

POLLINATING INSECT SURVEY



Above: the threatened Ruderal Bumblebee (*Bombus ruderatus*); © Steven Falk.

Site(s):

[REDACTED]

Dates of surveys: spring/summer 2024.

FAO: members of the [REDACTED].

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Species photos: specific thanks and credit to Steven Falk (<http://www.stevenfalk.co.uk/>); all Steven Falk photographs are subject to copyright.

Survey remit: to record the presence of pollinating insects, namely bees, hoverflies and butterflies, to increase awareness amongst [REDACTED] members of the diversity of wildlife on Cluster farms and the habitats that support pollinating insects; and to help inform and guide future management.

Summary: an encouraging 58 species of bee, 57 species of hoverfly and 18 species of butterfly were recorded, including two threatened species of bumblebee that are of principle importance for conservation in England. The numbers of different bee, hoverfly and butterfly recorded reflect a diversity of habitat types, including some high quality and well managed wildflower margins. Increasing the amount and connectivity of wildflower margins across the Cluster will help better conserve an abundance of different pollinating insects into the future.

KEY POINTS

- See the Selected Species Accounts below for photos of and information about some of the bees and hoverflies recorded during the survey.
- During the survey a diverse range of high-quality flower-rich habitats were observed, which are helping to accommodate the 58 species of bee and 57 species of hoverfly recorded.
- A greater abundance and a greater range of different species of bee and hoverfly were observed in wildflower margins, compared to other habitats and cropped areas.
- During the survey, wildflower margins that had been sown appeared to provide a hugely important source of pollen and nectar for bees, hoverflies and butterflies.
- Semi-natural wildflower margins, including the likes of Dandelion, Hogweed, Bramble and Fleabane appeared to be equally, if not more, valuable than sown equivalents.
- Shrubs in hedges and scrub, including Goat Willow, Blackthorn, Hawthorn and Ivy are critical in extending blossom sequence (the provision of food) from early spring to late summer.
- Infrequently cut tussocky grass-dominated margins can be as important as flower-rich margins, for example by providing essential nesting habitat for bumblebees.
- Bees and, most notably, hoverflies require supporting habitat during the different stages of their lifecycle ie larval habitat is as critical to survival as adult flower-rich habitat.
- Individual cluster members could aim to manage 1% to 3% of their farm's total area in some form of flower-rich habitat over the next five years, if not already doing so.
- The connectivity of habitats could be improved by way of minimising the distance between flower-rich habitats across the Cluster's ■■■ holdings.
- Aspirations for achieving connectivity might include no more than 200m between flower-rich areas or having some flower-rich habitats along at least one boundary of every field.



Above: an unremarkable track verge at ■■■ Farm which is not cut during the summer months; very valuable pollinator habitat, given the abundance of flowering Hogweed (a popular source of nectar for bees and hoverflies).

SELECTED SPECIES ACCOUNTS

Bees (Apoidea, Hymenoptera)

Ruderal Bumblebee (*Bombus ruderatus*)

Nine species of bumblebee were recorded during the survey. This species is a notable record, given it is classified as of principle importance for conservation in England. Although typically black and yellow striped, with a white tail, some individuals are distinctively all black, as were those recorded at [REDACTED] Farm in flower-rich margins both on the [REDACTED] floodplain and higher up on the chalk. This is a long-tongued bumblebee that feeds on clovers, knapweeds and woundworts. Queens nest underground in old vole nests.



Bare-saddled Blood Bee (*Sphecodes ephippius*)

Blood bees are cuckoo bees (cleptoparasites) that do not dig nests nor collect pollen but lay their eggs in the completed nests of other bees, typically furrow bees. Two species of blood bee were recorded; the Bare-saddled Blood Bee was recorded on both farms. Being a smaller bee with a shorter tongue, blood bees tend to feed on more open flowers; in the [REDACTED] Farm floodplain meadows, three were recorded on Hemlock Water-dropwort.



Green Furrow Bee (*Lasioglossum morio*)

One of the UK's smaller bees, with males being not much larger than an ant. 12 species of furrow bee were recorded during the survey. This bee was recorded at [REDACTED] Farm in a flower-rich margin. Furrow bees are generally ground nesters and excavate vertical tunnels into the ground, including in exposed areas of bare soil, such as on tracks and footpaths. Dandelions can be a good place to see furrow bees, the blackish rice-sized bees contrasting with the yellow flower.



Yellow-loosestrife Bee (*Macropis europaea*)

Perhaps the most notable characteristic of this bee is that females only collect pollen to provision their nests with from a single species of plant, Yellow Loosestrife, i.e. if there are no Yellow Loosestrife plants there are no bees. This species was recorded on the banks of the River [REDACTED] on [REDACTED] Farm, where Yellow Loosestrife grows between the river and the adjacent fenceline. This is one of only a few wetland bees and uses plant oils to waterproof its underground nest tunnels.

Bees (Apoidea, Hymenoptera), continued



Red-tailed Mason Bee (*Osmia bicolor*)

An extraordinary bee, in that females nest in empty snail shells; and likely benefit from living alongside glow-worms, which eat the snails and free-up the shells. Red-tailed Mason Bees have particularly strong associations with chalk grassland and one female was recorded in an area of flower-rich arable reversion grassland on [REDACTED] Farm near to [REDACTED]. Three other species of mason bee were recorded during the survey at both [REDACTED] Farm and [REDACTED].

Ashy Mining Bee (*Andrena cineraria*)

13 different species of mining bee were recorded during the survey. The Ashy Mining Bee is a common species that [REDACTED] members are more likely to be familiar with, due to the fact that they often dig their nests in short mown lawns. Adults are often on the wing in March, and so need spring flowering plants to forage from, including Sallow, Goat Willow, Blackthorn, Dandelion and Lesser Celandine. Oilseed Rape is a commercial crop Ashy Mining Bees are known to forage in; their cross pollination increasing seed quality and yield.



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Blunthorn Nomad Bee (*Nomada flavopicta*)

Although looking very much like a wasp, this is a species of bee. Like the blood bees (see above) nomad bees are cuckoo bees that do not dig nests nor collect pollen but lay their eggs in the completed nests of other bees. Eight species of nomad bees were recorded during the survey, some only at [REDACTED] Farm, some only at [REDACTED] and some on both farms. Nomad bees tend to specialise by parasitising only one or two host species. The Blunthorn Nomad Bee parasitises the above shown Clover Melitta Bee. Plenty of cuckoo bees reflect healthy populations of their hosts.

Clover Melitta Bee (*Melitta leporina*)

As its name suggests the female Clover Melitta Bee collects pollen mainly from clovers and other legumes. A male Clover Melitta Bee was recorded at [REDACTED] Farm on a mayweed flower between a cereal crop and a track (males will feed on nectar from a greater variety of flowers than legumes). One other species of melitta bee, the Red Bartisa Bee, was recorded on the semi-parastic flower Red Bartsia at [REDACTED] Farm.



