Report on Birds and Conservation at

HE HALL FARMS

MARDEN

2018

Barn owl with prey. Little Mill Farm
Photo: *Hugo Hall*

Background

HE Hall & Son Ltd[1] operates a number of formerly separate farms around the large village of Marden, Kent.

Little Mill and ***Target Farms*** are mixed fruit and arable farms covering 45ha to the north of the village. A variety of Winter Bird Crops (WBCs) are planted annually to provide over-winter food to support birds, particularly farmland species, many of which are now red-listed, ie. included on the red list of conservation concern.[2]

The adjacent ***Mill Farm*** covers about 30ha and was acquired in March 2015. It is mixed fruit and arable with a small plantation of native deciduous trees, generous areas of tall hedgerow and boundary vegetation, with patches of bramble scrub. The farm is bounded on one side by the Lesser Teise river and has several significant drainage channels, one of which fed the mill prior to its demolition a century ago. Much of 2015 was spent clearing the farm of substantial quantities of agricultural and other rubbish. Over the following two years the old mill stream was re-opened so that water can once again be diverted to a drain alongside a 4ha field to the north of Hunton Road. By the end of 2017 the excavation of a lake was completed to store 20,000m^3 of water for flood mitigation in the Medway river catchment area, and as a wildlife resource.

To the south of the village, ***Poultry Farm*** is 60ha of mixed arable and organically managed top fruit and grapes, with areas of woodland, grass leys and ponds reserved for wildlife. Field margins and hedgerows are actively managed to support wildlife along with other measures, eg. skylark plots in cereal crops.

The Beech is a15ha area of arable land alongside the Lesser Teise, also located south of the village. Apart from the erection of two Barn Owl nestboxes in 2017, there has so far been little monitoring of its wildlife.

Sunflowers at Little Mill Farm in summer and autumn

Bird ringing[3] took place intermittently at Little Mill and Poultry Farms in 2009. It increased during 2016 following the acquisition of Mill Farm, with a further increase in 2017. Regular ringing sessions now take place to monitor the farms' bird population and the impact of wildlife-friendly management, and the provision of WBCs specifically to feed wild birds. In 2018 2ha of sunflowers and 4ha of mixed wild-bird seed plants were sown. Where practicable, WBCs from the previous year's sowing (2ha) are left as an additional overwinter resource for food and cover. Mixed seed is also strewn along field margins throughout the winter months as supplementary feed.

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1 http://www.hehall.co.uk

2 Hayhow DB, Ausden MA, Bradbury RB, Burnell D, Copeland AI, Crick HQP, Eaton MA, Frost T, Grice PV, Hall C, Harris SJ, Morecroft MD, Noble DG, Pearce-Higgins JW, Watts O, Williams JM, *The state of the UK's birds 2017*. The RSPB, BTO, WWT, DAERA, JNCC, NE and NRW, Sandy, Bedfordshire.

3 Ringers are trained and licensed by The British Trust for Ornithology www.bto.org on behalf of DEFRA.

Conservation Developments in 2018

Wetland Construction

Excavation was completed at Christmas 2017 since when it has been full to capacity, apart from the mid-summer heatwave when water levels dropped to about half full. Levelling of the surrounding ground for landscaping and access was carried out during summer and a small number of native trees for screening purposes will be planted in 2019, with rough grass and shrubs to create a mixed scrub and grazing habitat to encourage wildlife.

The shape of the lake is roughly that of an off-set egg-timer, with a narrow waist. The smaller southern end (left), close to a busy road and the main access, is out of sight of the quieter larger end (right) where a shallow area in the centre will encourage wading birds as water levels drop in summer.

On the official 'opening' day, attended by representatives from relevant authorities[4], the first great crested newts were seen – frogs had already been seen there during a break in excavation the previous summer. Carp, some quite large and probably introduced by an unknown local person, have already been seen – and seen being taken by a heron!

However, this is a mixed-blessing as the native species of carp is considered vulnerable to extinction by the IUCN[5], being largely replaced in the wild by a domestic bred, potentially invasive sub-species. Hopefully, other non-native unwanted pets or invasive aquatic plants won't find their way there. A small quantity of tree branches have been submerged at one end of the lake to provide nursery cover for a number of rudd to be released in 2019, and a floating platform has been anchored at the opposite end to encourage water birds.

As well as newts and herons, species seen so far include little egret, cormorant, Canada goose, mallard, wintering green sandpipers and common sandpipers on passage. A migrating osprey circled the wetland, eventually alighting by a well-stocked large pond at nearby Target Farm. Flocks of house martins and swallows were increasingly seen 'hawking' over the water as summer progressed and birds hatched locally joined the adults. The easy access to water is also a bonus for seed-eating birds. Stock doves in particular have frequently been seen in good numbers on the banks.

For the second year running, a Mandarin duck nested in a nearby owl box. However, we suspect the female (males play no part in raising young) was predated before she could lead the eleven ducklings from the box to nearby water. The dead ducklings were found in the box alongside a stock dove nest!

A grant for half the cost of erecting nestboxes to attract sand martins (recent 30% population decline) was provisionally agreed by our local KCC Councillor but we were unable to secure the balance.

[4] KCC; EA; SERT; KWT; FWAG; NFU; MBC; FC; YPC; NE; KHWCP; CG; SDC
[5] The International Union for the Conservation of Nature. https://www.iucn.org/

Barn Owls and other Birds of Prey

As top predators, owls and other raptors are at the top of the food chain. Their presence is an indicator of wildlife friendly habitat and an environment relatively free of chemicals harmful to humans.[6] Barn, tawny and little owl have breeding territories; kestrels, sparrowhawks and buzzards are regular visitors and breed on the farm or in the vicinity. Hobbies are regular summer visitors hunting dragonflies and martins. Red kites and peregrine falcons are seen regularly, if not frequently.

In January 2017 fifteen nestboxes were erected by the Hawk and Owl Trust[7]. Thirteen were designed for barn owls and one each for little owl and kestrel. All have been occupied at some point since, but not always by birds. Wasps, European hornets, honey bees and grey squirrels have also used them. A pair of Kestrels adopted an owl box, laying three eggs and successfully fledging three young.
In 2018 at least three pairs of barn owls raised broods, two of them in boxes. As usually happens, not all the eggs resulted in successfully fledged chicks. In the boxes, one pair hatched five young and three fledged successfully; the second fledged two young from three eggs.

The young were ringed[8] to help monitor productivity and survival of local owls. Throughout the year, barn owls can be seen most days quartering areas of rough grass in meadows and along field margins. Evidence from owl pellets (see below) demonstrates the importance of this tussocky, rough grass for their mammalian prey.

Chicks are measured and weighed to provide an indication of their health and development. A lightweight metal ring with a unique number is attached to a leg to identify them. If they are trapped again it provides information about their age and how far they travelled from where they were hatched. If they are found dead, there are details on the ring of how to send the number, and details of where the bird was found, to the British Trust for Ornithology.

Young barn owls are very docile, especially after a good meal. The chick (left) being ringed was fast asleep throughout! The kestrel chick (right) was older – permanent feathers can be seen emerging from its downy chick feathers – and considerably more lively. Care was needed to avoid injury from its sharp talons and bill.

[6] If you come across a recently dead owl or bird of prey, consider contacting the Predatory Bird Monitoring Scheme at the national Centre for Ecology and Hydrology (https://pbms.ceh.ac.uk/ 01524 595830**)**. They will send you everything you need to post the carcase to them for post-mortem examination. From this they can gauge the level of carcinogens and other harmful chemicals in the locality.

