number of waxcaps appeared on the anthill meadow. These are delightful additions to the commons around the Malverns. Their vivid colours can brighten up any dull day out. Counting the number of individual species gives a metric as to the conservation value of the grassland, see the section on "Fungi and CHEGD" later in the book. The commonest is the Snowy Waxcap, which will even grow on lightly fertilised meadows and is seen on lawns. Also common are Golden and Scarlet Waxcaps.



SSSI main marsh at SO 7797 3925



Hoary Ragwort



Hoary Ragwort



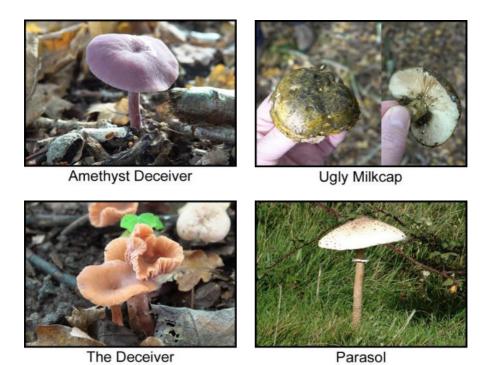
Wood Small-reed



Fly Agaric



Discussions amongst the Parasols





Mosaic Puffball



Snowy Inkcap



Yellow Fieldcap



Snowy Waxcap



Golden Waxcaps



Scarlet Waxcap

November

Autumn is starting to draw to an end. The first picture below shows the anthill meadow, the hills as a backdrop, on one of the finer days. There are always birds present, Kestrels are still moderately common, easy to identify due to their hovering flight. The mix of urban and common land around the car park makes this a good place to search for birds. Rosehips are common and should have been out for a good month by now. Look out for the vibrant pink of Spindle "berries". These are actually arils, a fleshy appendage surrounding a seed. Between the car park and the bridge is a good spot for Spindles. On a sunny day you may see the odd hibernating butterfly out, such as a Comma, or a Honey Bee looking for pollen.

On the anthill meadow, if it is wet, you may come across what looks like an unsightly splodge of cream material. This is a slime mould, *Mucilago crustacea*, which has the lovely common name of Dog Sick Slime Mould. They used to be considered as fungi and many books on fungi include them. However, current thinking is that they are protists. They are eukaryotes, meaning that they have a membrane-bound nucleus. They join the animals, plants and fungi in their own kingdom.

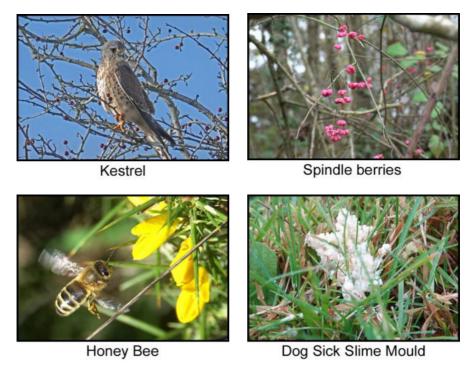
November is a key month for fungi. More species of waxcaps were found, rather than mentioning them here, refer to the "Fungi and CHEGD" section later on in the book. As well as waxcaps, we were on the look-out for clubs, spindles and corals ("C" in the acronym CHEGD). Commonest, by far, were Meadow Coral, recognisable from other similar species by its yellow, many branched tufts. These terminate in one or two blunt tips. We were surprised to see an Earthtongue, "G" in the acronym. This was identified as Hairy Earthtongue due to the tiny hair-like spines on the stem; it is the most frequent species. We saw them in another 5 sites over the month.

A favourite find, in small numbers, was the Scarlet Caterpillarclub. This rather strange fungus is parasitic on a buried moth pupa or caterpillar. When infected, the moth innards are turned into a mushy mess, then a stalk is grown, spores attached, and the lifecycle continues.

Search for fungi on dead wood. The Oak Toothcrust pictured is a resupinate fungus, which essentially means "upside down". The fruitbodies are formed on a thin layer spread over the chosen substrate, in this case, oak. Many other fungi were found, the Field Blewit was particularly impressive. Blewit refers to the blue colouration, probably from the French name "bleu".



View across the anthills to the Malvern hills





Hairy Earthtongue



Scarlet Caterpillarclub



Meadow Coral



Scarlet Caterpillarclub with host



Oak Toothcrust



Field Blewit

December

Like November, in December the Common can become wet underfoot and wellingtons may be a good plan. More ephemeral ponds may appear, even in the drier meadows. The picture overleaf shows a large Pedunculate or Common Oak, slightly towards the hills from the car park. This may be the largest tree in the SSSI. These old trees often mark a boundary. With no leaves on the trees, this is a good time to look for birds. It should be easy to spot a singing Robin. They change their song in the winter, becoming more subdued. Singing maintains their territories and wards off other Robins.

Whilst exploring the anthills over the year we wondered why the occasional one had been dug up. Looking inside we found the answer, remnants of a wasp's nest, presumably dug up by a Badger raiding it for the nutritious larvae. Whilst exploring this we came across a Flat-Backed Millipede. The difference between a millipede and a centipede: centipedes have only one pair of legs per segment of their body, whereas millipedes have two.

Searching the anthill meadow for fungi was very productive. One of the pictures below shows us on our final field trip. A fair number of different waxcap species were still around. An easy one to recognise is the Parrot Waxcap. It is very slimy, with an amount of green colouration, particularly at the top of the stem. No other waxcap contains green colours, and is unusual for any fungi. Also in the same area was Beige Coral. This is apparently a rare find, especially in Worcestershire. But, there was much of it, and we found it on our previous study at Woodford's Meadow.

We always search in cow pats for fungi, normally without any success. They seem to be totally sterile, no doubt due to the use of medication (antibiotics) to control parasites in the cows. The only fungi we have regularly found, albeit rarely, are Snowy Inkcap and Cowpat Gem. These colourful disc-like fungi can appear in their hundreds. The fertile (upper) surface is bright orange, smooth in the centre but granular near the rim.

Branches and trunks of trees are always worth a look for fungi. One of the commonest is Jelly Ear fungus. It is tricky to find a mature Elder tree that doesn't have some on it. It was called Jew's Ear fungus, modern sensitivities forcing the change. However, its Latin name of *Auricularia auricula-judae* cannot be altered and follows it around. Another fungus of interest is Black Bulgar. These unevenly spaced rubbery buttons are called Black Jelly Drops or Poor Man's Liquorice in the USA, but are not edible.