Hoverflies (Syrphidae, Diptera)

Marmalade Hoverfly (*Episyrphus balteatus*)

Britain's most common hoverfly and one which is likely to be seen in most environments, including farmland. The Marmalade Hoverfly was recorded across both [REDACTED] Farm and [REDACTED] Farm, in a variety of habitats. This species is one of a relatively large group of yellow and black hoverflies whose larvae typically feed on aphids. The Marmalade Hoverfly is one of the main hoverfly migrants to cross the Channel in their billions each year. Their larvae will live in cereal crops and contribute to integrated pest management.



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Bumblebee Plumehorn (*Volucella bombylans*)

Despite its bee-like appearance, this is a species of hoverfly, which, although it has no sting, likely experiences lower levels of predation thanks to looking like a bumblebee. This species is also a fine example of the diversity within the life strategies of different hoverflies; the larvae live within bumblebee nests and eat/scavenge debris at the bottom of the nest. The Bumblebee Plumehorn hoverfly was recorded on both [REDACTED] Farm and [REDACTED] in May and July.

Truffle Blacklet (*Cheilosia soror*)

This species belongs to a pretty unremarkable looking group of black hoverflies. Whilst looking similar, the different species have different food requirements and typically feed in plants, including within the stems of thistles and ragworts. Nine different species of Blacklet were recorded during the survey including this species, which is known to feed within fungi, including truffles. The Truffle Blacklet is most associated with chalky soils; two were recorded on [REDACTED] Farm.



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Common Dronefly (*Eristalis tenax*)

Another common species of hoverfly which was recorded on both [REDACTED] Farm and [REDACTED] Farm in a range of different habitats. Their larvae rejoice in the name of rat-tailed maggots and tend to live in nutrient enriched puddles, including dirty water that has leached from slurry stores and silage clamps. Given the larvae live submerged in stagnant liquid with little oxygen, they have a long snorkel-like tail that runs up to the surface of the water, through which they breathe, hence their name.

Hoverflies (Syrphidae, Diptera), continued

Superb Ant-hill Hoverfly (*Xanthogramma pedissequum*) One of Britain's most striking hoverflies, in having almost luminous yellow stripes, contrasting with an otherwise matt black body. As with most other black and yellow species, the larvae feed on aphids. In this instance, however, the larvae live underground eating root feeding aphids in ant nests – extraordinary! One was recorded at [REDACTED] Farm in the water meadows in August.



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Common Snout (*Rhingia campestris*) This is a distinctive looking hoverfly, given its long 'nose'. The larvae of this species are known to live in cowpats and the dung of other animals – another example of the diversity in life strategies amongst pollinating insects. Four were recorded during the survey, three of which were seen at [REDACTED], which is perhaps not surprising given the presence of cattle on the farm. Steven Falk recorded its rarer cousin, the Grey-backed Snout, in [REDACTED]'s wonderful woodland after the pollinator event at the farm.

Longhorned Straightvein (*Orthonevra nobilis*) Its metallic green sheen aside, another pretty unobtrusive small hoverfly, not much more than ½cm long. This species is, however, a fine representative of a number of species recorded during the survey at [REDACTED] Farm with strong wetland associations. The larva of this species is recorded as living between the leaf sheaths of emergent plants on the edges of ponds, ditches and streams. Along with similar species, this hoverfly has experienced a decline in its UK population.



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Common Copperback (*Ferdinandea cuprea*) This species, with the brilliant bronze sheen to its abdomen and grey striped thorax, was recorded at [REDACTED] Farm in August. The Common Copperback is a woodland species those larvae have been recorded as living within sap runs on trees, likely feeding on the associated sugars and yeasts. It was one of couple of species with strong associations with woodland and trees, the other being the Batman Hoverfly (*Myathropa florea*), whose larvae live in stagnant pools of water trapped in rot holes in living veteran trees.

WHY RECORD POLLINATING INSECTS?

The value of insect pollination has been estimated to be worth £400million/year to the UK economy, by improving the yield, quality and resilience of agricultural and horticultural crops. The likes of apples and strawberries have a relatively high dependency on insect pollination. Whilst the pollination of oilseed rape and beans is mainly facilitated by the wind, research has shown that insect pollination significantly increases seed set and yield in both. It is also estimated that 80% of wildflowers rely on insect pollination. The importance of insect pollination was recognised by Government in 2014 on Defra publishing The [National Pollinator Strategy](#) for bees and pollinators in England.

At least 1,500 species of insects are known to pollinate plants in the UK, including wasps, beetles and moths. This survey focuses on two of the key groups of pollinators: bees and hoverflies. Butterflies, which contribute to pollination services to a lesser extent, were also recorded during the survey, due to their existing interest amongst members and ease of identification.

In addition to their value to farmers as pollinators, a group of hoverflies are also important contributors to integrated pest management services, due to the fact that their larvae predate aphids. In cereal crops, an individual hoverfly larva can eat up to 1,200 aphids. Collectively hoverfly larvae can contribute to integrated pest management, as collectively individual aphids can reduce the yield of massive areas of commercial crops.

Their pollination and pest management services aside, bees, hoverflies and butterflies have inherent value, in terms of being wildlife native to Britain that have evolved over millions of years and which have developed a diverse range of fascinating life strategies to survive, utilising different plants, animals and habitats. Changes in the distribution of bees and hoverflies are one of a number of measures used by Government to [assess and indicate the health of the environment and biological diversity in the UK](#).



Above: a fine example of a well established sown flower-rich margin at [redacted] farm, with an abundance of wildflowers including Black Knapweed, Bird's-foot Trefoil and Oxeye Daisy.

INTRODUCTION TO BEES & HOVERFLIES

Compared to 59 species of butterfly, there are about 270 species of bee and over 280 species of hoverfly in the UK. The size, colour and ecology of bees and hoverflies vary remarkably. Some bees and hoverflies are specialists that require a particular plant or habitat to complete their lifecycle, others are generalists, able to freely survive and thrive in a great range of environments.

Both bees and hoverflies are insects and both groups realise a complete metamorphosis by way of transforming from egg to larva to pupa to adult (like butterflies). Bees are very much more maternal in their nature, in that the female bee creates a nest for her young and provisions that nest with food for the larvae, which is a mix of pollen (protein) and nectar (carbohydrate). In contrast to the Honey Bee and most bumblebees, the majority of bee species are solitary in their nature and do not live communally; and so an individual female is responsible for creating or finding a nest and collecting stores of pollen and nectar for her larvae to feed on. The nest of a solitary bee may be vertical tunnel dug over one foot deep into ground (for example beneath your close-cut lawn) or a hole in dead wood previously excavated by a beetle larva. Once she has excavated her nest, a female bee needs to fly to and from a suitable source of pollen and nectar to provision the nest with food for her larvae to feed on.