[7] http://hawkandowl.org/

[8] Barn owls are designated a Schedule 1 species under the Wildlife & Countryside Act 1981. Anyone inspecting their nest or handling them must be appropriately licensed. http://jncc.defra.gov.uk/PDF/waca1981_schedule1.pdf

Species Recording in 2018

With the expertise available birds were the main focus for recording during the year, but the pool of expertise we can draw in our group of volunteers is gradually increasing. As a result data on dragonflies and other insects, plants (including fungi) and mammals are increasing. The data from the original bat and plant surveys carried out in 2016 at Mill Farm (the latter with additions from a second survey carried out in August 2017 by members of the Kent Field Club) can be found in Appendices 1 & 2 below, with additions of new species where appropriate.

Birds

Species recorded in 2018 and their conservation status

(Based on survey visits, thirty-one ringing sessions at Mill, Little Mill and Poultry Farms, and casual observations)
*F = Flying over * = Probably/possibly breeding ** = Confirmed breeding*

Green – least concern

Cormorant *Phalocrocorax carbo*
Canada Goose *Branta canadensis*
Mandarin Duck *Aix galericulata* **
Pheasant *Phasianus colchicus* **
Little Egret *Egretta garzetta*
Grey Heron *Ardea cinerea*
Red Kite *Milvus Milvus*
Sparrowhawk *Accipiter nisus*
Buzzard *Buteo buteo**
Hobby *Falco subbuteo*
Peregrine Falcon *Falco peregrinus F*
Red-legged Partridge Alectoris rufa
Moorhen *Gallinula chloropus* **
Feral Pigeon *Columba livia (domest.)*
Woodpigeon *Columba palumbus* **
Collared Dove *Streptopelia decaocto* *
Barn Owl *Tyto alba* **
Little Owl *Athene noctua* **
Green Woodpecker *Picus viridis* **
Great Spotted Woodpecker *Dendrocopos major* **
Magpie *Pica pica* *
Jay *Garrulus glandarius* *
Jackdaw *Corvus monedula* **
Rook Corvus frugilegus **
Carrion Crow *Corvus corone* *
Raven *Corvus corax*
Goldcrest *Regulus regulus* **
Blue Tit *Caerelius cyanistes* **
Great Tit *Parus major* **
Swallow *Hirundo rustica* **
Long-tailed Tit *Aegithalos caudatus**
Chiffchaff *Phyloscopus collybita***
Blackcap *Sylvia atricapilla* **
Garden Warbler *Sylvia borin***
Whitethroat *Sylvia communis* **
Lesser Whitethroat *Sylvia curruca**
Reed Warbler *Acrocephalus scirpaceus*
Nuthatch *Sitta europaea**
Wren *Troglodytes troglodytes* **
Blackbird *Turdus merula* **
Robin *Erithacus rubecula* **
Pied Wagtail *Motacilla alba yarellii* **
Chaffinch *Fringilla coelebs* **
Brambling *Fringilla montifringilla*
Greenfinch *Carduelis chloris* *
Goldfinch *Carduelis Carduelis* **
Siskin *Spinus spinus*

Amber – moderate concern

Mute Swan *Cygnus olor F*
Greylag Goose *Anser anser F*
Mallard *Anas platyrhyncos* **
Osprey *Pandion haliaetus*
Kestrel *Falco tinunculus* **
Common Sandpiper *Actitis hypoleucos*
Green Sandpiper *Tringa ochropus*
Black-headed Gull *Chroicrocephalus ridbundus*
Common Gull *Larus canus F*
Lesser Black-backed Gull *Larus fuscus*
Stock Dove *Columba oenas* **
Tawny Owl *Strix aluco* **
Swift *Apus apus*
Kingfisher *Alcedo atthis* **
House Martin *Delichon urbicum* **
Treecreeper *Certhia familiaris* **
Dunnock *Prunella modularis* **
Meadow Pipit *Anthus pratensis*
Bullfinch *Pyrrhula pyrrhula* **
Reed Bunting *Emberiza schoeniclus*

Red – highest concern

Woodcock *Scolopax rusticola*
Lapwing *Vanellus vanellus*
Herring Gull *Larus argentatus*
Turtle Dove *Streptopelia turtur* **
Cuckoo *Cuculus canorus*
Lesser-spotted Woodpecker *Dryobates minor* *
Skylark *Alauda arvensis* *
Starling *Sturnus vulgaris* **
Fieldfare *Turdus pilaris*
Song Thrush *Turdus philomelos* **
Redwing *Turdus iliacus*
Mistle Thrush *Turdus viscivorus* *
Spotted Flycatcher *Muscicapa striata***
Coal Tit *Parus ater**
Grey Wagtail *Motacilla cinerea* **
House Sparrow *Passer domesticus* **
Tree Sparrow *Passer montanus*
Linnet *Carduelis canabina**
Lesser Redpoll *Acanthis cabaret*
Yellowhammer *Emberiza citronella* **

Total species = 87

Species recorded in 2016 or 2017, but not recorded in 2018:

Grey Partridge *Perdix perdix*
Shoveler *Anas clypeata*
Snipe Gallinao gallinago
Mediterranean Gull *Larus melanocephalus*
Wheatear *Oenanthe oenanthe*
Stonechat *Saxicola torquata*

The species total is an increase on the 2017 total of 81, largely due to the new wetland which has attracted greylag and Canada geese (as might be expected), but its use for several days by common sandpipers migrating between the arctic and Africa suggests it is already providing a much needed re-fuelling point for these long distance travellers, and potentially supporting the recovery of the UK osprey population. As migrating sand martins are highly likely the use the feeding opportunity offered by the lake, providing nestboxes could provide an ‘easy win’ in increasing the farm’s conservation value. Importantly, relatively scarce migrant species such as spotted flycatcher and turtle dove are still attracted to the farm and nesting here.

The abundance of wintering, red-listed, farmland birds (details in the ringing report below) attracted by the habitat, the WBCs and supplementary feeding indicates the success of the conservation work.


Tree Sparrow. Photo: *John Haddaway*

This was given a boost early in the year when a **tree sparrow** was trapped during a ringing session. The species has suffered a 93% decline in numbers since 1970 and is now absent from much of the South East. A small flock was last seen in Marden on a WBC in 2007. Sadly, joy was short-lived as hastily-constructed nestboxes erected in suitable hedgerow habitat failed to attract them to nest here.

However, as the young of most species roam widely in their winter search for food, we may yet attract them to the farm. We live in hope!

Corn bunting is another farmland species that has suffered catastrophic population declines in the UK. Recent research shows that a simple modification when sowing a cereal crop can increase nesting success, and this is being tried in an attempt to attract any young corn buntings that happen upon the farm during winter dispersal.

It should be noted that crop management on the farm is carried out by contractors, so planting and harvesting is not necessarily carried out by a person fully in tune with what HE Hall is trying to achieve. An example of this occurred when a mature field margin – a valuable resource for birds feeding young at that time - was needlessly mown as a 'tidying up' exercise prior to harvesting a crop.


An occupied artificial nest beneath the eaves.

House martins have declined steeply in England since 2005 (but not in Scotland and Northern Ireland). The breeding colony in the centre of Marden is much reduced, but artificial nests at Little Mill have maintained numbers breeding there and the colony is now expanding; birds are building their own nests on the barn and adjoining cottage, and some pairs still had young in the nest into September this year. A large flock of birds circulating the barnyard in the summer also attracted a **peregrine falcon** on the hunt for easy pickings to feed its own young.