Pedunculate Oak



Robin singing



Wasps nest in ant hill



Flat-Backed Millipede



Parrot Waxcap



The group searching the anthill meadow on our final field trip



Beige Coral



Cowpat Gem



Jelly Ear fungus on Elder



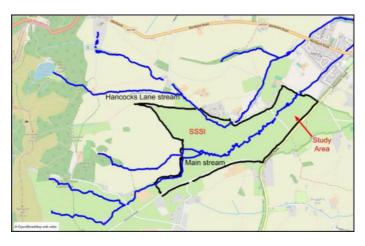
Black Bulgar

Stream study

Introduction

The Main stream on Castlemorton Common runs roughly from south-west to north-east, through the centre of the Study Area, effectively dividing it into two parts. From the Goat Willow Bridge the stream flows in a distinct channel with obvious terracing along its length. Upstream of the bridge the channel is less deep and the stream flows just a little below the level of the Common. Both sections of the stream follow a meandering course with some steep "river cliffs" on the outside of bends. Along the length of the stream there are a series of shallow, fast-flowing riffles and slower, deeper pools. The riffles have a stony/gravel bed and the pools have a fine silt bed. The section of the stream downstream of the bridge is largely shaded by trees and shrubs whereas the upstream section is much more open. The stream has its sources in two main springs on the lower slopes of Swinyard Hill and Hangman's Hill. The stream flow is highly seasonal and during late summer 2023 it had very little, if any, flow.

The second stream, Hancocks Lane stream, flows further to the north and essentially along part of the northern boundary of the SSSI. It quickly leaves the SSSI, flowing north around Welland. The two streams then join, flowing into the Severn near Upton. This stream is fed from the British Camp reservoir, and to a lesser extent from the pools at Little Malvern. Unlike the Main stream this water course is not so seasonable and will not run dry.



Early investigations and planned work

During the first visits to the study area in early 2023 samples of invertebrates living in and on the bed of riffle sections of the stream were taken. These invertebrates were mostly arthropods, insects and crustaceans. Of the insects, a number of species of stonefly and mayfly were found. These groups are indicators of unpolluted and well-oxygenated streams. This main stream appears to be unusual in that the numbers of stoneflies found were higher than the numbers of mayflies. This was recognised as something to be investigated. As far as we know, little work has been done on the animal life in the streams, so a systematic and organised study would provide valuable information on the aquatic environment. Subsequently, it was proposed to undertake the following activities, starting in Feb 2024:

- Training of volunteer surveyors in sampling and measurement techniques along with training in identification of the main invertebrate groups.
- A mapping of the distribution of the riffles and pools together with depth, width and flow rates. This might also include mapping of the aquatic plants growing in and beside the stream.
- Stoneflies and mayflies are nationally scarce. List all the species of these two groups found plus any other species found. Investigate metrics that can be used to assess water quality.
- Water quality sampling. Investigate grant funding.

Methods to assess stream quality

We chose to use the Trent Biotic Index (TBI) as the main means of assessing water quality. Using this technique, the species in the stream are captured in nets, identified and noted. Kick sampling and using riffle sections of the stream were generally used. Kick sampling disturbs the stream bed with feet, dislodging organisms into a net downstream. It was important to not reuse sections of the stream, we often tested a number of areas in one visit. The TBI then uses Key Indicator (KI) species, some (such as Stoneflies) are more indicative of high water quality than others. If there is more than one KI species, this increases the index. See the Trent Biotic Index table below.

The TBI method is simple and cost effective, the only training is in the identification of the species. However, TBI is not as quantitative as other methods, such as Surber Sampling and Artificial Substrate Sampling.

Running TBI sampling for three times as long is likely to increase the index number, so this needs to be considered. The TBI method does have a low environmental impact as all species are quickly returned to the stream, and are only sampled the once.

In parallel to TBI, we looked at the pH and phosphate levels in the stream. For pH we started using pH papers, but soon realised that would not give sufficient accuracy. Halfway through the study we purchased two professional meters, funded by our grant from the Malvern Hills National Landscape Partnership (who used to be called Area of Outstanding Natural Beauty). A pH between 6.5 to 8.2 is considered optimum. Phosphate levels are measured in mg per litre. A good reading for a stream would be 0.1. The phosphate level in the Severn at Upton is around 0.25. Too much phosphate produces eutrophication, an overgrowth of algae and aquatic plants.

	Trent Biotic	Index 1	able			
		To	otal num	bers of	organisr	ns
Families	Diversity	0-1	2-5	6-10	11-15	16+
Stoneflies	more than 1 species		7	8	9	10
Stonemes	only 1 species		6	7	8	9
Mayflies	more than 1 species		6	7	8	9
iviayities	only 1 species		5	6	7	8
Caddis flies	more than 1 species		5	6	7	8
Caddis files	only 1 species	4	4	5	6	7
Freshwater shrimps	all above absent	3	4	5	6	7
Water-slaters	all above absent	2	3	4	5	6
Tubifex worms and/ or Bloodworms	all above absent	1	2	3	4	
All above absent		0	1	2		

Results

We had nine keen volunteers, led by Gerry Davies with his wide botanical and aquatic ecosystem expertise. Two introductory sessions were held in early Feb 2024, followed by ten field sampling sessions, from early March to mid June. It was important to sample at different locations each time and also to include the "riffle" area. In all 18 different locations were chosen, 13 on the main stream and 5 on the Hancocks Lane stream. Seven were within the study area, and three were well upstream of the SSSI. Results are listed below.

		Stream	study sa	mpling poi	nts and	assoc	iated (data	
Date	No.	Grid Ref	Stream	Study area	in SSSI	TBI	рН	Phos	Comments
23-Feb	1	SO 7906 3964	main	Υ	Υ				intro session
05-Mar	2a	SO 7900 3960	main	Y	Υ	10			
05-Mar	2b	SO 78984 39566	main	Υ	Υ				
05-Mar	2c	SO 78818 39388	main	N	Υ	10			
05-Mar	2d	SO 78379 39083	main	N	Υ	7	8 - 10		
13-Mar	3	SO 78984 39566	main	Υ	Υ	10	7 - 8		
19-Mar	4a	SO 78024 39515	Hancocks	N	Υ	9			
19-Mar	4b	SO 78038 39487	Hancocks	N	Υ	9			
19-Mar	4c	SO 78380 39370	Hancocks	N	Υ	9			
27-Mar	5	SO 7902 3962	main	Υ	Υ	10			
17-Apr	6	SO 78934 39529	main	Υ	Υ	9			
23-Apr	7	SO 78715 39332	main	N	Υ	9		0.13	
01-May	8	SO 78342 39355	Hancocks	N	Υ	9	7.8	0.11	
15-May	9a	SO 76730 38385	main	N	N	6	8.3	0.0	near Foxhall
15-May	9b	SO 76719 38663	main	N	N	8	8.1	0.0	near Pink Cottage
15-May	9c	SO 77836 38812	main	N	N			0.06	near Bowling Greer
24-May	10	reservoir area	Hancocks	N	Υ	7			
19-Jun	11	SO 7894 3952	main	Υ	Υ	7	7.8	0.25	approx grid ref

