Hull Natural History Society

Bulletin

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Contents

Cover photo

Common Blue on Selfheal, Farndale, July 2021 © Africa Gómez

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Revision 1

Editorial

Richard Middleton

The first number of this new Bulletin series relied heavily on our valuable archive of previously-published articles but, as you will see, this issue contains a wealth of new material.

As Editor I believe that the primary function of our newly-resurrected publication should be to act as a means of communication between members—a place where Society members and friends can express their views and observations, much as we would if we were meeting face-to-face. I hope that members will feel confident to submit items of all kinds from the briefest of notes to more substantial reports and articles. We may only be a small society but with our web publication we are reaching a world-wide audience too.

Internet technology has provided us with an inexpensive method of producing the Bulletin. Our 19th and early 20th century Transactions were professionally printed at a great financial cost. By the middle of the century production was taken 'in-house' and the Bulletin booklets were produced by cutting stencils on a typewriter and hand printing them using the Society's own duplicator. This involved an enormous amount of work by several people, not to mention a significant cost which was defrayed by charging members for the booklets. There is a note in the editorial of Bulletin 2.4 (1962) lamenting that the combined profit of selling the previous two editions had amounted to the equivalent of 4p—a margin considered too close for comfort. Although the production and distribution costs are now relatively small, it still requires a significant investment of time. Special thanks are due to Andrew Chadwick for his work on the graphical design which has resulted in a publication that we can be justly proud of.

Hull Natural History Society

President	Helen Kitson
Secretary	Andrew Chadwick
Treasurer	Rohan Lewis

The Society was founded in 1880 as the Hull Field Club later to become the Hull Scientific and Field Naturalists' Club. Over the last 140 years the members of the Society have continued to observe and record the plants and animals of Hull and the surrounding areas.

We have a regular monthly programme of outdoor field meetings and, during the summer, weekly evening meetings to more local sites of interest. During the winter months we also arrange a few indoor talks by members or visiting speakers.

If you are interested in any aspect of natural history at whatever level, beginner or expert, then do consider coming along to one of our meetings. Full details can be found on our website at www.hullnats.org.uk or email the Secretary at info@hullnats.org.uk.

Mistletoe

John Killingbeck

Introduction

This article is a compilation based on, and following on from, an item I originally wrote in January 2016 for the Botanical Society of Britain and Ireland (BSBI) local group's website, regarding Mistletoe (*Viscum album*) in East Yorkshire.

Mistletoe (*Viscum album*)

The second section has arisen as a result of email discussions between several Hull Natural History Society members—particularly with regard to the established view that the plant is dioecious (male and female are separate plants) and how it spreads. My own anecdotal observation was that the plants almost always seem to have berries. Was this purely an erroneous impression? If not, how could this be if the plant is dioecious? The standard view in most textbooks, incidentally, favours dioeciousness.

Distribution in East Yorkshire

Although described by Stace as native north to Yorkshire, those who know the plant will be aware that it has a somewhat anomalous distribution in the UK, being generally uncommon and rather localised in southern Britain except in the Severn valley counties where it appears abundantly and is quite commonplace.

Interestingly, its distribution in East Yorkshire appears similarly anomalous. In general it is very scarce, perhaps almost unknown, west of the Wolds and in many parts to the east, hardly encountered. Yet there are one or two enclaves where it is quite abundant and a scatter of other places, mainly in the general arc of the river Hull between Hull and Driffield, where it may be encountered.

It is probable that some clumps of Mistletoe have been deliberately cultured—not an easy task but not beyond the skill of some. Such clumps are likely to be found fairly low down on apple trees and to be isolated from other plants. Once established such a clump may increase on its host but seems rarely to go beyond it. However, there are many other plants which are far too high above the ground to have been deliberate and these are the more interesting from a botanist's point of view.

The Hull area has a number of records. Most likely hosts include Apple (*Malus domestica*), Common Lime (*Tilia x europaea*)—though in Western Cemetery it has also been seen on Silver Lime (*Tilia tomentosa*)—and hybrid Black Poplars (*Populus x canadensis* vars). Some old records are mentioned in Eva Crackles' Flora of East Yorkshire. The Hull enclave spreads into the western suburb of Hessle, where a large clump can be seen on a Lime in Hessle square and formerly on the more unusual host, American Black Walnut (*Juglans nigra*) in the cemetery. This latter clump seems to have died out. Black Walnut, incidentally, is a known host in other parts of the UK. The farthest flung limit of the Hull enclave so far is at Skidby, where a plant has recently appeared on a form of hybrid Poplar.