Operation Turtle Dove[9]

The farm continues to work closely with the RSPB in trialling early season supplementary feeding for turtle doves which are vulnerable to global extinction[1]. Turtle doves have suffered a 91% UK population decline since 1995 and a 78% decline across Europe since 1980. At this current rate of change scientists calculate that complete UK extinction as a breeding species is a real possibility. The loss of once common farmland weeds has been a key driver of their decline as it impairs their ability to start breeding immediately they return from their African wintering grounds. As well as providing additional seed, strips of uncultivated ground are left around crops so that the doves (and other farmland birds) have access to bare ground and the weed seeds it is likely to contain. Several pairs are present (seven adults were seen this year, plus a juvenile) and probably breeding on the farm or in the vicinity.


Turtle dove on foraging strip
Photo: (remote camera) RSPB

[9] https://www.operationturtledove.org/

Bird ringing

Bird ringing[10] was carried out by ringers licensed by the BTO. Birds are trapped in mist nets and fitted with small, uniquely numbered leg rings. Biometric details (wing length, mass, fat and muscle condition, feather moult etc.) are recorded along with the age and sex of the bird before releasing it. Nests on the farm are also monitored to provide further information on reproductive success. All the data are fed into a national database to indicate demographic trends (eg. species' productivity and adult survival, and, for some, the timing of migration and routes taken) which help explain changes in population levels. Conservation decisions (and, ideally, relevant government policy) can then be based on sound scientific information.

The data also provide evidence for assessing the effectiveness of conservation measures being taken on the farm.

In 2018 there was an increase in ringing activity compared with previous years. A total of 1136 birds were trapped, of which 988 were ringed as new birds and 148 were retrapped birds, ie. ringed on a previous occasion.

BIRDS RINGED IN 2018 (retrap numbers in brackets)									
Barn owl	7	Chiffchaff	25 (8)	Green Woodpecker	6	Pied wagtail	1	Swallow	3
Blackbird	39 (14)	Dunnock	47 (14)	Great spot'd woodpecker	5	Redwing	27	Treecreeper	10 (6)
Blackcap	38 (2)	Fieldfare	1	House sparrow	9	Reed bunting	108 (9)	Tree sparrow	1
Blue tit	137 (45)	Goldcrest	6	Jay	1	Robin	28 (9)	Whitethroat	3
Brambling	32	Goldfinch	33 (1)	Kestrel	3	Song thrush	26 (1)	Wren	23 (5)
Bullfinch	14 (3)	Greenfinch	20	Linnet	158 (1)	Spotted flycatcher	2	Yellowhammer	112 (4)
Chaffinch	68 (1)	Great tit	110 (20)	Long-tailed tit	26 (5)	Stock dove	6		

A significant message from the data is that the provision of winter bird crops and supplementary winter feeding is hugely important for local populations of farmland birds. Large flocks are regularly seen using the food provided and in cold weather estimated counts of up to a thousand birds have been recorded. A brief survey was carried out in the summer to count breeding pairs of yellowhammers in the 16km^2 area centred on Marden. The species has very particular requirements for its nesting habitat and was recorded on all 'suitable' habitat found on the farm. However, the data demonstrate that the numbers of yellowhammers breeding in the 16km^2 area are insufficient to account for the numbers recorded on the farm in the winter. Thus, the conservation work is potentially having an impact over a considerably wider area than that of HE Hall farms alone.

As county and national ringing data become available it is possible to add a more meaningful context to the numbers being ringed in Marden. For example, in 2017 190 new yellowhammers and 163 new linnets were ringed here. Recently published figures for Kent and the UK for 2017 indicate that, for yellowhammers this represented 4.2% of the total for England and no less than 79.5% of the total for Kent; for linnets it represented 3.3% of England's total and 72.8% of Kent's. Encouraging as these data may appear, it is not possible to attach any great significance to the figures without further research to rule out sources of bias. They do, however, suggest a correlation between providing

[10] https://www.bto.org/volunteer-surveys/ringing

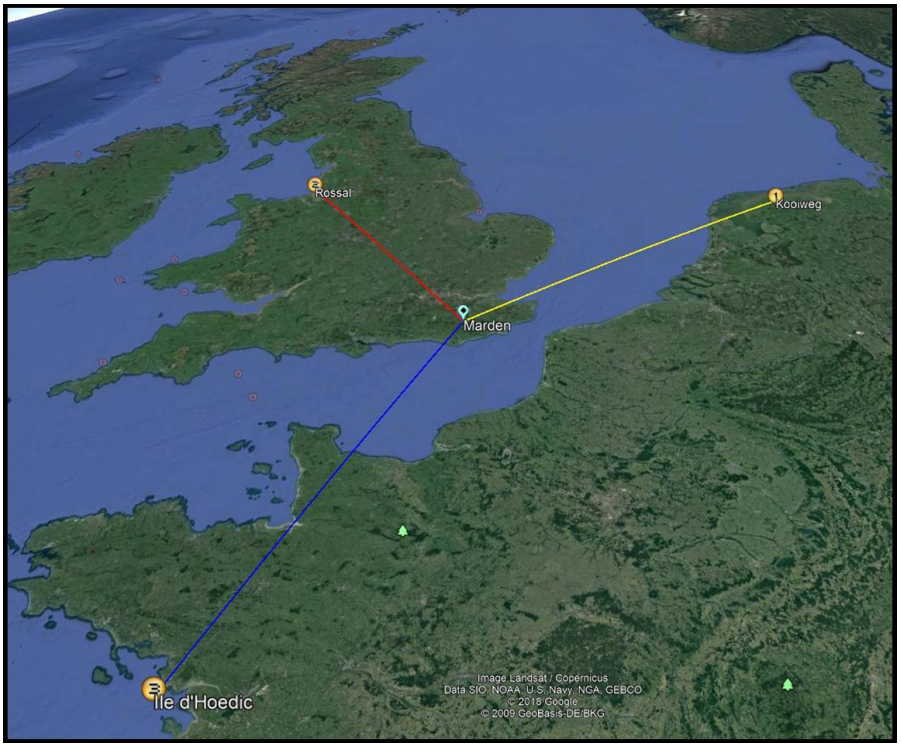
additional winter food and the presence of large numbers of birds that will benefit from further detailed analysis. Fortunately the BTO is currently carrying out a national survey to address this need[11]

One of the purposes of ringing is to provide information on birds' movements, especially seasonal migration. A number of birds trapped in Marden have provided interesting insights.

1. We ringed a song thrush at Poultry Farm in January 2018, and were completely confident it had been hatched in the previous summer. The bird was subsequently retrapped the following May, 192 days later, 464km away on an island off the coast of The Netherlands – where it was identified as a male bird, breeding for the first time. From what we already know about thrush behaviour, it is likely that this bird had been hatched in The Netherlands, migrated to the UK to spend the winter, before returning to breed for the first time, probably in the area where it had itself been born. (Yellow line on the map)

2. A lesser redpoll ringed at Little Mill in October 2017 was retrapped on the Lancashire coast in April this year. In the UK, these small finches tend to breed in the north, but winter in the milder south, feeding on deciduous tree seeds such as alder which grow along the river and ditches in Marden. (Red line on the map)

3. An even greater journey was made by a diminutive chiffchaff weighing just 8g. It was originally ringed the previous autumn in 2015 off the coast of France, as a young bird making its first migration to north Africa. It was trapped again, while breeding at Mill Farm in June 2016. It is likely that it had itself been originally hatched in Kent and had already made the round trip to Africa and back at least once, if not twice. (Blue line on the map)



These records provide perfect examples of how birds (and butterflies too) depend on suitable habitat being available if they are to make their migratory journeys. The journeys may be local – within a few miles of where they were born – or on a global scale. So many 'common' birds around Marden may also depend on suitable habitat many hundreds of miles away if they are to survive.