	Key Indi	cator species with abunda	nce	
Family			Main stream	Hancocks Lane
Stoneflies	Common Yellow Sally	Isoperla grammatica	Abundant	Rare
	a needle stonefly	Leuctra sp.	Frequent	none
	a brown stonefly	Nemoura sp.	Occasional	none
Mayflies	Large Dark Olive	Baetis rhodani	Occasional	Abundant
	a prong-gilled mayfly	Habrophlebia fusca	Occasional	Rare
	a flatheaded mayfly	Rhithrogena sp.	none	Occasional
Caddisflies	Dark-winged Caddisfly	Agapetus fuscipes	Frequent	Frequent
	a netspinning caddisfly	Hydropsyche sp.	none	Frequent
	other cased species		Rare	Occasional
Shrimps	Freshwater Shrimp	Gammarus pulex/fossarum agg	Frequent	Frequent
Water-slaters	Two-spotted Water-slater	Asellus aquaticus	Rare	none
Tubifex worms	Tubifex Worm	Tubifex tubifex	Frequent	Rare
Bloodworms	Bloodworm	Chironomus sp	Frequent	none

Conclusions

Both the main stream and Hancocks Lane, showed good quality water. We used the Trent Biotic Index at 14 different sampling points to analyse the presence and abundance of aquatic macroinvertebrates. Stonefly and Mayfly larvae are highly sensitive to pollution levels. We found good numbers.

Perhaps surprisingly, there are noticeable differences between the aquatic families in the two streams. Three species of Stoneflies, some abundant, were found on the main stream. Only one rare species was found on the Hancocks Lane stream. A less noticeable difference was with Mayflies, but more species and more abundance. Some other differences were detected as discussed below. We were puzzled, pH and phosphate levels seemed to be identical. We believe it is because the Hancocks Lane stream always has a good flow of water, being fed from British Camp reservoir and the pools at Little Malvern. The main stream can almost run dry in the summer.

Phosphate levels in both streams increased noticeably as the stream progressed downstream. Note that measurements are mg/l. Upstream of the SSSI (location 9c) it was 0.06. Downstream, at 7 and 8, we had an average of 0.12 while where the stream reaches the Severn the average is around 0.25. One possible cause of this doubling in a short period is the number of cattle. An increase in phosphate causes eutrophication, an excessive growth of algae and aquatic plants. Eventually, this causes a decrease in oxygen levels. We examined many of the stones on the stream bed in the SSSI. They were coated with a biofilm exhibiting obvious green filamentous algae. This is probably linked to the high phosphate levels and could also indicate that levels of nitrate are also high.

Pictures and a little about Stoneflies

Some pictures of the Key Indicator Species that we found are shown on the next three pages. This is followed by a final page of some other interesting finds. The inside back cover picture shows the stream study group in action.

Stoneflies have an interesting natural history. The adults cannot fly very far, tending to sit on stones on the banks. The male then attracts the female using drumming signals, rhythmic tapping sounds on the rocks or other vegetation. Each species produces unique patterns of sound. Stoneflies are one of the oldest winged insects, dating back over 300 million years.



Small Dull Brown Stonefly - Nemoura cinerea



Common Yellow Sally - Isoperla grammatica



a needle stonefly - Leuctra sp.



Large Dark Olive mayfly Baetis rhodania



a flatheaded mayfly Rhithrogena sp.



a prong-gilled mayfly Habrophlebia fusca



Dark-winged Caddisfly Agapetus fuscipes



a netspinning caddisfly Hydropsyche sp.



Two-spotted Water-slater - Asellus aquaticus



Freshwater Shrimp Gammarus pulexfossarum agg



Tubifex worm
Tubifex tubifex



Bloodworm - Chironomus sp.



a flatworm - Polycelis felina



River Limpet - Ancylus fluviatilis



Water mites - Hydracarina



Blackfly - Simulium occupied puparium



Female Cyclops
a Copepod with twin egg sacks



Blackfly - Simulium - larvae



a leech - Erpobdella octoculata

Butterflies

Between March and November, 2024, we recorded the butterflies we saw on the Common. Our fixed route around the study area (see map on inside front cover) took about 2 hours. The total number of species for the year was 20 and the total number of butterflies recorded was 425.

April May June
3 9 23 1
1
2
1
3
1
1

Our first sighting of the year was a Brimstone, closely followed by a Comma and a Peacock. Then, for several weeks, there were no butterflies, as the weather was often cold and wet. Butterfly Conservation and other experts have commented that the wet spring of 2024 has had a severe effect on the butterfly populations. The number of species increased with the warmer weather in April and May, adding Green-veined White, Large White, Orange Tip and Speckled Wood to our list. In May we saw our only Holly Blue for the year and we continued to see Orange Tips at the beginning of this month. A single Common Blue was seen in June, but there were many in late July and August. June also brought Large Skippers and more common meadow butterflies, such as Marbled White, Meadow Brown and Ringlet. In June, too, we saw our sole record of a Red Admiral.

July was our best month, with a total of 13 species and a count of 167 individual butterflies, many being Gatekeeper (73) and Meadow Brown (30). We were delighted to see 2 Green Hairstreaks, a Brimstone, our first Small Copper and 2 Small Skippers during this month. Probably the most pleasing finds were the Green Hairstreaks seen in July and August – August is considered to be late in the year for the Green Hairstreak by Butterfly Conservation. Numbers of Gatekeepers remained high in August and it was good to see Common Blues and Meadow Browns regularly. The Blues seemed to particularly benefit from the short grassland just north of Goat Willow bridge. From July to September we saw Whites, Small and Large.

September saw a change in populations, with only 2 Gatekeepers and 2 Meadow Browns, but we did see a Small Heath, more Small Coppers and 2 Commas that month. The last of the Whites and Speckled Woods were seen in mid-September. It was quiet again until, at the end of November, there was a lone Peacock. Throughout the period we recorded no Small Tortoiseshells at all. This was once one of our commonest butterflies, but there has been an 82% decline since 1976.

It was interesting to compare these results with those of our previous study at Woodford's Meadow, as there are different food plants in each location. Marbled White lay eggs on Yorkshire Fog and Red Fescue amongst other grasses; Common Blue on Bird's-foot-trefoil; Green Hairstreak on Gorse, Bird's-foot-trefoil, Bramble and Dyer's Greenweed; Skippers on Yorkshire Fog (Small) and False Brome (both Small and Large). Gatekeeper nectar on Bramble and Fleabane; Small Coppers on Sorrels. It was particularly notable how many more Marbled Whites were seen on the Common, where the appropriate grasses are growing, than in Woodford's Meadow.