A female hoverfly, in contrast to a bee, simply finds a suitable place for her young to survive, before laying their eggs and flying off, leaving her larvae to fend for themselves. The suitable place for their larvae to develop varies hugely between different species; home may be in a plant, a mushroom, some cow dung, in a nutrient enriched puddle, a rot hole in a tree or in the nest of social wasps or bumblebees. The larvae of a large group of hoverflies are aphid eaters (aphidophagous) and feed on aphids in crops, in the canopies of trees and even on root-feeding aphids underground. A number of aphid eating hoverflies are also migrants with many millions to billions of individuals migrating into the UK over the Channel each year.

Although a generalisation, bees tend to better utilise hotter and drier climates and situations, whereas many species of hoverfly have evolved in damp and sometimes waterlogged situations.

A commonality between bees and hoverflies is that the adults tend to visit flowers to feed on and/or collect nectar and pollen. Whilst pollinating insects are hugely important to the effective reproduction of a great many plants, so plants and their flowers are an essential source of food for bees and hoverflies. Given adults may only survive for a week or two and given different species emerge at different times of year, from early spring to late summer, bees and hoverflies are dependent upon a range of different plant species that flower at different times of year.

Due to differences in anatomy, such as tongue length, different bees and hoverflies also tend to favour different flower structures, ranging from open flowers, such as Hogweed, to the long tubular flowers, such as the individual florets of a clover flower head. Many bees will also only collect pollen to provision their nest with from a specific group of wildflower species.

SITE & SURVEY METHOD

Recording pollinating insects is a relatively involved and time consuming process, entailing repeat visits at different times of year to walk different habitats. Surveys often involve netting some individual insects, taking representative specimens home and identifying them under a microscope with reference to a book/key. Given this, the [REDACTED] pollinator survey focused on two Cluster's farms, [REDACTED] Farm ([REDACTED] Farm) and [REDACTED] Farm, with the aim of completing a more comprehensive survey on a smaller area of land and recording a wider range of species that are utilising a variety of different habitats.

On each farm a range of different flower-rich habitats were surveyed, for example flower-rich margins, nectar flower mixes and semi-natural grassland both on thin dry chalky soils and on the deeper humic soils of seasonally flooded water meadows. The different habitat types tended to support a slightly different range of plant species and flower types, which in turn often support a different range of bees and hoverflies.

Three visits were conducted to each site from May through to August, with the aim of recording a greater number of different species which have different emergence periods – some bees and hoverflies exist as adults only in the spring, some only in late summer and some species can be found as adults from spring through to autumn.

At each site ([REDACTED] Farm and [REDACTED] Farm), I walked the same route on each of the three visits, recording bees, hoverflies and butterflies in the different margins and habitats I walked through. On walking the route, some species were identified uncaptured in the field, sometimes with the aid of binoculars. Some bees and hoverflies were captured in a net after being singly observed or during the process of unsighted sweeping of the vegetation. Individuals were, where possible, identified (often with the aid of a hand lens) and released on site. Alternatively, representative specimens were taken off-site for subsequent identification.

A list was compiled of the different species recorded on both farms. No attempt was made to measure the relative abundance of individual species (as per a standard butterfly transect survey) due to the practical difficulties in doing so, given it is not possible to distinguish between and identify many species of bee and hoverfly in the field in the given time.



Above: an area of semi-natural vegetation (which has not been sown) in a field corner at [REDACTED], with Fleabane, Hemp Agrimony, Hemlock Water-dropwort and Bramble – a fantastic bit of wild pollinator habitat!

SURVEY RESULTS & COMMENT

An encouraging 58 different species of bee and 57 species of hoverfly were recorded across the two [REDACTED] farms in 2024, plus 18 species of butterfly. A full list of all those species recorded is included in Annex 1, together with a listing of their conservation status. Accepting that a list of species in itself can be pretty dry and uninspiring, the Selected Species Accounts (above) aims to provide some interesting information about representative species.

Please note that the total number of species recorded during the survey only constitutes a sample and proportion of species actually present on both farms and across the wider Cluster ie a greater number of species of bee and hoverfly will be present. As an example, seven butterfly species have been recorded at [REDACTED] Farm in the recent past that were not recorded during the three survey visits, including Large White, Small Heath, Small Copper and Common Blue. Reasons for omissions in recording generally common species relate to the number and timing of visits; the survey has to strike a balance between thoroughness and limited resources / recorder time.

The number of species recorded compares relatively favourably with other sites I have surveyed for pollinating insects over the last five years. The number of hoverflies recorded in this survey falls in the middle of the totals recorded at other sites. I have not recorded more than 58 species of bee during a farm survey in [REDACTED] in the last five years. The above written, making comparisons between sites is challenging, due to the limited number of comparable surveys.

As shown in Annex 2, more species of bee were recorded at [REDACTED] Farm (46 species) than at [REDACTED] Farm (33 species). Conversely, as shown in Annex 3, more species of hoverfly were recorded at [REDACTED] Farm (47 species), compared to [REDACTED] Farm (31 species). The reason for these differences likely relates to the fact that [REDACTED] Farm runs down to the River [REDACTED] and includes an area of seasonally flooded permanent pasture, with an associated network of wet ditches. A significant proportion of hoverflies recorded have strong associations with wetlands. In comparison, the majority of the habitats surveyed at [REDACTED] Farm were on free-draining chalky soils, often with a slight southerly aspect – and bees tend to favour drier and sunnier sites.

Accepting the above, however wet or warm a site may be, both bees and hoverflies require additional resources to accommodate their survival during different stages of their lifecycle. It was clearly evident, when undertaking the survey, that there were a greater range and a greater abundance of both bee and hoverfly species in flower-rich margins than in more standard grass dominated margins or cropped areas. These various wildflowers are an essential source of nectar and pollen for bees and hoverflies. I was very impressed by the quality of flower-rich margins at both [REDACTED] Farm and [REDACTED] Farm, with margins containing a diversity of flower species and a diversity of flower structures which, in turn, catered for a greater diversity of pollinators.

There were also clear differences between the makeup of the various flower-rich margins on both farms, with some margins being sown in the past and others being more semi-natural – and the two contained a different mix of flowers. The sown flower margins often contained the likes of Oxeye Daisy, Black Knapweed, Bird's-foot Trefoil and Black Medick. The semi-natural margins contained the likes of Dandelion, umbellifers such as Hogweed, Field Scabious, Bramble and Fleabane, many of which are commonly regarded as weeds and which are not generally included in seed mixes. Both types of margin are equally valuable. Where individual bees and hoverflies were recorded feeding on specific plants, most were recorded on the flowers of Hemlock Water-dropwort (27 records), followed by Cow Parsley (12), Hogweed (10), Field Scabious (8), mint species (8), Black Knapweed (7), Greater Knapweed (7), Bramble (5) and Creeping Thistle (4), plus various other species of plant.