[11] https://www.bto.org/volunteer-surveys/english-winter-bird-survey

Mammals

Casual observations have been recorded, including a sighting of a live harvest mouse alongside an arable field at Mill Farm. A number of used harvest mouse nests have also been found at Mill and Poultry Farms which suggests continued presence of the species. Pleasingly, a young hedgehog was also found at Poultry Farm.

Evidence for other rodents and insectivores was contained in dissected barn owl pellets*. (See below).* Dormice have yet to be found here, although they have been seen recently on the adjacent Foundation Farm. A proper survey is required to get a better picture of the number and distribution of species present. Mink have not been seen since the beginning of the year but their continued presence cannot be ruled out.

Bats have not been recorded since the survey carried out in 2016. *(See Appendix 2 below)*

Mammals	**2015**	**2016**	**2017**	**2018**
Hedgehog *Erinaceus europaeus*				✓
Mole *Talpa europaea*		✓	✓	
Common Shrew *Sorex araneus*				✓
Pigmy Shrew *Sorex minutus*				✓
Common Pipistrelle Bat *Pipistrellus pipistrellus*		✓		
Soprano Pipistrelle Bat *Pipistrellus pygmaeus*		✓		
Daubenton's Bat *Myotis daubentonii*		✓		
Brown Long-eared Bat *Plecotus auritus*		✓		
Rabbit *Oryctolagus cuniculus*	✓	✓	✓	✓
Hare *Lepus europaeus*	✓			
Grey Squirrel *Sciurus caroliniensis*		✓	✓	✓
Bank Vole *Myodes glareolus*				✓
Short-tailed (Field) Vole *Microtus agrestis*				✓
Wood Mouse *Apodemus sylvaticus*				✓
Harvest Mouse *Micromys minutus*				✓
House Mouse *Mus musculus*				✓
Brown Rat *Rattus norvegicus*				✓
Fox *Vulpes vulpes*	✓	✓	✓	✓
Stoat *Mustela erminea*				✓
Weasel *Mustela nivalis*			✓	✓
American Mink *Neovison vison*		✓	✓	✓
Badger *Meles meles*		Sett?	✓	✓
Fallow Deer *Dama dama*			✓	✓

A used harvest mouse nest from a field margin at Mill Farm.
Photo: *Jac Turner-Moss*

Reptiles and amphibians

Records are of casual observations, and a proper survey is required. The prompt arrival of great-crested newts in the wetland was a welcome sign that their local population is healthy.

Amphibians & Reptiles	2016	2017	2018
Common Frog *Rana temporaria*	✓	✓	✓
Marsh Frog *Rana ridibunda*	✓		✓
Common Toad *Bufo bufo*	✓	✓	
Great Crested Newt *Triturus cristatus*			✓
Grass Snake *Natrix natrix*		✓	
Common Lizard *Zootoca vivipara*			✓

Insects and other invertebrates

As last year, systematic recording of dragonflies and damselflies was done monthly throughout the summer[12] with additional ad hoc observations by others contributing to our records. The effort has mainly centred on Mill Farm.

Dragonflies and damselflies ***Report by Sam Crocker and Rob Manvell***

It was a slow start to the year for dragonflies with cold snaps in February and March but, thankfully, 2018 turned out to be a good year for recording at Mill Farm as we managed to identify an additional seven species, bringing the site total to nineteen.

The first survey of the year was carried out on 19th May and we were fortunate enough to record four of the new species; the Hairy Dragonfly (the smallest UK hawker), the impressive Downy Emerald, and the more common Four-spotted Chaser and Broad-bodied Chaser. Later surveys in the year then added two new damselflies to the list, the Common Blue Damselfly and the Blue-tailed Damselfly, and finally a small 'red and black' Ruddy Darter.

We are looking forward to adding the new wetland to the surveys in 2019. The majority of a dragonfly's life-cycle is spent in larval form, beneath the water surface, feeding on other invertebrates. Development typically takes one or two years so we may be lucky to find some early colonisers emerging from May onwards!

Broad-bodied chaser.
Photo: *Sam Crocker*

[12] Principally by Sam Crocker & Rob Manvell

	2017	2018
Banded Demoiselle *Calopteryx splendens*	✓	✓
Beautiful Demoiselle *Calopteryx virgo*	✓	✓
White-legged Damselfly *Platycnemis pennipes*	✓	✓
Azure Damselfly *Coenagrion puella*	✓	✓
Common Blue Damselfly *Enallagma cyathigerum*		✓
Blue-tailed Damselfly *Ischnura elegans*		✓
Large Red Damselfly *Pyrrhosoma nymphula*	✓	
Southern Hawker *Aeshna cyanea*	✓	✓
Brown Hawker *Aeshna grandis*	✓	✓
Migrant Hawker *Aeshna mixta*	✓	✓
Emperor Dragonfly *Anax imperator*	✓	
Hairy Dragonfly *Brachytron pratense*		✓
Golden-ringed Dragonfly *Cordulegaster boltonii*	✓	✓
Downy Emerald *Cordulia aenea*		✓
Broad-bodied Chaser *Libellula depressa*		✓
Four-spotted Chaser *Libellula quadrimaculata*		✓
Black-tailed Skimmer *Orthetrum cancellatum*	✓	
Ruddy Darter *Sympetrum sanguineum*		✓
Common Darter *Sympetrum striolatum*	✓	✓

Downy emerald
Photo: *Sam Crocker*

Butterflies and moths have been recorded only on a casual basis, but the list of species seen is slowly increasing. A more structured approach to recording is required for effective monitoring and conservation purposes.

	D	A	2016	2017	2018
Brimstone *Gonepteryx rhamni*				✓	✓
Comma *Polygonia c-album*			✓	✓	✓
Large White *Pieris brassicae*			✓	✓	✓
Orange Tip *Anthocharis cardamines*			✓	✓	✓
Peacock *Aglais io*			✓	✓	✓
Red Admiral *Vanessa atalanta*			✓	✓	✓
Small White *Pieris rapae*			✓	✓	✓
Green-veined White *Pieris napi*			✓	✓	✓
Small Tortoiseshell *Aglais urticae*			✓		✓
Meadow Brown *Maniola jurtina*			✓	✓	✓
Gatekeeper *Pyronia tithonus*			✓	✓	✓
Common Blue *Polyommatus icarus*			✓	✓	✓
Holly Blue Celastrina argiolus			✓	✓	✓
Large Skipper *Ochlodes sylvanus*			✓	✓	✓
Small Skipper *Thymelicus sylvestris*			✓	✓	✓
Speckled Wood *Pararge aegeria*			✓	✓	✓
Ringlet *Aphantopus hyperantus*			✓	✓	✓
Small Copper *Lycaena phlaeas*			✓	✓	✓
Cinnabar *Tyria jacobaeae*			✓		
Six-spot Burnet *Zygaena filipendulae*			✓	✓	✓

Colours denote **D**istribution (occurrence) and **A**bundance (population) trends of species regularly found in the British Isles[13].

Underwing of a comma butterfly in a woodland ride at Mill Farm.
Photo: *George Simmons*

A detailed survey of solitary bees and wasps was carried out by a member of East Malling Research Station but a copy of the list of species found is not yet available.

[13] Information is taken from *The State of the UK's Butterflies 2015* (Fox, 2015).

Plants and fungi *Report by David Newman*

Seven more vascular plant species have been identified at Mill Farm during the year and these have been added to the updated list of plants identified in the two earlier surveys in *Appendix 1*. The total now stands at 212. The rare small teasel *Dipsacuspilosus* is still present in good numbers.