Marbled White 3 July 2024



Green Hairstreak 30 July 2024

Birds

Castlemorton Common is, without doubt, an excellent venue for a morning's birdwatching, best in spring and autumn. Look at the "What to see each month" for help on what you are likely to find. For ideas on where to go, start at the Goat Willow tree (no. 3 on the inside front cover map) and follow the stream, going either north or south. Optionally, then cross the stream and return. Going north will follow the study area and is an easier walk. Good boots are suggested if you go south. It may get muddy, but you may well see more.

Ask a keen Worcestershire birdwatcher for the highlights on the Common and they may well mention two species, Grasshopper Warbler and Jack Snipe. For many years both have been seen on the Common in small numbers. Grasshopper Warblers breed each year in the southern marshy area of the SSSI. Not easy to see, it is best to listen for the high-pitched, insect-like trill. This is often described as an angler's fishing line being reeled in. The best time is April or May, early morning or dusk. A good spot is the gate at Hancocks Lane, by the sheep dip pool. Jack Snipe are winter visitors, see the monthly notes for February (page 21) for details.

Great Grey Shrike used to be a common winter visitor to the Common, in single numbers, and a delight for local bird watchers. But, there have been no records since 1995 (noting an absence of local records between 1996 and 2002). Around 6 used to winter in the Forest of Dean 25 years ago, numbers slowly dropped and only one has been seen in the last few years. There appears to be no problem with the numbers of birds, instead this is likely to be a consequence of global warming. The proposed explanation behind this decline is called "short-stopping". With warmer winters the birds do not have to migrate so far south and west in the autumn.

Peter Holmes has been bird ringing in the southern part of the Castlemorton Common SSSI for 30 years. He visits the same sites twelve times a year, between May and August. The ringing scheme is known as "Constant Effort Sites" (CES) and started in the UK in 1983, building on the practices followed by a few ringing groups in the mid-1960s. It is important to follow the same methods each time, and is similar to bird and butterfly transects. There are 120 CES sites in Britain. As well as Castlemorton Common, Malvern Sewerage Treatment works is also a CES site.

He most kindly has allowed us to use his data, which is included in the two tables below. Management of the site has altered noticeably over the 30 years and this will have an effect on the data. However, Peter has summarised some long term trends and these are:

- 1. Willow Warbler. This was the commonest warbler, indeed the commonest species, in the adult total of 1994, but by 2023 was down to just two individuals. The juvenile totals are similarly now very low. Comparison with the breeding bird survey data shows how this compares with relatively stable numbers overall in our area, but almost all of these are now on the hills not the lower commons.
- 2. Chiffchaff. There is not a marked increasing trend of breeding Chiffchaffs to match the Willow Warbler decline. Unlike Willow Warblers, Chiffchaffs are double brooded, which means they are somewhat more insulated against periods of unseasonably cold or wet weather, and in good years can be very productive with numbers of young getting to three figures.
- 3. Blackcap. There is no doubt that Blackcaps are a species bucking the national trend of overall decline; in 2022 Blackcap was the species with the second highest national ringing total, only beaten by Blue Tit, but in 1994 it was only the 14th most ringed species! On the Common the somewhat woodier habitat may also favour Blackcaps.
- 4. Garden Warbler. The woodier conditions on the Common may conversely not be as good for Garden Warblers, which have declined in the CES totals. The local Breeding Bird Survey also may suggest a small decline in Garden Warbler numbers.
- 5. Robin. A slightly increasing trend in numbers of Robin adults and juveniles may also be habitat related.
- 6. Bullfinch. Numbers of adults do seem to have reduced over recent years, although there is less obviously a trend in juvenile numbers. Bullfinches suffer badly from 'scaly leg disease', which can be caused by either or both of a species of mite and a virus. This develops into a disabling condition, which must reduce survival; Peter's personal observation is that the overwhelming majority of infected birds are in their first year, suggesting that the disease is picked up in the nest. This may play a part in the trend of decline observed on the Common, but Bullfinches are declining nationally so there may be some other factors in play.

CASTLEMORTON COMMON CES 1994 – 2008

Results from 12 standard visits each year made between May and August

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2023	2004	2005	2006	2007	2008
Adults															
Sparrowhawk															
Woodpigeon	2							1							
Long-eared Owl										1					
G.S. Woodpecker			1					1						1	
Green Woodpecker		1	2				1	1			1				1
Swallow															
Wren	1	9	4	3	4	7	8	8	6	6	3	4	4	4	2
Dunnock	4	5	4	6	9	5	7	5	6	5	3	5	4	9	6
Robin	3	2	6	4	2	4	3	5	5	1	4	6	7	5	2
Redstart															
Stonechat															
Blackbird	8	1	7	8	13	8	6	11	4	9	5	8	8	7	6
Song Thrush	4	3	5	4	2		5	7	4	2	5	3	2	4	2
Cetti's Warbler															
Redwing												1			
Grasshopper Warbler	4		2		1			1			1	1	1		
Sedge Warbler			1			1									
Lesser Whitethroat	3	7	4	2	2	3	4	6	7		3	5	5	2	3
Whitethroat	14	21	20	14	5	11	10	15	8	8	15	13	12	9	12
Garden Warbler	2	3	5	3	3	5	5	5	3	1	4	3	8	5	5
Blackcap	4	1		6	6	7	2	1	6	1	4	7	9	7	8
Chiffchaff	14	17	28	18	29	14	16	13	11	18	16	7	7	13	17
Willow Warbler	29	21	21	14	11	21	12	17	14	16	24	24	16	13	11
Goldcrest															
Spotted Flycatcher								1							
Long-tailed Tit	1	12	9	12	3	5	6	2	5	5	2	5	4	10	6
Blue Tit	4	1	1	5	2	2	2	1	2	6	3	4	7	6	5
Great Tit		3	4	5		1	3	1		2	3	1	4	8	2
Treecreeper			1												
Jay	1							2			2				
Magpie			1									1			
Chaffinch		5	5	2		1	2	2							
Greenfinch		1					1		3	1	5	2		1	
Goldfinch		1					1								
Linnet	3														
Bullfinch	11	18	11	6	8	8	5	8	4	3	8	8	6	5	2
Reed Bunting												1			
Waxbill															
TOTAL	112	132	142	112	100	103	99	114	88	85	111	109	104	109	90