The field boundaries at both [REDACTED] Farm and [REDACTED] are typically defined by hedgerows. The taller less frequently cut hedges and scrubby corners are particularly valuable at providing both an early and a later source of pollen and nectar. A couple of bees were recorded feeding on Hawthorn blossom. Second and third year hedge growth yields significantly more blossom (and berries) than first year, annually flailed, growth. Accepting these species were not in flower at the time of survey, Goat Willow, Sallow and Blackhorn are particularly important spring sources of pollen and nectar; Ivy is critical for some species in late summer and early autumn.

Combined, the sown and semi-natural margins, hedges and scrub on both farms accommodate a great range of plants which flower at different times of year, from spring through to autumn, so providing a long lasting and continuous blossom sequence to support a range of pollinating insect.

Accepting that, during the survey, I observed fewer bees and hoverflies in the more standard grass dominated margins, these margins are still hugely valuable to wildlife such as grasshoppers, various butterflies, voles, Harvest Mice, Barn Owls etc. Also, infrequently cut grass margins, with a thicker thatched base, are ideal nesting habitat for most of our bumblebee species, including those that nest in disused vole holes/nests.

It is noteworthy that the different bee and hoverfly species recorded reflect a diverse range of life strategies, which reflects a diversity of habitats (which is a general objective when managing land to conserve wildlife and habitats). The different bees ranged from those not much bigger than an ant to bumblebees about an inch long. Some bees recorded are specialists, with a couple of species only collecting pollen from one species of flower, and many are generalists, that collect pollen from a wide range of plants. It was also interesting that 12 of the 58 bee species are cuckoos (species that lay their eggs in the nests of other species); and this is a positive, in that it infers healthy populations of their host species.

The diversity in life strategies of pollinating insects is best illustrated in the different species of hoverfly recorded during this survey. The habitat requirements of hoverflies recorded during the survey include those whose larvae live in different plants, fungi, dung, wet mud/soil, decaying vegetation, rot holes in trees and wasp nests, plus many species whose larvae feed solely on aphids. About 30 aphid eating species of hoverfly were recorded during the survey, some of which will be contributing to integrated pest management measures in commercial crops.

Two species of bumblebee recorded are a priority for conservation. The Ruderal Bumblebee and the Brown-banded Carder Bee were both recorded on [REDACTED] Farm and both are listed as section 41 species or principle importance in England, under the Natural Environment & Rural Communities Act. With reference to [REDACTED] Environmental Records Centre's provisional atlas of bees, there is only one record of the Ruderal Bumblebee in [REDACTED] after 1990 – and the location of this record is the other side of [REDACTED]. This written, the species is likely under-recorded and it was recently recorded as part of a survey for the [REDACTED].

The Ruderal Bumblebee was recorded in both a flower-rich margin adjacent to an arable crop on chalky soils (feeding on Red Clover and Greater Knapweed) and also in a semi-natural flower-rich margin on the [REDACTED] floodplain (feeding on Marsh Woundwort). Similarly, the Brown-banded Carder Bee was recorded in an arable flower-rich margin (feeding on Field Scabious) and a semi-natural flower-rich margin on the [REDACTED] floodplain in the vicinity of Water Mint.

RECOMMENDATIONS: FUTURE MANAGEMENT & RECORDING

Retaining the flower-rich margins, corners and fields across the Cluster and maintaining good management of these areas is a strong starting point when suggesting future management. There are some fantastic flower-rich habitats across the collective [REDACTED] area, which is reflected by the number and diversity of different bee and hoverfly species recorded during this survey – and this should be recognised and celebrated.

The variance between sown wildflower margins and semi-natural flower-rich areas (with ‘weedy’ species, such as Hogweed, Hemlock Water-dropwort, Bramble and Marsh Woundwort) is a particular point of strength. The differing habitats complement each other and should, where possible, be maintained and increased.

Recommendations for the management of the different flower-rich habitats will vary and these areas would not benefit from a single straight jacketed regime of prescribed management actions. Your existing management is generally spot on. Periodic cutting is generally good, whether that be every year or less frequently, and helps prevent areas reverting to scrub. Timing of cutting is a consideration. Late cutting in September or October allows the majority of herbs to flower (and, just as importantly, set seed). This written, occasionally cutting margins in spring will favour some herbs (accepting the statutory requirement not to disturb nesting birds). Cutting margins at intervals of every two of three years will favour some herbs, annual cutting will encourage others.

Collecting and baling the cut material on margins, akin to managing a hay meadow, is likely to help lower nutrient levels and will definitely encourage some of the smaller more delicate flowers that would otherwise be drowned out by more robust vegetation. I appreciate that mowing and baling margins may be impractical in many instances – if suitable machinery is owned and it is practical to do so, if a few margins could be managed this way all well and good.

There is a natural variance between the proportion of each Cluster farm down to flower-rich habitats – and I would not expect otherwise. Targets for the proportion of farmland managed specifically for wildlife vary; the Government’s Wild Pollinator & Farm Wildlife Package advocates managing 3-6% of total farm area for wildlife, including managing 1-3% of land to provide nectar and pollen. Land managed with pollinators in mind may take many forms, for example a conventional 6m wide sown wildflower margin, a suitably managed 2-3m wide semi-natural strip of wildflowers next to a hedge or track, or a length of hedge cut less frequently to encourage blossom. These targets could be considered when shaping plans for the management of individual farms over the next five years.

The connectivity of flower-rich habitats across the landscape is critically important to the long-term survival of many species of bee and hoverfly – and is a matter the Cluster is well placed to address by way of collective collaboration amongst group members across neighbouring holdings. The connectivity of flower-rich habitats across all of the Cluster’s [REDACTED] farms could definitely be improved. The maximum foraging distances of our smaller bee species have been recorded as being as little as 100m to 200m – and so a maximum of 200m between flower-rich habitats could be a target for members to aim to achieve across all farms over a five year period? An alternative simple target might be to have some form of flower-rich habitat along at least one boundary of every field – accepting that this might be achieved by just slightly increasing the width and management of semi-natural margins next to a hedge or track, or tweaking the management of a length of hedge to yield more blossom.

The creation and ongoing management of wildflower margins can receive grant funding through agri-environment schemes such as the Sustainable Farming Incentive (SFI); the [SFI’s flower-rich](#)

[margin action currently pays £798/ha/annum](#). There are various other actions that can help fund different types of flower-rich habitat, including field corners, semi-natural grassland and hedges. Equally, some of the best pollinator habitat may be margins, field corners or patches of scrub managed outside of agri-environment schemes, including a trackside verge.

Acknowledging the value of standard infrequently cut tussocky grass margins (as bumblebee nesting habitat etc), there is also scope to increase the flower diversity in some margins, with a specific focus on native wildflowers not typically found in standard sown mixes. One of the Cluster's members, the [REDACTED], has a brush harvester at [REDACTED], which I think may have been purchased with grant contributions from Farming in Protected Landscapes (FiPL) programme. If so, is there scope for neighbouring farmers to borrow the brush harvester and harvest seed from the likes of [REDACTED] for use to enhance or create flower-rich margins elsewhere across the Cluster?