A second substantial enclave of Mistletoe is to be found in Beverley, centred on the Manor Road district. The epicentre of the colony seems to be an old orchard behind Manor Close, now almost obscured by housing. Old

Apples here are laden with large Mistletoes. From here the colony has spread, most conspicuously and quite prolifically to the tall Limes behind Beverley High School. A nearby Poplar, in the opposite direction, was also infested by several clumps until recently felled for no obvious reason. In nearby gardens, Rowan (*Sorbus aucuparia*) is also infected. An outlying clump grows on a Lime at the old County Hall building.

'Mistletoe Tree' — apple, Beverley

A third strong and very diverse enclave is to be found in the village of Lockington, to the north, but scarcely beyond it. Here, clumps may be encountered on Lime, Apple and Poplar, but also on Willow (*Salix fragilis*), Hawthorn (*Crataegus monogyna*) and even Robinia (*Robinia pseudoacacia*)—an unlikely but common host in the south. There are probably well in excess of twenty clumps spread round the village.

A little to the north is the small settlement of Cawkeld. Here is another small cluster of Mistletoes most of which are confined to large hybrid Poplars, though with one also on Hawthorn. And close by to the west, one Apple in South Dalton bore Mistletoe, though has since died. This last may be deliberate, being very low, and despite being surrounded by suitable hosts, has failed to spread.

The final Mistletoe enclave in the county is centred around Driffield. A group of plants infests Willow close to the western bypass of the town and another on hybrid Poplar to the south. Until a few years ago an ornamental Apple (*Malus*) in a suburban street bore a clump but was unluckily chosen to be felled in a simple thinning out exercise by the local council. The fate of this and the Beverley Poplar underlines the constant threat to Mistletoe in the county, that of inadvertent destruction. It is unfortunate that Mistletoe seems generally to favour large, old and or decrepit trees, those most likely to be removed.

Mistletoe on Hawthorn in Lockington

The above summarises my knowledge of the main Mistletoe enclaves in the county, though no doubt there may be others. A main point of intrigue is why in these particular enclaves the plant seems to have spread, whilst in other places it remains clinging to a single original host (probably introduced) and goes no further and why generally it does not seem more evenly spread over the county?

The survey

I set out to do a quick survey of two of the richest sites for Mistletoe in the county, Beverley and the village of Lockington,

beginning the survey in March 2020 with the intention of checking for berries.

However, it soon became apparent that this was not a very good method because many of the berries had by then been eaten or fallen off. Luckily though, the plants were in full flower and once I had worked out the difference between male and female flowers, it was relatively easy to sex the plants, except on those at great height above the ground.

Mistletoe male flowers

Mistletoe flowers are not striking at all, being of similar colour to the plant itself i.e. green, as well as very small. But the males are a little larger, more profuse and lend their plants a slightly golden cast, compared to the small dull green females. On close examination, the structure of the flowers is quite curious and opaque, having little more than what appear to be four 'sepals' arranged like a cross. Very small in the females, these surround a central style. In the larger males however, they have a spongy looking surface which appears to be the source of the pollen so I am not sure how such structures would be technically described. Flowers are borne at the nodes in small clusters and have a faint sweet scent.

Dioecious or monoecious?

The answer it turns out seems to be, yes, basically dioecious but a bit more complicated than it first seems! It was certainly possible to find single sex clumps but equally possible to find many which seemed to carry both male and female flowers—though always on separate stems. The mixed sex phenomenon can be seen very clearly on an *Aesculus flava* tree, in Beverley, where one of its several clumps is isolated, dangling like a chandelier at the end of a low branch and can be identified as having male and female branches.

However, the picture is often less clear because once a tree is infected it often becomes host to several clumps, sometimes of single sex, both sexes separately and or of mixed sex. Are each of these clumps complete individuals, perhaps from separate infections or are they linked clones?

Mistletoe female flowers

In the most heavily infected trees (e.g. some Apples in Beverley) it was all but impossible to differentiate individual clumps. So, I checked trees which carried only one single isolated clump but it was still possible to find both single sex and mixed sex clumps.

Making sense of it

For this, I explored a few sources but found a good summary in an article in British Wildlife magazine by Jonathan Briggs (1995). He gives explanations for two of the phenomena described above, the mixed sex conundrum and the clonal spread factor.

Two explanations are offered by Briggs for the mixed sex phenomenon. The most interesting is that the seeds are poly-embryonic. This means each seed can produce several seedlings of either sex so that a particular clump can appear to be both male and female. A further possible explanation is that two independent Mistletoes arise from the same infection site, perhaps where several seeds were deposited.