CASTLEMORTON COMMON CES 2009 - 2023

Results from 12 standard visits each year made between May and August

Year	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Adults															
Sparrowhawk												1			
Woodpigeon			1												
Long-eared Owl															
G.S. Woodpecker				1			1		1		1		1	1	1
Green Woodpecker															
Swallow						1	1		3						1
Wren	4	7	4	1	7	5	7	8	3	6	6	2	3	3	3
Dunnock	8	6	2	7	4	4	7	5	1	7	4	4	3	7	7
Robin	4	6	6	1	5	3	5	7	4	4	4	5	4	2	7
Redstart					1					1					
Stonechat	2			1											
Blackbird	5	9	6	3	6	5	9	2	8	9	8	8	7	6	5
Song Thrush	4	3	3	3	1		4	7		4	5	2	2	2	2
Cetti's Warbler															
Redwing															
Grasshopper Warbler										1			2		
Sedge Warbler															
Lesser Whitethroat	8	2	8	4	7	2	3	10	6	4	6	3	6	3	4
Whitethroat	13	8	15	8	2	1	3	7	5	9	7	7	19	15	6
Garden Warbler	2		1	2	5	3	1	5	4	4	4	5		3	2
Blackcap	13	18	17	12	14	10	13	6	9	9	3	18	6	16	7
Chiffchaf	23	15	16	23	18	15	22	21	17	24	17	16	22	14	10
Willow Warbler	2	4	4	2	3		4	9	10	12	10	10	9	19	16
Goldcrest							2								
Spotted Flycatcher		1													
Long-tailed Tit	5	4	10	3	6	2	4	2	8	1	7	5	14	7	2
Blue Tit	5	6	3	4	5	5	3	4		2	3	7	9	6	6
Great Tit	3	2	6	1	6	3	1	3	2	1	2	5	6	5	3
Treecreeper											1				
Jay			1								2				
Magpie															
Chaffinch	1									1					
Greenfinch	2			1	5									1	1
Goldfinch	1		6	8	5			5		1					
Linnet											1				
Bullfinch	6	3	6	7	6	8	7	12	5	8	13	7	8	7	6
Reed Bunting				- 1											
Waxbill													1		
TOTAL	111	94	115	92	106	67	97	113	86	108	104	105	122	117	89

CASTLEMORTON COMMON CES 1994 – 2008

Results from 12 standard visits each year made between May and August

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Juveniles															
Tawny Owl															
Woodpigeon															
Kingfisher									1						
G.S. Woodpecker				1	1			1	2	1					1
Green Woodpecker		1		2					1	2	2				1
Swallow															
Tree Pipit							1								
Wren	8	12	8	16	12	10	13	10	19	11	6	10	9	13	12
Dunnock	1	4	7	7	9	4	3	13	9	4	11	8	3	4	12
Robin	5	12	7	11	10	15	12	14	16	11	12	20	17	24	14
Redstart							2	1				1		1	2
Stonechat															1
Blackbird	1	5	6	2	4	4	7	11	8	3	4	13	12	14	8
Song Thrush	1	1	1	1	1		4	5	1	1	2	1	1	2	2
Grasshopper Warbler			1					-			3				
Reed Warbler															
Sedge Warbler															
Lesser Whitethroat	2	8	3	2	3	2	3	5	10	3	3	4	6	5	5
Whitethroat	13	16	9	15	4	20	15	12	13	11	36	9	30	2	9
Garden Warbler	4	2	2	2	- 1		1	3	1	3	2	3	3	2	4
Blackcap	8	2	4	8	6	6	11	12	7	12	10	20	9	12	21
Chiffchaff	24	25	32	66	63	29	39	37	100	26	45	25	40	37	72
Willow Warbler	12	36	7	18	17	13	21	11	17	20	19	24	15	19	27
Goldcrest															
Spotted Flycatcher	1	1							1						
Long-tailed Tit	13	13	7	12	11	4	9	3	8	1	4	11	8	34	10
Marsh Tit	2	2													
Willow Tit	_		1												
Coal Tit		2													
Blue Tit	7	8	10	17	9	5	10	13	15	5	17	9	17	8	21
Great Tit	3	16	4	10	18	5	17	12	11	2	9	9	38	17	14
Nuthatch										_			1	- ''	
Treecreeper				2	1				1		1	1	- 1	1	
Jay											- 1	1			
Magpie												-			
Jackdaw															1
Chaffinch		3		2		1		2		1					
Greenfinch		0		-			2	1	1	1			1	1	
Siskin				1											
Goldfinch							2								
Linnet															
Bullfinch	2	5	6	16	4	4	5	3	11	10	10	11	4	12	5
Reed Bunting		3	U	10	1	-4	3	3	- 11	10	10	- 11	1	12	3
TOTAL	107	174	115	211	174	122	177	169	253	128	196	180	215	208	242

CASTLEMORTON COMMON CES 2009 - 2023

Results from 12 standard visits each

Year	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Juveniles															
Tawny Ow						1	1								
Woodpigeor		1													
Kingfishe															
G.S. Woodpecke	1		2											2	
Green Woodpecke									1					1	
Swallov									1						
Tree Pipi															
Wren	8	15	12	11	13	6	8	15	12	14	8	13	4	7	14
Dunnock	8	7	6	3	7	9	7	4	7	6	6	6	4	7	10
Robin	21	14	26	11	30	11	13	12	14	21	11	18	12	12	17
Redstar	3												1	1	3
Stonecha															
Blackbird	5	4	7	3	9		5	7	7	16	10	13	9	14	10
Song Thrush	4	2	8	1	4	1	2	3	2	1	1	4	4	2	1
Grasshopper Warble	1			1	1								1		
Reed Warble						2		1		1					1
Sedge Warble		1													
Lesser Whitethroa	4		12	3	4	4		5	1	7	6		2	18	3
Whitethroa	24	4	11	5	5		6	2		9	9	5	22	31	8
Garden Warble	9		4		1	3				3	3			4	3
Blackcar	20	12	11	16	25	5	5	2	14	24	16	6	30	34	27
Chiffchaf	59	22	48	41	155	35	52	35	41	64	79	25	62	120	63
Willow Warble	3	1	5		1	3		8	4	19	15	5	13	28	12
Goldcres								2	2						
Spotted Flycatche															
Long-tailed Ti	4		10	3	12	8	19	7	12	7	16	13	2	20	12
Marsh Tit					1							2			
Willow Tit															
Coal Tit															
Blue Tit	13	2	15	9	12	3	8	5	3	17	9	10	21	54	26
Great Ti	2	4	12	7	8	7	7	3	1	5	9	9	14	24	8
Nuthatch	_			•			-	-		-	-		1		-
Treecreeper	2	2			2		1		1		1		1	1	1
Jay	_						-						•	-	
Magpie	2							1					1		
Jackdaw	-												•		
Chaffinch					2								1		
Greenfinch	1				1				1				-		
Siskir	- '				- 1										
Goldfinch	6	1	5	7	9					1			2		
Linne	0	- '	3	- 1	1					- '					
Bullfinch	8	14	4	4	9	9	2	10	10	11	15	18	28	4	16
Reed Bunting	0	14	4	4	Э	9	2	10	10	11	10	10	20	4	10
TOTAL	208	106	198	125	312	107	136	122	134	226	214	147	235	384	235

Fungi, waxcaps and CHEGD

Castlemorton Common SSSI seems to be particularly good for fungi, especially the study area. We photographed and identified 105 different species, two areas being particularly productive. Firstly, an area of woodland which we christened Birch Grove at grid ref SO 79136 39599. Here, there is a large mature oak with a grass surround, then Silver Birches. We found a good number of new fungi every time we visited it (in the right season). Secondly, the anthill meadow was good for waxcaps and a varied amount of other grassland fungi. The SSSI has never been ploughed or fertilised (as far as we know) and provides an ideal habitat.