Bryophytes[14]

These are very small non-vascular plants but often distinctive in their habits, and some species are sensitive to current environmental changes so are worth monitoring. This list is only a start, and more work is required.

Liverworts		
Conocephalum spp	Stream too fast to permit a close look.	Recently split into 2 species, either of which is likely
Lunularia cruciata	Under old pear trees	Common ruderal.

Lunularia cruciata – Crescent-cup Liverwort

Kindbergia praelonga – Common-feather Moss

Mosses		
Barbula sardoa	Over old tarmac	Common in this habitat
Brachythecium rutabulum	Generally common base of trees, in hedgerows.	Common in this habitat
Bryum argenteum	Over old tarmac	Common in this habitat
Bryum dichotomum	Over old tarmac	Common in this habitat
Dicranoweisia cirrata	Old pear trees	
Fontinalis antipyretica	Sides of un-named stream	Common on clean waterways
Kindbergia praelonga	Very common	Generally very common in S. England
Orthotricum affine	Old pear trees	
Syntrichia ruralis ssp ruraliformis	Old tarmac	A common habitat
Tortula truncata	Abundant on bare soil	One of commonest arable mosses in S. England on clay soils.

[14] See http://www.theplantlist.org/

Fungi

Fungi are not plants, but unique organisms and there is growing evidence that many play a crucial role in recycling nutrients for both crops and wild plants. Work only began this autumn at Mill Farm, which was unusually dry, and it may take a few years to build up a more complete list.

Agaricus campestris	Field edge
Arrhenia spathulata	Pear orchard
Bolbitius titubans var. titubans	Field edge
Conocybe sp.	Field edge
Gymnopus dryophilus	Field edge
Hebeloma mesophaeum	Field edge
Hygrocybe miniata	Field edge
Lepista sordida	Field edge
Lycoperdon pratense	Field edge
Marasmiellus ramealis	Old pear tree
Mycena aetites	Old cherry
Mycena arcangeliana	Óld cherry
Mycena flavoalba	Field edge
Mycena galericulata	Field edge
Mycena hiemalis	Rotting wood
Mycena olivaceomarginata	Field edge
Panneolus fimicola	Orchard grassland
Parasola conopilus	Field edge
Parasola plicatilis	Field edge
Paxillus cuprinus	Field edge
Psathyrella microrhiza	Field edge
Rhodocollybia butyracea	Wooded ditch
Scutellinia pseudotrechispora	Clay soil under oaks
Tubaria furfuracea	Field edge

Scutellinia pseudotrechispora - Left
Panneolus fimicola (Turf mottlegill) *- Below*
Lecidella elaeochroma, Lecanora capinea, Physcia ascendens, Xanthoria parietina - Bottom
Photos: *David Newman*

Lichen

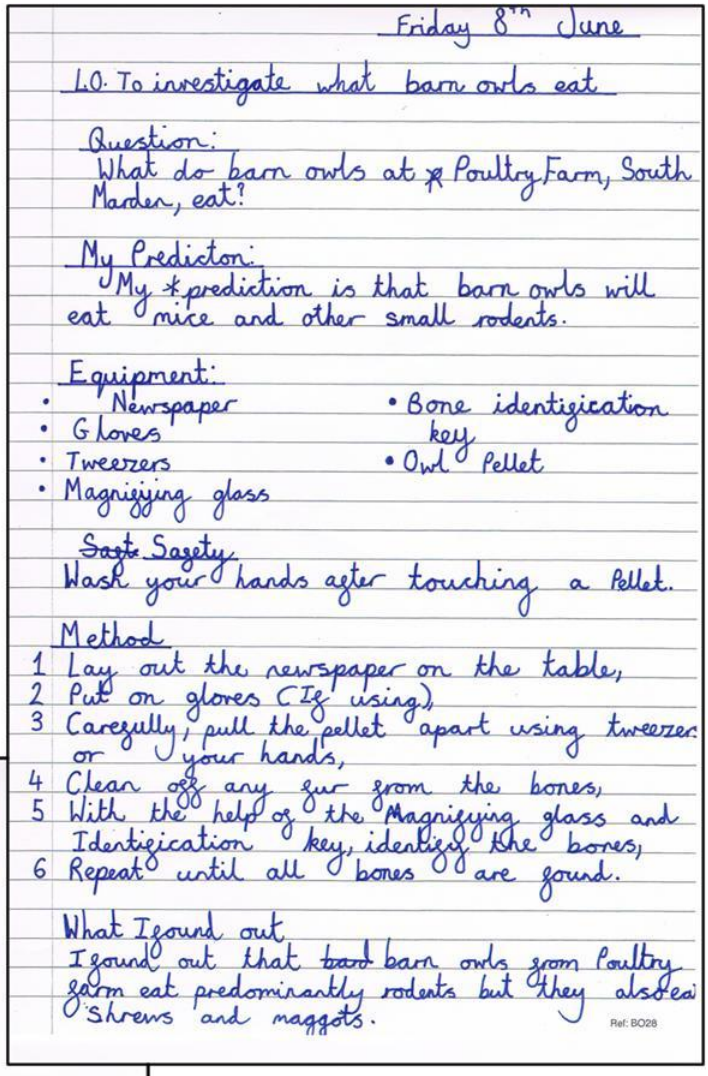
Lichens are strictly fungi but with a very close symbiotic relationship to a specific alga. Generally common and widespread where air quality is good and farmland spraying is kept low. They are very sensitive to a host of environmental factors and so like the bryophytes are important environmental monitors. Arable farmland is usually lacking in numbers of species and so far there are no surprises, but work has only recently begun on surveying them.

Evernia prunastri	Prunus and pear trunks Patt Ln orchard
Flavoparmelia soredians	Bullace twigs, old pear orchard
Hpogymnia physodes	old pear tree
Lecanora capinea	
Lecidella elaeochroma	Widespread poplar trunks, new coppice
Lepraria incana	old pear tree
Melanelixia glabratula	Prunus and pear trunks Patt Ln orchard
Melanelixia subaurifera	Prunus and pear trunks Patt Ln orchard
Parmelia reticulata	Prunus and pear trunks Patt Ln orchard
Physcia ascendens	Bullace twigs
Ramalina farinacea	Bullace twigs
Xanthoria parietina	
Xanthoria polycarpa	Bullace twigs, old pear orchard

Education

HE Hall is keen to contribute to the education of the wider public, especially young people, through farm visits and in other ways. Barn owl pellets have been dissected - with a great deal of enjoyment and interest - to identify prey remains by **Y5 pupils at Staplehurst Primary School.**

Apart from contributing to the children's scientific education and raising their awareness of how the natural environment functions, a notable aspect of the exercise was the degree to which it engaged *all the pupils'* interest, especially those not always motivated by classroom work.



Friday 8th June

L.O. To investigate what barn owls eat

Question:
What do barn owls at ~~x~~ Poultry Farm, South Marden, eat?

My Prediction:
My ~~x~~prediction is that barn owls will eat mice and other small rodents.