Mistletoe on Poplar, Oak Road Playing Fields

According to Briggs, in the clonal spread phenomenon, the Mistletoe haustorium (graft anchor) can spread laterally along a particular branch and perhaps further, giving rise to new plants. Multiple clumping can certainly be seen in the field but it can be difficult to clarify exactly what is going on because it is hard sometimes to trace particular clumps to particular branch networks. However, it was possible that in some Lockington Hawthorns, all three sexual forms of the plants could be traceable to the same branch/clump network, although this does not prove beyond all doubt that they are linked.

Of course this does raise other questions too; what is a 'branch' and how far can one Mistletoe spread through the host? However unlikely, could one Mistletoe infection spread through an entire tree producing a mass infestation? Irrefutable evidence of entire tree spread from a single origin would be difficult to ascertain. However, a few strong possibilities are offered locally. One is of the well-known Mistletoe Apple in Western Cemetery, Hull.

This tree now exists as little more than a stump but still carries a Mistletoe. It seems unlikely that even if intentionally infected by man, the lower trunk would be chosen as a graft site. If so, this would imply that a Mistletoe infection could originate from one of the branches, spread down the trunk and thence potentially to anywhere else on the tree.

Certainly, spread through a single tree can be rapid. A Poplar in Lockington, known to be uninfected in 2016, now has around eight sizable clumps in its crown, all male. It seems implausible that each of these would be bird sown, given that mistletoe has not appeared in other Poplars nearby.

'Mistletoe Apple', Western Cemetery

All this would mean, if true, that a single Mistletoe can become literally a 'Mistletoe tree'—a bit like a sort of internal strangler Fig.

Pollination

I looked for signs of insects visiting the flowers and in Lockington, eventually noticed a number of small flies clearly visiting the

flowers and seemingly being covered by the pollen. I do not know what they were but they were all the same species and resembled tiny blowflies. They were the only insects I saw visiting the flowers but seemed fairly numerous. Briggs (1995) mentions *Dasyphora cyanella* as an important pollinator.

Rapidity of spread

Since writing the original article in 2016, I have been able to observe changes in the Mistletoe population in East Yorkshire. I know of a few clumps that seem to have disappeared, notably on *Juglans nigra* in Hessle, though the majority have vanished due to loss of the host tree to death or felling. Many new ones have appeared, particularly in Beverley and it is clear that once established, a clump can grow rapidly in size in only a few years and on balance there seems to be an increase. Infection of adjacent suitable trees can be quite rapid too—but not always. Some clumps, as in South Dalton, where even if it is female with berries and with adjacent suitable hosts, seem to have remained as isolated singletons. However, there are only a few cases of spread much beyond established core areas.

Skidby is one, where a seemingly isolated Mistletoe appeared high on a tree of *Populus x canadensis* less than ten years ago. Another has already appeared nearby on a second Poplar in the last couple of years. Yet still the great majority of the county is near Mistletoe-free.

Introduced or native?

This is a hard question to answer. East Yorkshire is certainly well beyond the core British range for Mistletoe, the Severn Valley region. There are old 19th century local records mainly from gardens, by Robinson, though seemingly extinct by 1902 (Crackles 1990). There continue to be orchard records later in the 20th century including Thwaite Hall (now absent) and Haworth Hall (still present). In general, most East Yorkshire records could probably be traced fairly confidently to Apple orchard originals, which would have likely been intentionally introduced. But it clearly spread and has often been natural since then. It is claimed (Iversen 1944) that the temperature profile for Mistletoe native range in Europe is between just below 16°C in the warmest month to minus 8°C in the coldest. Parts of East Yorkshire might come just (but only just) within the warm limit. If so, this might explain the very localised distribution in the region to the core areas, mostly within the river Hull valley. The anecdotal impression that the species is increasing might also be explained due to slight summer warming.

Recent infestation of Poplar, Lockington

Briggs also mentions changes in Blackcap (*Sylvia atricapilla*) behaviour as being a

possible factor in recent spread too. However, this would not so easily explain the very localised nature of spread, at least in East Yorkshire.

Some interesting anecdotes

While doing the survey, some interesting conversations with local people came about. In Lockington, a certain Mrs. Walton told me that the presence of so much Mistletoe in the village was due to a Mr. Miller, the one-time local farrier, who introduced it into the orchard behind his house some 40 years ago. This gives a useful time frame for the plant's spread through the village where it is now widespread beyond orchards—though seemingly not outside the village.