In a similar manner to the Trent Biotic Index (TBI) to assess the water quality of streams, one can use the number of certain fungi to assess the conservation value of grassland. Called CHEGD it used the following groups of fungi.

С	Clavarioids	spindles, club and coral
Н	Hygrocybe	waxcaps
E	Entoloma	pinkgills
G	Geoglossum	earthtongues
D	Dermoloma	crazed caps

The number of the various species are counted during a number of visits and like the TBI it gives the conservation value. We found 22 species which are listed below, by the various groups.

(H) Waxcaps	
Snowy Waxcap	Cuphophyllus virgineus
Golden Waxcap	Hygrocybe chlorophana
Blackening Waxcap	Hygrocybe conica
Meadow Waxcap	Hygrocybe pratensis
Scarlet Waxcap	Hygrocybe coccinea
Goblet Waxcap	Hygrocybe cantharellus
Parrot Waxcap	Hygrocybe psittacina
Orange Waxcap	Hygrocybe aurantiosplendens
Butter Waxcap	Hygrocybe ceracea
Spangle Waxcap	Hygrocybe insipida
Slimy Waxcap	Gliophorus irrigatus
Cedarwood Waxcap	Cuphophyllus russocoriaceus

(C) Clubs etc.	
Meadow Coral	Clavulinopsis corniculata
Golden Spindles	Clavulinopsis fusiformis
Apricot Club	Clavulinopsis luteoalba
Beige Coral	Clavulinopsis umbrinella
Crested Coral	Clavulina coralloides
White Spindles	Clavaria fragilis
(E) Pinkgills	
Lilac Pinkgill	Entoloma porphyrophaeum
Indigo Pinkgill	Entoloma chalybeum
(G) Earthtoungues	
Hairy Earthtongue	Trichoglossum hirsutum
Green Earthtongue	Microglossum viride

Different countries have developed their own assessment of what the numbers mean and the UK assessment has altered over time. So, perhaps the numbers should be taken with a pinch of salt. However, using any scheme our 22 species indicates that the SSSI is of high conservation value. Using classifications in the 2004 report by Natural England (ENRR555) the SSSI comes out as being of National Importance.

Finding waxcaps on a dreary autumn day in wet grassland is guaranteed to enhance any walk. Their colours of red, white and yellow produce a beautiful contrast to the green grass. The original Latin name of the genus is https://www.hygrocybe, meaning watery head. The cap and stem of the fungi are often slimy, or at least greasy, the gills normally thick and waxy. All of this makes it moderately easy to identify a fungus as a waxcap. Some species have had their genus renamed based on recent DNA analysis.

The grasslands around the Malvern Hills are particularly rich in waxcaps. 41 species have been recorded; there are only 60 species to be seen in Europe and around 150 worldwide. Fungi play a vital role in the recycling of organic remains, and waxcaps have long been known to feed on the dead roots of various grasses. Also, many fungi have a symbiotic relationship with plants. The fungal roots called mycorrhiza attach to the plant roots and provide water and minerals to the plant; in return the fungi receive sugars for energy through the plant's process of photosynthesis. It is now thought that waxcaps have developed a symbiotic relationship with mosses. Waxcaps are to be found in the mossy areas of woodland and it may be that they have evolved into their current grassland environment from these mossy woodland areas.

Pictures of some of the more unusual waxcaps follow, preceded by a brief description of them:

Species: (key identification features are underlined)

Cedarwood Waxcap (*Cuphophyllus russocoriaceus*)

This waxcap has a <u>distinct smell of cedarwood</u>. We found that by rubbing one's hand on the cap, the smell would remain for at least half an hour. It is slightly <u>smaller than the very common Snowy Waxcap</u> and tends to appear in small groups. The dry cap is pale beige with a slightly darker centre. The creamy white gills run down the stem (decurrent). We found a number of these in the short turf to the east side of the Goat Willow Tree.

Spangle Waxcap (*Hygrocybe insipida*)

The greasy cap is red-orange with a paler margin, with <u>darker striations</u> radiating from the centre. The gills are orange-yellow with a paler edge. They are mostly down the stem (decurrent). The stem is pale yellow, <u>normally distinctively red where it meets the gills</u>. This species was moderately common in 2024 in the anthill meadow.

Slimy Waxcap (Gliophorus irrigatus)

This waxcap was <u>extremely slimy all over</u>. It stuck to our hands. The cap is grey-brown when young, lighter at the margins, fading with age. There is a darker brown raised area in the centre (an umbo). The gills are whitish grey with a pale margin. The stem is shiny mid-grey with a <u>"worm-like" appearance</u>. We only found a single example.

Butter Waxcap (*Hygrocybe ceracea*)

This rather small waxcap often appears in groups. The <u>greasy cap is bright yellow</u>, often with a <u>translucent centre</u> and has translucent striations. It has <u>nodules</u>, but a hand lens is required to see them. The gills are rather crowded for a waxcap, normally <u>paler than the cap</u>. The stem is yellow. We found a small number (when we recognised them, they are similar to Golden Waxcap which are more slimy).

Goblet Waxcap (Hygrocybe cantharellus)

A <u>dry red-orange</u> cap fading to dull orange, with a pale edge and <u>fine scales</u>. Over time the cap becomes <u>funnel shaped</u>. The gills are whitish to pale-yellow, noticeably running down the stem (<u>deeply concurrent</u>). The stem is red-orange, darker where it meets the gills. We only found one of these.

Blackening Waxcap (Hygrocybe conica).

A common medium-sized waxcap. The slightly greasy <u>conical cap</u> started orange or red, soon <u>blackening</u> from the centre outwards. The cap may flatten out. The gills are initially pale yellow, then orange, then black. They are <u>fairly crowded</u> for a waxcap. The stem has a pale base with a scarlet tinge near the tip, becoming black. These seemed to be common around the few trees and muddy area west of Goat Willow Tree (SO 78816 39501).