Future recording and surveys of pollinating insects, such as bees and hoverflies, would allow for some element of comparison with this survey – to help assess whether changes in management are having the desired effect and help inform future management decisions. Funding future surveys is likely to be the primary restricting factor. There is merit in adopting different more simple and comparable survey methods in future, which might include: the UK Pollinator Monitoring Scheme's (PoMS) [Flower-Insect Timed Count \(FIT Count\)](#); and/or the Bumblebee Conservation Trust's [BeeWalk survey](#). Such surveys could be undertaken by paid professionals, suitably experienced volunteers or, with appropriate training and practice, Cluster members.



Above: a scruffy looking semi-natural margin in the [REDACTED] floodplain meadows at [REDACTED] Farm containing Hogweed, Water Mint, Hemlock Water-dropwort and Marsh Woundwort; these unsown naturally occurring wildflowers make up fantastic pollinator habitat. This is a margin where the two priority bumblebee species were recorded, the Ruderal Bumblebee and the Brown-banded Carder Bee, both of which are of principle importance for conservation in England.

COLLECTING SPECIMENS

Many species of bee and hoverfly cannot be reliably identified without reference to microscopic characteristics, hence accurate identification requires representative specimens to be collected (and killed) and their species determined under a microscope. All butterflies were identified alive in the field; none were collected or taken off site.

The collecting of insects is sanctioned by Invertebrate Link, which is a committee representing many wildlife/invertebrate conservation organisations, including the Department for Environment, Food & Rural Affairs (Defra), the Royal Entomological Society, Buglife, the Natural History Museum, the Bees, Wasps & Ants Recording Society (BWARS) and the Dipterist's Forum. Whilst undertaking this survey and collecting any specimens required for identification, I followed Invertebrate Link's 'Code of Conduct for Collecting Insects and Other Invertebrates'.

FURTHER INFORMATION

I have below listed a couple of the more accommodating reference books on hoverflies and bees, which assist in the identification of species (and include photos), as well as providing more easily read detail on the ecology and conservation of these two groups of insects.

- Ball, S. and Morris, R. (2013). *Britain's hoverflies an introduction to the hoverflies of Britain*. Oxfordshire: Princeton University Press.
- Falk, S. (2015). *Field guide to the bees of Great Britain and Ireland*. London: Bloomsbury.

If interested in the subject, I also recommend looking at [Steven Falk's flickr pages](#), which contains countless fantastic photos of all of the various species of fly and bee recorded, together with associated text and information.



Above: a species of blood bee feeding from a Hemlock Water-dropwort flower in [redacted] Farm's meadows – apparently unaware of the impending danger posed by a species of crab spider (this particular bee escaped).

OTHER WILDLIFE OBSERVED DURING THE SURVEY



Above: Greater Butterfly-Orchid



Above: Scarce Chaser dragonfly



Above: Southern Hawker dragonfly



Above: Wasp Spider



Above: Violet Oil Beetle



Above: Pyramidal Orchid



Above: Yellow Loosestrife



Above: Broad-bodied Chaser dragonfly

Annex 1 – LISTS OF SPECIES RECORDED, [REDACTED] POLLINATOR SURVEY 2024

Bees (Hymenoptera-Apoidea) recorded

Common name	Scientific name	s.41 spp. ¹	SW Bees ²	JNCC '91 ³
Common Yellow-face Bee	<i>Hylaeus communis</i>			
White-jawed Yellow-face Bee	<i>Hylaeus confusus</i>			
Chalk Yellow-face Bee	<i>Hylaeus dilatatus</i>			
Large Sallow Mining Bee	<i>Andrena apicata</i>			Notable B
Gwynne's Mining Bee	<i>Andrena bicolor</i>			
Hawthorn Mining Bee	<i>Andrena chrysosceles</i>			
Ashy Mining Bee	<i>Andrena cineraria</i>			
Short-fringed Mining Bee	<i>Andrena dorsata</i>			
Yellow-legged Mining Bee	<i>Andrena flavipes</i>			
Orange-tailed Mining Bee	<i>Andrena haemorrhoa</i>			
Large Meadow Mining Bee	<i>Andrena labialis</i>			
Common Mini-miner	<i>Andrena minutula</i>			
Buffish Mining Bee	<i>Andrena nigroaenea</i>			
Grey-patched Mining Bee	<i>Andrena nitida</i>			
Shiny-margined Mini-miner	<i>Andrena semilaevis</i>			
Wilke's Mining Bee	<i>Andrena wilkella</i>			
Bronze Furrow Bee	<i>Halictus tumulorum</i>			
Common Furrow Bee	<i>Lasioglossum calceatum</i>			
Furry-claspered Furrow Bee	<i>Lasioglossum lativentre</i>			
White-footed Furrow Bee	<i>Lasioglossum leucopus</i>			
White-zoned Furrow Bee	<i>Lasioglossum leucozonium</i>			
Sharp-collared Furrow Bee	<i>Lasioglossum malachurum</i>			Notable B
Least Furrow Bee	<i>Lasioglossum minutissimum</i>			
Green Furrow Bee	<i>Lasioglossum morio</i>			
Smooth-gastered Furrow Bee	<i>Lasioglossum parvulum</i>			
Lobe-spurred Furrow Bee	<i>Lasioglossum pauxillum</i>			Notable A
Four-spotted Furrow Bee	<i>Lasioglossum quadrinotatum</i>			Notable A
Shaggy Furrow Bee	<i>Lasioglossum villosulum</i>			
Orange-footed Furrow Bee	<i>Lasioglossum xanthopus</i>			Notable B
Bare-saddled Blood Bee	<i>Sphecodes ephippius</i>			
Spined Blood Bee	<i>Sphecodes spinulosus</i>			Vulnerable
Clover Melitta	<i>Melitta leporina</i>			
Red Bartsia Bee	<i>Melitta tricincta</i>			Notable B
Yellow Loosestrife Bee	<i>Macropis europaea</i>			Notable A
Large Scissor Bee	<i>Chelostoma florisomne</i>			
Red-tailed Mason Bee	<i>Osmia bicolor</i>			Notable B
Red Mason Bee	<i>Osmia bicornis</i>			
Orange-vented Mason Bee	<i>Osmia leaiana</i>			
Spined Mason Bee	<i>Osmia spinulosa</i>			
Flavous Nomad Bee	<i>Nomada flava</i>			
Little Nomad Bee	<i>Nomada flavoguttata</i>			
Blunthorn Nomad Bee	<i>Nomada flavopicta</i>			Notable B
Gooden's Nomad Bee	<i>Nomada goodeniana</i>			
Long-horned Nomad Bee	<i>Nomada hirtipes</i>			Rare
Panzer's Nomad Bee	<i>Nomada panzeri</i>			
Fork-jawed Nomad Bee	<i>Nomada ruficornis</i>			
Variable Nomad Bee	<i>Nomada zonata</i>			