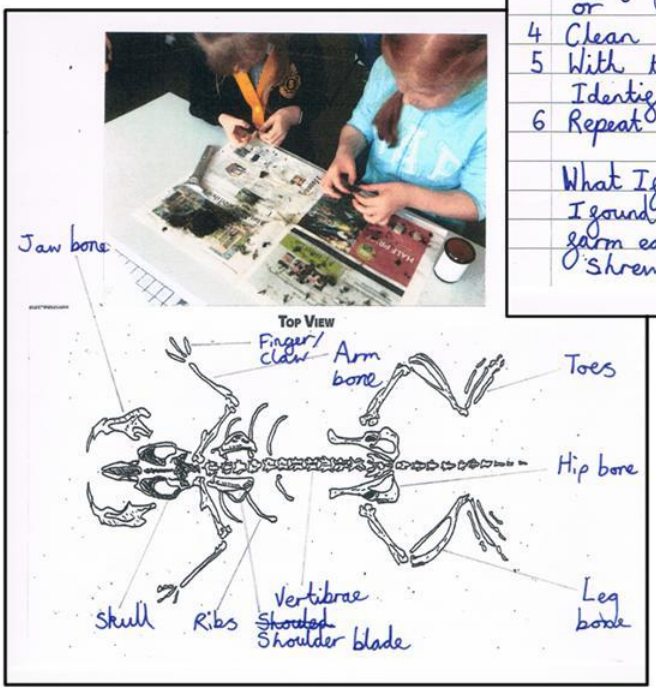
Equipment:
- Newspaper
- Gloves
- Tweezers
- Magnifying glass
- Bone identification key
- Owl Pellet

~~Safe~~ Safety
Wash your hands after touching a Pellet.

Method
1 Lay out the newspaper on the table,
2 Put on gloves (If using),
3 Carefully, pull the pellet apart using tweezers or your hands,
4 Clean off any fur from the bones,
5 With the help of the Magnifying glass and Identification key, identify the bones,
6 Repeat until all bones are found.

What I found out
I found out that ~~bad~~ barn owls from Poultry Farm eat predominantly rodents but they also ea shrews and maggots.

Ref: BO28



Species identified in the barn owl's diet
(and therefore present on or near the farms)

Field vole
Bank vole
Wood mouse
House mouse
Brown rat
Common shrew
Pigmy shrew
House sparrow
Frog
Earwig

Pellets were also dissected by **Y13 students at St Michael's Girls' Grammar School,** North Finchley. Bones and other indigestible body parts, especially teeth, were analysed in greater detail. Results revealed no less than seven species of mammal, a bird, an amphibian and an insect. Teeth and specific bones were identified ie. humerus, radius & ulna etc., then matched to an identification key. Skull fragments, particularly ear capsules, were also abundant in the pellets. The beak of a house sparrow, a frog leg-bone and the pincers of an earwig were all revealed as remains of a night's hunting.

Of equal educational importance was the opportunity for the students to discuss food chains for animals – and ultimately for humans – and the impact of a healthy natural environment on these.

And finally...

if you are reading this report online (thank you for persevering thus far) you might like to follow this link to a young person's video that encapsulates the spirit of what we have been trying to achieve over the last year.

https://twitter.com/robgmacfarlane/status/1089083932648374272?s=12

Ray Morris

February 2019

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Acknowledgements:

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GLOSSARY

BTO British Trust for Ornithology

CG Chunnel Group

DEFRA Department for the Environment, Food and Rural Affairs

EA Environment Agency

FWAG Farming and Wildlife Advisory Group

IUCN International Union for the Conservation of Nature

KCC Kent County Council

KHWCP Kent High Weald Countryside Partnership

KWT Kent Wildlife Trust

MBC Maidstone Borough Council

NE Natural England

NFU National Farmers Union

RSPB Royal Society for the Protection of Birds

SERT South East Rivers Trust

SDC Sevenoaks District Council

WBC Winter bird crop

YPC Yalding Parish Council

Appendix 1

Vascular plant list for Mill Farm, 08 Aug 2016 (Sue Buckingham) and 19 August 2017 (Kent Field Club).
With subsequent additions as dated.

Taxon	Vernacular	Date	Comment
Acer campestre	Field Maple	08 Aug 2016	
Achillea millefolium	Yarrow	08 Aug 2016	
Adoxa moschatellina	Town Hall Clock	25 Apr 2018	
Agrimonia eupatoria	Agrimony	08 Aug 2016	
Agrostis capillaris	Common Bent	08 Aug 2016	
Agrostisgigantea	Black Bent	19 Aug 2017	
Agrostis stolonifera	Creeping Bent	08 Aug 2016	
Alismaplantago-aquatica	Water-plantain	08 Aug 2016	
Alliariapetiolata	Garlic Mustard	19 Aug 2017	
Allium triquetrum	Three-cornered Leek	25 Apr 2018	
Allium ursinum	Ramsons/Wild Garlic	25 Apr 2018	
Alnusglutinosa	Alder	08 Aug 2016	
Alopecurusmyosuroides	Black-grass	08 Aug 2016	
Alopecuruspratensis	Meadow Foxtail	08 Aug 2016	
Anagallisarvensis subsp. arvensis	Scarlet Pimpernel	19 Aug 2017	
Anemone nemorosa	Wood Anemone	25 Apr 2018	
Angelica sylvestris	Wild Angelica	08 Aug 2016	
Anisanthasterilis	Barren Brome	08 Aug 2016	
Anthriscussylvestris	Cow Parsley	08 Aug 2016	
Arctiumlappa	Greater Burdock	08 Aug 2016	
Arrhenatherumelatius	False Oat-Grass	08 Aug 2016	
Artemisia vulgaris	Mugwort	19 Aug 2017	
Arum maculatum	Lords-and-Ladies	08 Aug 2016	
Asparagus officinalis	Garden Asparagus	08 Aug 2016	
Aspleniumscolopendrium	Hart's-tongue	08 Aug 2016	
Atriplexpatula	Common Orache	08 Aug 2016	
Atriplexprostrata	Spear-leaved Orache	08 Aug 2016	
Avenafatua	Wild-oat	08 Aug 2016	
Ballotanigra	Black Horehound	08 Aug 2016	
Borago officinalis	Borage	08 Aug 2016	Probably with birdseed mix
Brachypodiumsylvaticum	False-brome	08 Aug 2016	
Brassica nigra	Black Mustard	08 Aug 2016	
Bromuscommutatus	Meadow Brome	19 Aug 2017	
Callitriche sp		09 Jan 2019	
Calystegiasepium	Hedge Bindweed	08 Aug 2016	
Capsella bursa-pastoris	Shepherd's-purse	08 Aug 2016	
Cardamineflexuosa	Wavy Bitter-cress	19 Aug 2017	
Cardamineflexuosa	Wavy Bitter-cress	19 Aug 2017	
Carex pendula	Pendulous Sedge	08 Aug 2016	
Carexremota	Remote Sedge	08 Aug 2016	
Centaureanigraagg.		19 Aug 2017	
Centauriumerythraea	Common Centaury	08 Aug 2016	
Cerastiumfontanum	Common Mouse-ear	08 Aug 2016	
Chenopodium album	Fat-hen	08 Aug 2016	
Chenopodiumpolyspermum	Many-seeded Goosefoot	08 Aug 2016	
Cichoriumintybus	Chicory	19 Aug 2017	
Cirsiumarvense	Creeping Thistle	19 Aug 2017	
Cirsium vulgare	Spear Thistle	08 Aug 2016	
Clematis vitalba	Traveller's-joy	19 Aug 2017	
Conium maculatum	Hemlock	08 Aug 2016	