Cedarwood Waxcap



Spangle Waxcap



Slimy Waxcap



Butter Waxcap



Goblet Waxcap



Blackening Waxcap

Ephemeral Ponds

Ephemeral or seasonal ponds are shallow water bodies that dry up over the summer months, or in periods of drought. This makes them fish free, resulting in an ideal breeding ground for amphibians and other aquatic life. They have a unique flora with a tolerance to drying out.

The geology of the Common, with its low permeability Triassic mudstone, is well suited for holding water. Some ponds seem to be almost permanent, others depend upon the water table level. The Hancocks Lane pond (SO 78649 39459) is the most well known, even appearing on some maps. The pond just west of the parking area is probably the largest. There is also one in the marshy zone of the study area, quite close to the main road, at SO 79159 39478. These three ponds always seem to exist for most of the year, while others depend upon the local water table. Common Frogs and Smooth Newts can be seen in the largest pond, Lesser Diving Beetles, Common Pond Skaters and Whirligig Beetles in the smaller ones. Even Semaphore Flies can appear in the smallest puddle, the males displaying their white wings to attract females.

Perhaps the most famous ephemeral plant of the Common is Lesser Marshwort. It was a lot more widespread in Worcestershire in the time of Amphlett and Rea (1909). By 1991 in "The Nature Of Worcestershire", Lesser Marshwort occurred in one small pool on Castlemorton Common. The plant is insignificant in appearance, but of great rarity. We found it in two locations, one by the stream in the study area, and in Hancocks Lane pool. "The Nature of the Malverns" (2018) suggests it was then only present at the Hancocks Lane pool. Maskew's "The Flora of Worcestershire" (2014) says it is a rare and declining Worcestershire plant, now virtually confined to Castlemorton, sometimes abundant, on ephemeral ponds and muddy streams. The plant is an umbellifer, tiny and easily overlooked. The flowers, which are held above water-level (when there is any water) are tiny, white with 5 red anthers and about 2mm across, with 5 petals.

Another speciality of the ephemeral ponds is Water-purslane, which is not as rare as Lesser Marshwort, but is still unusual in Worcestershire. It is a creeping prostrate plant, petals hardly visible. We found it in the same two ponds where we found the Lesser Marshwort. Other unusual plants we found in the same habitat were Marsh Speedwell, Marsh Yellow-cress and Sand Spurrey.



Hancocks Lane pond March 2024



Lesser Marshwort



Marsh Yellow-cress GD



Water-purslane GD



Marsh Speedwell



Sand Spurrey

Galls

A range of galls was recorded during the surveys. This account relates some of the typical and more interesting of the 21 species recorded. No doubt others existed, but site visits were generally concentrated on other wildlife. On reflection we seemed to find a low number of galls, but this, no doubt, reflects the general lack of insects both locally and nationally. The majority of galls are induced by insects especially the minute 'gall wasps'. A selection is described below.

Galls are easy to record as they are sedentary, and, whatever the season, there is always something to see. Galls are distinctive outgrowths of trees, shrubs and plants; often strangely shaped and coloured. Over a thousand different organisms have been found to cause galls and many of these organisms are small, although the gall they cause may be large. Galls have very volatile populations year to year. Also, they can be common on one plant and non-existent on an adjacent specimen of the same plant. Oaks are the most ecologically rich plant species in the landscape and this is equally true of the number of gall species they support.

Plant galls are induced by a range of organisms and, consequently, the 'host' plant produces abnormal growth resulting from changes to gene expression. The 'causer' lives out part of its life cycle within the gall without serious detriment to the host, although the gall may sometimes appear to be large and disfiguring to the plant. Galls provide a home and food for the organism.

The causative organisms can be viruses, bacteria, fungi (including smuts and rusts), mites (small arachnids), flies including midges, and solitary gall wasps. Most of these organisms have a life cycle that is inextricably linked to the plant. The gall they cause is usually unique and distinct to a given 'host' plant species, and so the 'causer' can be identified with certainty from the gall produced.

However, Gall Wasps often have alternating generations during the year, which create different galls and sometimes even use different 'host' plant species. The generations alternate between a normal male and female generation and a female only 'agamic' generation reproducing by parthenogenesis.

Oak trees are noted for the number of gall species they support and this was reflected in the surveys at Castlemorton Common. Most galls were found on leaves, usually the underside, and were often also seen with leaf mines caused by micro-moths and flies.

Spangle galls (caused by various gall wasps) were a typical feature of the underside of oak leaves and particularly noticeable from July onwards as they developed to full size. They caused pale blotches on the upper-side of the leaf revealing their presence on the underside. The Common Spangle Gall (*Neuroterus quercusbaccarum*) lived up to its name, although fewer in number than would be expected in a 'normal' year.

The Silk Button Gall (*Neuroterus numismalis*) caused by another gall wasp was also scarcer, occasional and widely scattered.

The *Andricus kollari* wasp creates the Marble Gall on native oaks; a modified bud making a perfect sphere 15 to 25 mm in diameter. From this emerges the female-only generation wasps which lay eggs in buds of the exotic imported Turkey Oaks (*Quercus cerris*), now widely scattered locally. This gall was seen occasionally.

Historically this gall was imported as the source of 'Iron Gall Ink' which was used on vellum and paper as a valuable and indelible ink for important documents, going back to the Magna Carta in 1215. It is still made commercially and used by Registrars of births, deaths, and marriages.

Strangely the 'Oak Apple' gall, perhaps the most well known of all galls, was not recorded during the surveys. Normally, this is caused by the Gall Wasp *Biorhiza pallida*. However, the alternating winter generation occurs as small galls on the roots of the oak tree, from which flightless females emerge and make their way to the trunk. The females then climb the tree until a dormant bud is found where the egg is laid to cause an 'Oak Apple' to form in spring. The winter of 2023/24 was very wet and the ephemeral ponds on the common merged forming a large shallow lake over a large part of the study area. Perhaps this lake drowned all of the female wasps for the year.

Many other galls on the oaks were found, but the Knopper Gall must be mentioned. It is caused by the asexual generation of the gall wasp *Andricus quercuscalicis* which forms distorted acorns, initially green and sticky, but finally turning brown. The sexual generation lives in buds of the Turkey Oak. It arrived as an immigrant wasp in the 1960s from the continent and has spread rapidly since.

Only a few specimens of the native Field Maple were seen during the surveys and this tree normally supports a variety of galls. However, strangely, once again none was recorded.

There was a Goat Willow (*Salix caprea*) specimen adjacent to the stone bridge where the minor road crossing the common bridged the small stream (forming the southern boundary of the survey area). This had many galls on the twigs and branches of the typical gnarly brown woody growth resulting from infection by a bacterium, *Agrobacterium tumefaciens*. These varied in size from walnut proportions to a large rough tangerine. Other Goat Willows along the stream appeared to be unaffected.