Common name	Scientific name	s.41 spp. ¹	SW Bees ²	JNCC '91 ³
Green-eyed Flower Bee	<i>Anthophora bimaculata</i>			
Field Cuckoo Bee	<i>Bombus campestris</i>			
Garden Bumblebee	<i>Bombus hortorum</i>			
Brown-banded Carder Bee	<i>Bombus humilis</i>	s.41 sp.	At Risk	
Red-tailed Bumblebee	<i>Bombus lapidarius</i>			
Common Carder Bee	<i>Bombus pascuorum</i>			
Early Bumblebee	<i>Bombus pratorum</i>			
Ruderal Bumblebee	<i>Bombus ruderatus</i>	s.41 sp.	At Risk	Notable B
Buff-tailed Bumblebee	<i>Bombus terrestris</i>			
Vestal Cuckoo Bee	<i>Bombus vestalis</i>			
Western Honey Bee	<i>Apis mellifera</i>			
TOTAL	58 species			

Bold = bees of particular conservation concern

(blue shading) = cuckoo (cleptoparasitic) species

¹ - [Section 41 species of principle importance in England, as identified in the Natural Environment & Rural Communities \(NERC\) Act 2006.](#)

² - [Threatened bee species identified as at risk in the South West Bees Project \(Horsley, Whitehouse & Falk. 2013. South West Bees Project. Buglife\).](#)

³ - [Conservation status of bees \(Falk, S. 1991. Joint Nature Conservation Committee \(JCCC\) review of the scarce and threatened bees, wasps and ants of Great Britain\).](#)

Hoverflies (Diptera-Syrphidae) recorded

Common name	Scientific name	s.41 spp. ¹	Status ⁴	Trend ⁵
Gossamer Hoverfly	<i>Baccha elongata</i>		Widespread	↓
Short Melanostoma	<i>Melanostoma mellinum</i>		Widespread	-
Slender Melanostoma	<i>Melanostoma scalare</i>		Widespread	↑
Grey-spotted Boxer	<i>Platycheirus albimanus</i>		Widespread	-
Slender Boxer	<i>Platycheirus angustatus</i>		Widespread	-
Marsh Boxer	<i>Platycheirus clypeatus</i>		Widespread	-
Confused Marsh Boxer	<i>Platycheirus europaeus</i>		Local	-
Orange-legged Boxer	<i>Platycheirus fulviventris</i>		Frequent	↓
Red-tailed Boxer	<i>Platycheirus granditarsus</i>		Widespread	-
Meadow Boxer	<i>Platycheirus peltatus</i>		Widespread	-
Twin-spot Boxer	<i>Platycheirus rosarum</i>		Widespread	-
Two-banded Spearhorn	<i>Chrysotoxum bicinctum</i>		Widespread	↑
Stripe-backed Fleckwing	<i>Dasysyrphus albostratus</i>		Widespread	↓
Pale-sided Epistrophe	<i>Epistrophe diaphana</i>		Frequent	-
Early Epistrophe	<i>Epistrophe eligans</i>		Widespread	↑
Dark-backed Epistrophe	<i>Epistrophe nitidicollis</i>		Frequent	-
Marmalade Hoverfly	<i>Episyrphus balteatus</i>		Widespread	↑
Migrant Field Syrph	<i>Eupeodes corollae</i>		Widespread	-
Meadow Field Syrph	<i>Eupeodes latifasciatus</i>		Widespread	-
Wavy-banded Field Syrph	<i>Eupeodes nitens</i>		Local (NS)	-
Matt-backed Melangyna	<i>Melangyna labiatarum</i>		Frequent	-
White-clubbed Glasswing	<i>Scaeva pyrastris</i>		Widespread	-
Common Twist-tail	<i>Sphaerophoria scripta</i>		Widespread	↑
Broad-banded Globetail	<i>Sphaerophoria taeniata</i>		Frequent	-
Humming Syrphus	<i>Syrphus ribesii</i>		Widespread	-
Glass-winged Syrphus	<i>Syrphus vitripennis</i>		Widespread	-
Superb Ant-hill Hoverfly	<i>Xanthogramma pedissequum</i>		Widespread	↑
Buttercup Blacklet	<i>Cheilosia albitarsis</i>		Widespread	-
Bumblebee Blacklet	<i>Cheilosia illustrata</i>		Widespread	-

Hoverflies (Diptera-Syrphidae) recorded cont.

Common name	Scientific name	s.41 spp. ¹	Status ⁴	Trend ⁵
Burdock Blacklet	<i>Cheilosia impressa</i>		Widespread	↑
Plantain Blacklet	<i>Cheilosia lasiopa</i>		Frequent	↓
Parsley Blacklet	<i>Cheilosia pagana</i>		Widespread	-
Dull-bellied Blacklet	<i>Cheilosia proxima</i>		Widespread	-
Truffle Blacklet	<i>Cheilosia soror</i>		Frequent	↑
Yarrow Blacklet	<i>Cheilosia vernalis</i>		Widespread	-
Large Burdock Blacklet	<i>Cheilosia vulpina</i>		Frequent	-
Common Copperback	<i>Ferdinandea cuprea</i>		Widespread	↑
Common Snout	<i>Rhingia campestris</i>		Widespread	-
Dark-winged Chrysogaster	<i>Chrysogaster solstitialis</i>		Widespread	-
Common Marsh Hoverfly	<i>Melanogaster hirtella</i>		Widespread	↓
Bridged Clubtail	<i>Neoascia tenur</i>		Widespread	↓
Long-horned Orthonevra	<i>Orthonevra nobilis</i>		Frequent	↓
Plain-faced Dronefly	<i>Eristalis arbustorum</i>		Widespread	-
Stripe-faced Dronefly	<i>Eristalis nemorum</i>		Widespread	-
Tapered Dronefly	<i>Eristalis pertinax</i>		Widespread	↑
Common Dronefly	<i>Eristalis tenax</i>		Widespread	↑
Marsh Tiger Hoverfly	<i>Helophilus hybridus</i>		Widespread	-
Tiger Hoverfly	<i>Helophilus pendulus</i>		Widespread	↑
Batman Hoverfly	<i>Myathropa florea</i>		Widespread	↑
Narcissus Fly	<i>Merodon equestris</i>		Widespread	-
Smudge-winged Pithead	<i>Pipiza lugubris</i>		Local (NS)	↓
Common Flatface	<i>Pipizella viduata</i>		Widespread	-
Bumblebee Plumehorn	<i>Volucella bombylans</i>		Widespread	↑
Wasp Plumehorn	<i>Volucella inanis</i>		Frequent	↑
Pied Plumehorn	<i>Volucella pellucens</i>		Widespread	-
Compost Hoverfly	<i>Syrirta pipiens</i>		Widespread	-
Tooth-thighed Hoverfly	<i>Tropidia scita</i>		Frequent	-
TOTAL	57 species			

NS = Nationally Scarce ([Review of scarce and threatened hoverflies of Great Britain, JNCC, 2014](#))

¹ - [Section 41 species of principle importance in England, as identified in the Natural Environment & Rural Communities \(NERC\) Act 2006.](#)

⁴ - Status: the frequency an individual species is recorded in Britain. Ball, S & Morris, M. (2013) Britain's hoverflies. Princetown University Press.