Convolvulus arvensis	Field Bindweed	08 Aug 2016	
Cornussanguinea	Dogwood	08 Aug 2016	
Corylusavellana	Hazel	08 Aug 2016	
Crassulahelmsii	New Zealand Pigmyweed	08 Aug 2016	Abundant along the entire length of a recently dug channel at approx. TQ95 4585. An extremely invasive non-native species.
Crataegusmonogyna	Hawthorn	08 Aug 2016	
Crepiscapillaris	Smooth Hawk's-beard	08 Aug 2016	
Cuscutacampestris	Yellow Dodder	19 Aug 2017	In abundance on Guisottia (Niger) plants which had been sown to provide winter seed for birds, Mill Farm.TR7325 4546
Deschampsiacespitosa	Tufted Hair-grass	08 Aug 2016	
Dipsacuspilosus	Small Teasel	08 Aug 2016	A massive population of plants on the bank of a drain of the Lesser Teise at TQ7341 4567 also more plants as result of clearance of stream-side vegetation under a power line at TQ7381 4595 and a third patch by Teise bridge and road at TQ737 456 all on Mill Farm. (Currently recorded from only a dozen or so sites in Kent, so this surely one of the largest).
Dryopterisdilatata	Broad Buckler-fern	08 Aug 2016	
Dryopterisfilix-mas	Male-fern	08 Aug 2016	
Elytrigiarepens	Common Couch	08 Aug 2016	
Epilobiumciliatum	American Willowherb	08 Aug 2016	
Epilobiumhirsutum	Great Willowherb	08 Aug 2016	
Epilobiumtetragonum	Square-stalked Willowherb	08 Aug 2016	
Equisetum arvense	Field Horsetail	08 Aug 2016	
Euonymus europaeus	Spindle	08 Aug 2016	
Eupatorium cannabinum	Hemp-agrimony	08 Aug 2016	
Euphorbia helioscopia	Sun Spurge	08 Aug 2016	
Fallopia convolvulus	Black-bindweed	08 Aug 2016	
Filipendula ulmaria	Meadowsweet	08 Aug 2016	
Fraxinus excelsior	Ash	08 Aug 2016	
Fumaria officinalis	Common Fumitory	08 Aug 2016	
Galanthus sp	Snowdrop	05 Feb 2019	One clump at TQ731451 where foot path ends just after the weir, and looks planted but very far from housing so worth noting and see if spreads or declines with time.
Galeopsis bifida	Bifid Hemp-nettle	08 Aug 2016	
Galium album	Hedge Bedstraw	08 Aug 2016	
Galiumaparine	Cleavers	08 Aug 2016	
Geranium dissectum	Cut-leaved Crane's-bill	08 Aug 2016	
Geumurbanum	Wood Avens	08 Aug 2016	
Glechoma hederacea	Ground-ivy	08 Aug 2016	
Gunnera tinctoria	(Giant-rhubarb)	08 Aug 2016	Planted along streamsides in at least 2 places
Hedera helix	Common Ivy	08 Aug 2016	
Helminthothecaechioides	Bristly Oxtongue	19 Aug 2017	
Heracleum mantegazzianum	Giant Hogweed		Sporadic. Promptly removed.
Hesperismatronalis	Dame's-violet	19 Aug 2017	
Holcuslanatus	Yorkshire-fog	08 Aug 2016	
Hordeumsecalinum	Meadow Barley	19 Aug 2017	

Humuluslupulus	Hop	08 Aug 2016	
Humuluslupulus	Hop	19 Aug 2017	
Hyacinthoides non-scripta	Bluebell	08 Aug 2016	
Hypericumperforatum	Perforate St John's-wort	19 Aug 2017	
Hypericumperforatum	Perforate St John's-wort	19 Aug 2017	
Hypericumtetrapterum	Square-stalked St John's-wort	19 Aug 2017	
Hypochaerisradicata	Cat's-ear	19 Aug 2017	
Iris pseudacorus	Yellow Iris	08 Aug 2016	
Juncusconglomeratus	Compact Rush	19 Aug 2017	
Juncuseffusus	Soft-rush	08 Aug 2016	
Juncusinflexus	Hard Rush	08 Aug 2016	
Kickxia spuria	Round-leaved Fluellen	25 Oct 2018	
Kickxiaelatine	Sharp-leaved Fluellen	19 Aug 2017	
Lactucavirosa	Great Lettuce	08 Aug 2016	
Lamium album	White Dead-nettle	19 Aug 2017	
Lamium galeobdolon	Yellow Archangel	6 May 2018	
Lamium purpureum	Red Dead-nettle	08 Aug 2016	
Lapsanacommunis	Nipplewort	08 Aug 2016	
Lathyruspratensis	Meadow Vetchling	08 Aug 2016	
Lemnagibba	Fat Duckweed	19 Aug 2017	
Lemna minor	Common Duckweed	08 Aug 2016	
Lemnaminuta	Least Duckweed	19 Aug 2017	
Lepidiumcoronopus	Swine-cress	19 Aug 2017	
Lepidiumdidymum	Lesser Swine-cress	19 Aug 2017	
Linaria vulgaris	Common Toadflax	08 Aug 2016	
Linumusitatissimum	Flax	08 Aug 2016	crop relict
Loliummultiflorum	Italian Rye-grass	19 Aug 2017	
Loliumperenne	Perennial Rye-grass	19 Aug 2017	
Lotus corniculatus	Common Bird’s-foot-trefoil	08 Aug 2016	
Lotus pedunculatus	Greater Bird’s-foot-trefoil	08 Aug 2016	
Lycopuseuropaeus	Gypsywort	08 Aug 2016	
Lysimachianemorum	Yellow Pimpernel	08 Aug 2016	
Lysimachianummularia	Creeping-Jenny	19 Aug 2017	
Lysimachia vulgaris	Yellow Loosestrife	08 Aug 2016	Recorded from only around a couple of dozen sites in Kent and rarely ever as abundant as here.
Lythrumsalicaria	Purple-loosestrife	08 Aug 2016	
Matricariachamomilla	Scented Mayweed	08 Aug 2016	
Matricariadiscoidea	Pineappleweed	08 Aug 2016	
Medicagolupulina	Black Medick	08 Aug 2016	
Menthaaquatica	Water Mint	08 Aug 2016	
Mercurialisperennis	Dog’s Mercury	08 Aug 2016	
Myosotis arvensis	Field Forget-me-not	08 Aug 2016	
Nupharlutea	Yellow Water-lily	08 Aug 2016	
Oenanthecrocata	Hemlock Water-dropwort	08 Aug 2016	
Panicummiliaceum	Common Millet	08 Aug 2016	from a birdseed sowing
Papaver rhoeas	Common Poppy	08 Aug 2016	
Persicariahydropiper	Water-pepper	08 Aug 2016	
Persicariamaculosa	Redshank	08 Aug 2016	
Persicaria lapathifolia	Pale persicaria,	13 Sept 2018	
Petasitesfragrans	Winter Heliotrope	08 Aug 2016	
Phalarisparadoxa	Awned Canary-grass	08 Aug 2016	from a birdseed sowing
Phleumbertolonii	Smaller Cat's-tail	19 Aug 2017	
Phleumpratense	Timothy	19 Aug 2017	
Pimpinella major	Greater Burnet-saxifrage	08 Aug 2016	
Plantago major	Greater Plantain	08 Aug 2016	
Poaannua	Annual Meadow-grass	08 Aug 2016	