Both Wych Elm (*Ulmus glabra*) and English Elm (*Ulmus procera*) occurred in the survey area. English Elms were surviving the ravages of 'Dutch Elm Disease', in the hedgerow forming the parish boundary between Castlemorton and Welland. They were adjacent to the large ephemeral pond and rough parking area. There were lots of galls on the leaves forming a myriad of small raised pimples caused by the mite *Aceria campestricola*, which lives on the underside of the leaf in small hairy pouches. Strangely this mite does not affect Wych Elm, so its leaves are always free from these pimples.

Both common native roses, the Dog Rose and Field Rose were present and no doubt some plants were hybrids between the two species. However, in the open areas of the Common we found vigorous freestanding specimens of what appeared to be Dog Rose (*Rosa canina*), and they were well supplied with galls.

The commonest were the large, apparently fluffy reddish galls which are highly visible in summer, becoming 7 to 8cm across on the upper extremities of the rose shoots. They are called either Robin's Pincushion or Bedeguar gall. The latter is an old word of supposedly Persian origin and the former does NOT refer to a Robin Redbreast but to Robin Goodfellow. The pincushion refers to the spiky appearance of the gall, and somehow this was linked to Robin Goodfellow, a folkloric character synonymous with Shakespeare's Puck from 'A Midsummer Night's Dream'.

This gall has a hard hidden wooden centre with multiple chambers where the larvae of the gall wasp *Diplolepis rosae* live. The galls are brown and scruffy during winter. Occasionally, the red fluffy gall is much smaller and appears amongst the leaflets of the pinnate leaves. Although locally it is rarely seen, many examples were surprisingly found during this study.

Also on the leaves of these roses were Sputnik galls caused by another related wasp *Diplolepis nervosa*. This gall is on either side of a leaflet which is often pierced by one of the spikes which give it the Sputnik name. The gall is roughly the size of a small round pea and in summer is bright red. Leaves on the same rose and also on nearby roses had examples of the Smooth Pea gall which is usually on the underside of the leaflet and the same size and colour but lacking the spikes. Both species of gall are most likely to be caused by the same wasp species.

A few galls were also found on herbaceous plants.

On Creeping Thistles (*Cirsium arvense*) were occasional examples of the gall caused by the Picture-winged Fly (*Urophora cardui*). These appear as rugby ball shaped swellings in the stem, usually just below the terminal leaf rosette. The swelling may be up to 10cm in length. They were scattered around the study area.

An interesting gall was recorded for the first time by the group; although not rare it is described as local. This is the midge gall caused by *Geocrypta galii* found on Bedstraws, especially Lady's Bedstraw as was this specimen. The gall is pinkish-red turning brown later. It is probably little recorded as it is at ankle height buried in bedstraw mats.

Surprisingly, the galls caused by the midge *Dasineura urticae* which occur on the leaves of Stinging (Common) Nettle were very occasional. They are normally widespread and common like the host plant, and the insect lays the egg towards the base of the leaves, where pouch like growths develop and several galls often merge together. The galls start greenish and may vary from cream to pink to red and are normally seen in the uppermost leaves of the nettle. There are probably several generations in a year.

A few galls may develop on ferns, normally on the Male-fern *Dryopteris felix-mas*. The wooded edges of the stream had many examples of this fern and some had the gall caused by the fly *Chirosia betuleti*, and known as the Mop-head Gall. Supposedly common and widespread, this gall is probably under-recorded as it grows on a fern in gloomy places. The small fly lays its eggs in the top of the frond and the pinnae (side leaflets) become distorted, curving inwards forming the shape that gives its name.



Single Common Spangle Gall and Silk Button Galls



Oak Marble Gall (Biorhiza pallida)



Robin's Pincushion Gall (Diplolepis rosae)



Sputnik Gall (Diplolepis nervosa)



Smooth Pea Gall (Diplolepis nervosa agg)



Thistle Gall (Urophora cardui)



Bedstraw Gall (Geocrypta galii)



Mop-head Gall (Chirosia betuleti) on Male Fern (DT)

Slender Hare's-ear



Slender Hare's-ear

This is the only species we recorded which we didn't find on Castlemorton Common, but is included for general local interest. It's a nationally scarce plant, and we found it at Hollybed Common, only a few miles from Castlemorton Common. This is its only inland site, being a coastal plant. In Amphlett and Rea's "The Botany of Worcestershire" (1909),it was mentioned in half a dozen locations (my copy has Castlemorton Common added in pencil!). Over the years most have gone. It has not been seen Castlemorton Common since 2009. disappearing because the roadside bank was washed away in floods. But, it's a small inconspicuous plant, that you can stand next to and not see it. So, it may still be at Castlemorton Common, waiting

to be found. There is a good colony on Hollybush Common now, the Malvern Hills Trust controls the grazing to encourage the spread.

The question of why this maritime plant occurs so far inland is a good one. There is a useful section in the "The Nature of the Malverns" book (2018). That suggests that before the building of the lock gates at Gloucester Docks the Severn Bore extended its tidal influence at least as far as Longdon Marsh. This is only a few miles from Hollybed and Castlemorton Commons. There is little doubt that the saltwater reached the Malvern commons, and the wind extended the influence.

The same habitat restriction can be seen with Parsley Water-dropwort. We found plants a few times on Castlemorton Common. It tends to occur in the uppermost parts of saltmarshes, brackish dykes and the lower reaches of tidal rivers. It is rarely found inland. So, it appears that at some time in the past the Malvern commons were affected by salt water, creating a habitat for some essentially maritime plants.

Bibliography

The Nature of Worcestershire
G. H. Green and Brett Westwood. 1991 (59 – 60)

The Nature of the Malverns Ian Duncan, Peter Garner, Richard Comont and Peter Creed. 2018

The Flora of Worcestershire. Roger Maskew. 2014

The Botany of Worcestershire. Amphlett and Rea. 1909

BSBI Plant Atlas 2020 - online - https://plantatlas2020.org

A History of Malvern, Brian S. Smith. 1964

The Forest and Chase of Malvern, Pamela Hurle. 2007

Castlemorton Common (a handbook for locals and visitors), Med Snookes

The History of Castlemorton's Commons, Coombe Green Common and Marsh Green Common, David Smallwood. 2022

Castlemorton Commons, A Common Past to A Common Future Castlemorton Common Coordinating Committee.

British Geology Survey maps 199 (Worcester) and 216 (Tewkesbury) plus associated BGS memoirs for these two sheets.





Emperor Moth GD



Stream Study - examining the catch