⁵ - Trend: the change in frequency an individual species has been recorded from 1980 to 2010. Ball, S & Morris, M. (2013) Britain's hoverflies. Princetown University Press.



Above: Common Snout hoverfly on Comfrey flower at [redacted] Farm.



Above: Two-banded Spearhorn hoverfly on Field Bindweed flower at [redacted] Farm.

Butterflies (Lepidoptera) recorded

Common name	Scientific name	s.41 spp. ¹	BC Red List ⁶
Essex Skipper	<i>Thymelicus lineola</i>		Least Concern
Small Skipper	<i>Thymelicus sylvestris</i>		Least Concern
Large Skipper	<i>Ochlodes sylvanus</i>		Least Concern
Orange-tip	<i>Anthocharis cardamines</i>		Least Concern
Small White	<i>Pieris rapae</i>		Least Concern
Green-veined White	<i>Pieris napi</i>		Least Concern
Brimstone	<i>Gonepteryx rhamni</i>		Least Concern
Speckled Wood	<i>Pararge aegeria</i>		Least Concern
Ringlet	<i>Aphantopus hyperantus</i>		Least Concern
Meadow Brown	<i>Maniola jurtina</i>		Least Concern
Gatekeeper	<i>Pyronia tithonus</i>		Least Concern
Marbled White	<i>Melanargia galathea</i>		Least Concern
Dark Green Fritillary	<i>Speyeria aglaja</i>		Near Threatened
Red Admiral	<i>Vanessa atalanta</i>		Least Concern
Painted Lady	<i>Vanessa cardui</i>		Least Concern
Peacock	<i>Aglais io</i>		Least Concern
Small Tortoiseshell	<i>Aglais urticae</i>		Least Concern
Comma	<i>Polygonia c-album</i>		Least Concern
TOTAL	18		

¹ - [Section 41 species of principle importance in England, as identified in the Natural Environment & Rural Communities \(NERC\) Act 2006.](#)

⁶ - [Butterfly Conservation's Red List of Butterflies in Great Britain, 2021.](#)



Above: Essex Skipper on Black Knapweed flower at [REDACTED] Farm.

Annex 2 – LIST OF BEE SPECIES RECORDED PER FARM DURING SURVEY

Common name	Scientific name	Fm	Fm	Total
Large Sallow Mining Bee	<i>Andrena apicata</i>		X	X
Gwynne's Mining Bee	<i>Andrena bicolor</i>	X		X
Hawthorn Mining Bee	<i>Andrena chrysosceles</i>	X		X
Ashy Mining Bee	<i>Andrena cineraria</i>	X	X	X
Short-fringed Mining Bee	<i>Andrena dorsata</i>	X		X
Yellow-legged Mining Bee	<i>Andrena flavipes</i>	X	X	X
Orange-tailed Mining Bee	<i>Andrena haemorrhoa</i>	X	X	X
Large Meadow Mining Bee	<i>Andrena labialis</i>	X		X
Common Mini-miner	<i>Andrena minutula</i>	X		X
Buffish Mining Bee	<i>Andrena nigroaenea</i>	X	X	X
Grey-patched Mining Bee	<i>Andrena nitida</i>	X	X	X
Shiny-margined Mini-miner	<i>Andrena semilaevis</i>	X	X	X
Wilke's Mining Bee	<i>Andrena wilkella</i>	X		X
Green-eyed Flower Bee	<i>Anthophora bimaculata</i>		X	X
Western Honey Bee	<i>Apis mellifera</i>	X	X	X
Field Cuckoo Bee	<i>Bombus campestris</i>		X	X
Garden Bumblebee	<i>Bombus hortorum</i>	X	X	X
Brown-banded Carder Bee	<i>Bombus humilis</i>	X		X
Red-tailed Bumblebee	<i>Bombus lapidarius</i>	X		X
Common Carder Bee	<i>Bombus pascuorum</i>	X	X	X
Early Bumblebee	<i>Bombus pratorum</i>	X	X	X
Ruderal Bumblebee	<i>Bombus ruderatus</i>	X		X
Buff-tailed Bumblebee	<i>Bombus terrestris</i>	X	X	X
Vestal Cuckoo Bee	<i>Bombus vestalis</i>	X		X
Large Scissor Bee	<i>Chelostoma florissomne</i>	X		X
Bronze Furrow Bee	<i>Halictus tumulorum</i>	X		X
Common Yellow-face Bee	<i>Hylaeus communis</i>		X	X
White-jawed Yellow-face Bee	<i>Hylaeus confusus</i>	X	X	X
Chalk Yellow-face Bee	<i>Hylaeus dilatatus</i>	X		X
Common Furrow Bee	<i>Lasioglossum calceatum</i>	X	X	X
Furry-claspered Furrow Bee	<i>Lasioglossum lativentre</i>	X	X	X
White-footed Furrow Bee	<i>Lasioglossum leucopus</i>	X		X
White-zoned Furrow Bee	<i>Lasioglossum leucozonium</i>	X	X	X
Sharp-collared Furrow Bee	<i>Lasioglossum malachurum</i>	X	X	X
Least Furrow Bee	<i>Lasioglossum minutissimum</i>	X		X
Green Furrow Bee	<i>Lasioglossum morio</i>		X	X
Smooth-gastered Furrow Bee	<i>Lasioglossum parvulum</i>	X		X
Lobe-spurred Furrow Bee	<i>Lasioglossum pauxillum</i>	X	X	X
Four-spotted Furrow Bee	<i>Lasioglossum quadrinotatum</i>	X		X
Shaggy Furrow Bee	<i>Lasioglossum villosulum</i>		X	X
Orange-footed Furrow Bee	<i>Lasioglossum xanthopus</i>	X		X
Yellow Loosestrife Bee	<i>Macropis europaea</i>		X	X
Clover Melitta	<i>Melitta leporina</i>		X	X
Red Bartsia Bee	<i>Melitta tricincta</i>	X		X
Flavous Nomad Bee	<i>Nomada flava</i>	X	X	X
Little Nomad Bee	<i>Nomada flavoguttata</i>	X	X	X
Blunthorn Nomad Bee	<i>Nomada flavopicta</i>		X	X
Gooden's Nomad Bee	<i>Nomada goodeniana</i>	X	X	X
Long-horned Nomad Bee	<i>Nomada hirtipes</i>	X		X
Panzer's Nomad Bee	<i>Nomada panzeri</i>		X	X
Fork-jawed Nomad Bee	<i>Nomada ruficornis</i>	X		X
Variable Nomad Bee	<i>Nomada zonata</i>	X		X
Red-tailed Mason Bee	<i>Osmia bicolor</i>	X		X
Red Mason Bee	<i>Osmia bicornis</i>		X	X
Orange-vented Mason Bee	<i>Osmia leaiana</i>		X	X
Spined Mason Bee	<i>Osmia spinulosa</i>	X		X
Bare-saddled Blood Bee	<i>Sphecodes ephippius</i>	X	X	X
Spined Blood Bee	<i>Sphecodes spinulosus</i>	X		X
TOTALS		Fm = 46	= 33	58