Poatrivialis	Rough Meadow-grass	08 Aug 2016	
Polygonumaviculare	Knotgrass	08 Aug 2016	
Populus x canadensis	Hybrid Black-poplar	08 Aug 2016	
Potentillaanserina	Silverweed	08 Aug 2016	
Potentillareptans	Creeping Cinquefoil	08 Aug 2016	
Prunella vulgaris	Selfheal	08 Aug 2016	
Prunusdomestica	Wild Plum	08 Aug 2016	
Prunusspinosa	Blackthorn	08 Aug 2016	
Pulicariadysenterica	Common Fleabane	08 Aug 2016	
Quercusrobur	Pedunculate Oak	08 Aug 2016	
Ranunculusacris	Meadow Buttercup	08 Aug 2016	
Ranunculusrepens	Creeping Buttercup	08 Aug 2016	
Ranunculussceleratus	Celery-leaved Buttercup	08 Aug 2016	
Rosa arvensis	Field-rose	08 Aug 2016	
Rosa caninaagg.	Dog-rose	19 Aug 2017	
Rosa x dumalis	Rosa caesia x canina	08 Aug 2016	
Rumexcrispus	Curled Dock	08 Aug 2016	
Rumexobtusifolius	Broad-leaved Dock	08 Aug 2016	
Rumexsanguineus	Wood Dock	08 Aug 2016	
Saginaprocumbens	Procumbent Pearlwort	08 Aug 2016	
Salix caprea	Goat Willow	08 Aug 2016	
Salix cinerea	Grey Willow	08 Aug 2016	
Salix x fragilissens. lat.	(Hybrid Crack-willow)	08 Aug 2016	
Sambucusnigra	Elder	08 Aug 2016	
Schedonorusarundinaceus	Tall Fescue	19 Aug 2017	
Schedonorusgiganteus	Giant Fescue	08 Aug 2016	
Scorzoneroidesautumnalis	Autumn Hawkbit	08 Aug 2016	
Scrophulariaauriculata	Water Figwort	08 Aug 2016	
Scutellariagalericulata	Skullcap	08 Aug 2016	by a farm pond at TQ7389 4588
Senecioerucifolius	Hoary Ragwort	08 Aug 2016	
Seneciojacobaea	Common Ragwort	08 Aug 2016	
Senecio vulgaris	Groundsel	08 Aug 2016	
Silenedioica	Red Campion	08 Aug 2016	
Sinapisarvensis	Charlock	08 Aug 2016	
Sisonamomum	Stone Parsley	08 Aug 2016	
Sisonamomum	Stone Parsley	19 Aug 2017	
Sisymbriumofficinale	Hedge Mustard	08 Aug 2016	
Solanum dulcamara	Bittersweet	19 Aug 2017	
Solanum nigrum	Black Nightshade	08 Aug 2016	
Sonchusarvensis	Perennial Sow-thistle	08 Aug 2016	
Sonchus asper	Prickly Sow-thistle	08 Aug 2016	
Sonchusoleraceus	Smooth Sow-thistle	08 Aug 2016	
Sparganiumerectum	Branched Bur-reed	08 Aug 2016	
Stachyspalustris	Marsh Woundwort	19 Aug 2017	
Stachys sylvatica	Hedge Woundwort	08 Aug 2016	
Stellariagraminea	Lesser Stitchwort	08 Aug 2016	
Stellariaholostea	Greater Stitchwort	19 Aug 2017	
Stellaria media	Common Chickweed	08 Aug 2016	
Symphytum x uplandicum	Russian Comfrey (S. asperum x officinale)	19 Aug 2017	
Tanacetumparthenium	Feverfew	08 Aug 2016	
Tanacetum vulgare	Tansy	08 Aug 2016	
Taraxacumagg.	Dandelion	08 Aug 2016	
Thlaspi arvense	Field or Common Penny-cress	08 Aug 2016	
Torilis japonica	Upright Hedge-parsley	08 Aug 2016	
Trifoliumdubium	Lesser Trefoil	19 Aug 2017	
Trifoliumincarnatum subsp.	Crimson Clover	19 Aug 2017	a few plants among a bird seed

incarnatum			sowing on Mill Farm
Trifoliumrepens	White Clover	08 Aug 2016	
Tripleurospermuminodorum	Scentless Mayweed	08 Aug 2016	
Typhalatifolia	Bulrush	19 Aug 2017	
Urticadioica	Common Nettle	08 Aug 2016	
Veronica arvensis	Wall Speedwell	08 Aug 2016	
Veronica chamaedrys	Germander Speedwell	19 Aug 2017	
Veronica persica	Common Field-speedwell	08 Aug 2016	
Veronica polita	Grey Field-speedwell	08 Aug 2016	
Veronica serpyllifolia	Thyme-leaved Speedwell	19 Aug 2017	
Viburnum lantana	Wayfaring-tree	19 Aug 2017	
Viburnum opulus	Guelder-rose	08 Aug 2016	planted
Viciacracca	Tufted Vetch	08 Aug 2016	
Viciahirsuta	Hairy Tare	08 Aug 2016	
Viciasativa subsp. segetalis	Common Vetch	08 Aug 2016	
Viciatetrasperma	Smooth Tare	08 Aug 2016	
Viola odorata	Wood/Sweet Violet,	09 Jan 2019	

Total species: 212

Appendix 2

BAT SURVEY REPORT
Site: Mill Farm, Hunton Road, Marden, Kent TN12 9QX

Surveyors: Peter Scrimshaw and Steve Songhurst using Elekon Batlogger M bat detectors, plus Katy Tennant and Val Sutton (volunteers)

Background
Peter Hall is managing his recently acquired Mill Farm with wildlife in mind. Kent Bat Group was approached by Ray Morris, who has done a comprehensive bird survey and is working with the RSPB on a Turtle Dove breeding program on the site, with a view to finding out what bats were present, how they used the farm and what might be done to improve the habitat for them. Peter S and Val did a daylight walkover with Peter H and Ray on 22nd June, maps of the site were produced and an evening survey organised for 5th August.

Survey
The survey commenced at sunset, 20.39, and the first bat, a common pipistrelle (Pipistrellus pipistrellus), was heard hunting at 21.02 at point M and another at 21.08 at D. The first soprano pipistrelles (Pipistrellus pygmaeus) appeared at M at 21.16 and at H at 21.17. These are believed to be separate individuals. Both species of pipistrelle, in ones and twos, continued to feed at these spots during the rest of the survey. The 'hotspots', where the bats were finding most food, were at D west of the sluice gate, between D and F in the woodland, at H on the north side of the footbridge, north east of J and in the overgrown area between K and M. Later in the evening both pipistrelles were also found hunting round the farmyard.

At 21.35 and 22.06 a myotis bat, probably Daubenton's (Myotis daubentonii), was recorded hunting in the woodland near point F. Daubenton's bats are most frequently found feeding on aquatic insects over larger bodies of water and it was disappointing not to find any upstream of the main sluice.

No bats were recorded leaving any of the buildings, however we did not conduct a specific dusk roost emergence survey, which would have required several more volunteers. We do know, from previously found droppings, that Brown Long-eared/s (Plecotus auritus) have used the oast. No Noctules (Nyctalus noctula) or Serotines (Eptesicus serotinus) were encountered.

Conclusions
Mill Farm currently supports small numbers of four species of bat, but there is no evidence of a maternity roost anywhere. The majority of bats were flying north to south, reasonably soon after sunset, so roosts are presumed to be nearby, north of the site.

Recommendations

It is uncertain why the number of bats visiting Mill Farm is lower than expected. It could be that surrounding fields are mostly monocultures, which do not attract the insect loads bats need, and they are finding them elsewhere. However we know that Peter H is addressing this issue and also developing a wetland area to the north, which should benefit bats as well as birds. There are generally few suitable sites for roosts on the farm. As the trees are relatively young they do not provide many holes and splits. Roosting sites could be provided by erecting bat boxes on or in the buildings, though immediate results should not be expected.

Note: This report is not adequate for attaching to a planning application, so if in the future it was proposed to convert any of the buildings to other uses, a professional survey with many more participants, would be required.

Other Highlights

A Kingfisher seen from the bridge at H at 20.49 and young tawny owls serenading us as we finished surveying at 22.15.

Val Sutton

12th August 2016