The massive infestation in old Apples off Manor Road in Beverley seems to be thanks to the land's ownership by an elderly couple who do not actually live in the house but occasionally visit to maintain the property. I do not know if they introduced the Mistletoe though.So far they have refused to sell the land to builders although it is now surrounded by new development. A neighbour in one of the new houses told me this. He admires the Mistletoe from his garden and a single male plant has established itself on one of his garden Cotoneasters, a new host record for East Yorkshire.

Mistletoe on very small Cotoneaster, Beverley

The neighbour next door to the old property, who is Polish, has quite an infestation in her own garden. Her Polish friends have told her to cut it out of the trees as it is harmful. In Poland, where Mistletoe seems to be common, this is general practice. I told her that in East Yorkshire Mistletoe was far more valuable and rare than apples! She regarded this with amused disbelief but promised to leave it.

In the process of the survey, I came across two new hosts for East Yorkshire. Cotoneaster (probably *Cotoneaster bullatus*) has already been mentioned. In Burney Close, Beverley, it now grows on Lobel's Maple (*Acer lobelii*), itself a very uncommon exotic tree, although has been known for some years on Silver Maple (*Acer saccharinum*) in Driffield.

In East Yorkshire I have never come across anything like the profusion of Mistletoe that one sees everywhere in the Severn valley. However, I recently came across a massively infested Poplar copse just south of the river at Brocklesby, Lincolnshire. One could almost have been in Gloucestershire!

Mistletoe hosts in East Yorkshire

The following is a list of hosts recorded in East Yorkshire, roughly in order of frequency.

- Apples (*Malus*)
- Lime (*Tilia*)
- Poplar (*Populus*)
- Hawthorn (*Crataegus*)
- Willows (*Salix*)
- Whitebeams (*Sorbus*)
- False Acacia (*Robinia*)
- Pears (*Pyrus*)
- Maples (*Acer*)
- Yellow Buckeye (*Aesculus flava*)
- Cotoneasters (*Cotoneaster*)
- Plum/Damson (*Prunus*)
- American Black Walnut (*Juglans nigra*)

Incidentally, according to correspondence I have had, it would seem that the rather unusual host *Aesculus flava* is commonly so in the south.

Clump of Mistletoe on Lime, Western Cemetery

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A weekend away

Andrew Chadwick

A weekend field trip has been a feature of the Hull Natural History Society programme since 2008 when the idea got off to a, literally, flying start with a visit to the Burren in Ireland. In subsequent years, we have had slightly less adventurous destinations such as Teesdale, Arnside, Bakewell and Norfolk.

It was on a weekend at Buxton in Derbyshire in 2013 that a visit to Shropshire was mooted. Shropshire was home territory for one of Gabrielle's relatives who had joined us. Despite her personal recommendation, when it came to programme planning, other destinations always seemed to have more support. Finally Shropshire managed to slip into the programme in 2020, seven years after the idea had first appeared. Aren't the best things worth waiting for?

But fate apparently had more powerful delaying tactics and COVID-19 put paid to going anywhere in 2020. I viewed the approach of the revised date of June 2021 with some trepidation, wondering what other plagues and pestilences might postpone us.

Our weekend trips have an established format which, subject to some slight adjustments, has served us well over the years. We have a field meeting on the Saturday then congregate for a meal on Saturday night, followed by another field meeting on the Sunday with a fairly early finish to allow time to travel home.

As Shropshire is some distance away, we decided to make it a long weekend and include Friday afternoon as well as the usual Saturday and Sunday.

The delay did have one advantage as, in the meantime, Gabrielle had been to Shropshire to stay with her relatives and had identified some sites that were worth visiting. Thanks to her work, we had a detailed itinerary prepared, based on staying in or near Ludlow.

Friday

Long-distance travel is always a bit of a lottery and, thanks to slow traffic on the Birmingham bypass, it was fifteen minutes after the planned meeting time when I turned into Ludlow along with my wife and Gabrielle. Not a good start, particularly as I was the nominated leader of the Friday afternoon session.

The agreed meeting point was in the market square outside the castle. There was a car park nearby but a look on Google Street View the night before had convinced me that the layout of Ludlow had been a prototype for Hampton Court Maze, so I parked on the outskirts and we had a rapid walk to the centre.

Andrew Chadwick

Ludlow from the Castle

It was a relief to see the rest of the group, who were obviously better at planning and navigation. They were waiting patiently, soothed in some cases by an ice cream. After suitable apologies I took up my role as leader and led off down a steep path around the castle walls.