Annex 3 – LIST OF HOVERFLY SPECIES RECORDED PER FARM DURING SURVEY

Common name	Scientific name	Fm	Fm	Total
Gossamer Hoverfly	Baccha elongata		X	X
Buttercup Blacklet	Cheilosia albitarsis		X	X
Bumblebee Blacklet	Cheilosia illustrata	X	X	X
Burdock Blacklet	Cheilosia impressa	X	X	X
Plantain Blacklet	Cheilosia lasiopa	X		X
Parsley Blacklet	Cheilosia pagana	X	X	X
Dull-bellied Blacklet	Cheilosia proxima		X	X
Truffle Blacklet	Cheilosia soror	X		X
Yarrow Blacklet	Cheilosia vernalis	X		X
Large Burdock Blacklet	Cheilosia vulpina	X	X	X
Dark-winged Chrysogaster	Chrysogaster solstitialis		X	X
Two-banded Spearhorn	Chrysotoxum bicinctum	X	X	X
Stripe-backed Fleckwing	Dasysyrphus albostriatus		X	X
Pale-sided Epistrophe	Epistrophe diaphana	X		X
Early Epistrophe	Epistrophe eligans	X		X
Dark-backed Epistrophe	Epistrophe nitidicollis	X		X
Marmalade Hoverfly	Episyrphus balteatus	X	X	X
Plain-faced Dronefly	Eristalis arbustorum	X	X	X
Stripe-faced Dronefly	Eristalis nemorum		X	X
Tapered Dronefly	Eristalis pertinax	X	X	X
Common Dronefly	Eristalis tenax	X	X	X
Migrant Field Syrph	Eupeodes corollae	X	X	X
Meadow Field Syrph	Eupeodes latifasciatus		X	X
Wavy-banded Field Syrph	Eupeodes nitens	X		X
Common Copperback	Ferdinandea cuprea		X	X
Marsh Tiger Hoverfly	Helophilus hybridus		X	X
Tiger Hoverfly	Helophilus pendulus	X	X	X
Matt-backed Melangyna	Melangyna labiatarum		X	X
Common Marsh Hoverfly	Melanogaster hirtella		X	X
Short Melanostoma	Melanostoma mellinum	X	X	X
Slender Melanostoma	Melanostoma scalare	X	X	X
Narcissus Fly	Merodon equestris		X	X
Batman Hoverfly	Myathropa florea	X	X	X
Bridged Clubtail	Neoascia tenur		X	X
Long-horned Orthonevra	Orthonevra nobilis		X	X
Smudge-winged Pithead	Pipiza lugubris		X	X
Common Flatface	Pipizella viduata	X		X
Grey-spotted Boxer	Platycheirus albimanus		X	X
Slender Boxer	Platycheirus angustatus		X	X
Marsh Boxer	Platycheirus clypeatus	X	X	X
Confused Marsh Boxer	Platycheirus europaeus		X	X
Orange-legged Boxer	Platycheirus fulviventris		X	X
Red-tailed Boxer	Platycheirus granditarsus		X	X
Meadow Boxer	Platycheirus peltatus	X		X
Twin-spot Boxer	Platycheirus rosarum		X	X
Common Snout	Rhingia campestris	X	X	X
White-clubbed Glasswing	Scaeva pyrastris	X	X	X
Common Twist-tail	Sphaerophoria scripta	X	X	X
Broad-banded Globetail	Sphaerophoria taeniata		X	X
Compost Hoverfly	Syrpita pipiens	X	X	X
Humming Syrphus	Syrphus ribesii		X	X
Glass-winged Syrphus	Syrphus vitripennis	X	X	X
Tooth-thighed Hoverfly	Tropidia scita		X	X
Bumblebee Plumehorn	Volucella bombylans	X	X	X
Wasp Plumehorn	Volucella inanis	X		X
Pied Plumehorn	Volucella pellucens		X	X
Superb Ant-hill Hoverfly	Xanthogramma pedissequum		X	X
TOTALS		Fm = 31	= 47	57

Annex 4 – LIST OF BUTTERFLY SPECIES RECORDED PER FARM DURING SURVEY

Common name	Scientific name	Fm	Fm	Total
Essex Skipper	Thymelicus lineola	X	X	X
Small Skipper	Thymelicus sylvestris	X	X	X
Large Skipper	Ochlodes sylvanus		X	X
Orange-tip	Anthocharis cardamines	X	X	X
Small White	Pieris rapae	X		X
Green-veined White	Pieris napi	X	X	X
Brimstone	Gonepteryx rhamni	X	X	X
Speckled Wood	Pararge aegeria	X	X	X
Ringlet	Aphantopus hyperantus	X	X	X
Meadow Brown	Maniola jurtina	X	X	X
Gatekeeper	Pyronia tithonus	X	X	X
Marbled White	Melanargia galathea	X	X	X
Dark Green Fritillary	Argynnis aglaja	X		X
Red Admiral	Vanessa atalanta	X	X	X
Painted Lady	Vanessa cardui	X		X
Peacock	Aglais io	X	X	X
Small Tortoiseshell	Aglais urticae	X	X	X
Comma	Polygonia c-album	X		X
TOTALS		Fm = 17	= 14	18

BUTTERFLIES PHOTOGRAPHED AT [REDACTED] & [REDACTED] FARM



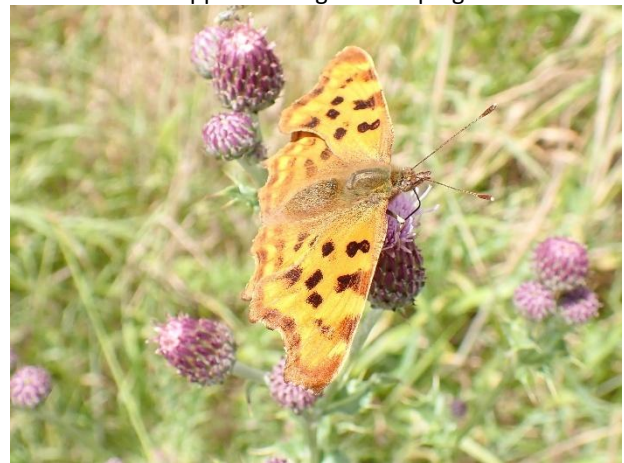
Above: Small Tortoiseshell on Field Scabious flower.



Above: Small Skipper feeding on Creeping Thistle.



Above: Dark Green Fritillary feeding on Field Scabious.



Above: Comma feeding from Creeping Thistle flower.