Initial progress on any Hull Natural History Society field trip is never much faster than a geriatric snail and when in foreign territory it can decline even more. It's no longer a question of ticking off the usual suspects; close examination is often required. Arming yourself beforehand with a species list

prepared by local naturalists is a useful defence against embarrassing misidentification.

We eventually reached Dinham Bridge at the base of the castle mound, one of two bridges over the River Teme which flows around Ludlow on the south and west sides. Crossing over the bridge brought us to the start of the Breadwalk, a popular path that follows the bank of the river as far as the second, Ludford, bridge.

Katharine Chadwick

Ludlow from Whitcliffe Common

Why Breadwalk? Apparently because the labourers who constructed it in 1850 were paid in bread for their toil, a strategy intended to prevent their wages being frittered away at the local hostelries.

As leader I had felt obliged to do a little research for our walk and, in addition to a list of potential rare flowers, I had noted one or two birds, including a Lesser Spotted Woodpecker that was reputed to inhabit a disused quarry near the bridge. We investigated, but to no avail.

We turned our back on the Breadwalk for the moment in favour of a climb through the woodland surrounding our destination, Whitcliffe Common. On the way we admired the delicacy of the woodland grasses, Wood Millet, Wood Melick and Wood Meadow-grass. However we failed to find the wonderfully alliterative Hasselquist's Hyssop—a bryophyte as I am sure you know—that my list assured me had been seen in woodland at Whitcliffe in 1998.

On reaching the Common our keen botanists spread out in search of rare finds. The not-quite-as-keen admired the view over Ludlow from a convenient bench, and discovered something of the history of the Common from a local, out walking his dog.

As members of the Society we may pride ourselves on taking a keen interest in the surroundings but we shouldn't underestimate the observations of the general public. If they are brave enough to overcome their misgivings at seeing someone kneeling head-down on the ground, staring through binoculars at an apparently empty sky or even licking fungi, and manage to pose the question "What are you looking for/doing?", then an interesting conversation usually ensues and they often reveal useful observations of their own.

Andrew Chadwick

Yellow-rattle

Whitcliffe Common is the remnant of a much larger medieval common which later became a fashionable promenade and is still popular with residents and tourists. It is owned by Shropshire Wildlife Trust which is aided in its management by a group known as Friends of Whitcliffe Common.

There was a nice variety of species on the common but nothing startling. At the edge we found several plants of Solomon's-seal, one of

the species on my crib sheet, and convinced ourselves they were truly wild, and not garden escapes.

Andrew Chadwick

Navelwort

We also spotted a Red Kite and a distant view of a Peregrine over Ludlow which apparently nests in St Laurence's Church tower.

Until it's possible to book it, as we do with accommodation, the weather will be something that can't be controlled, even in the best of plans. The forecast for the weekend had not been encouraging, with rain threatened. It had managed to hold off for a while but was now dampening our enthusiasm, never mind our record lists. We decided to move on from the common and descend back to the Breadwalk via the Donkey Steps.

By analogy with the derivation of Breadwalk, working on the Donkey Steps should have been far more profitable. However they are so named as they were used by donkeys carrying iron ore from the Clee Hills to nearby iron works.

Our descent was a walk back in geological time, at least metaphorically (we weren't that slow), from Devonian rocks beneath the common to Silurian at the river. Ludlow is famous internationally due to the Ludlow Bone Bed. This is a thin band of rock made up almost entirely of the bones, teeth and scales of fish which formed about 425 million years ago when the region was changing from a landscape of open sea to dry land drained by extensive river systems. It is geologically significant as a type locality, and at one time, it represented the division between the Devonian and Silurian periods.

To celebrate the importance of Ludlow geologically, six fossil casts have been made of Silurian animals, placed at intervals near benches along the Breadwalk.

Helen Kitson

Greater Butterfly-orchid

During our descent and subsequent walk along the banks of the River Teme we found a range of ferns, including Wall-rue and Maidenhair Spleenwort, Hart's-tongue, Lady Fern, Hard Shield-fern and Polypody, as well as several of the *Dryopteris* group. Also of interest were Small Teasel and the common hybrid Russian Comfrey growing alongside one of its parents the less familiar white Common Comfrey.

The jewel in the crown was not revealed until very near the end of the Breadwalk. A Greater Butterfly-orchid, growing in a nondescript patch of grass at the edge of the path.

Helen Kitson

Tree Pipit

Just as we joined the road over Ludford Bridge, Gabrielle spotted a plaque near an exposed rock face giving information about the Ludlow Bone Bed. In the past it had been visible at this point, but was now buried to protect it from people wanting to take a sample home as a souvenir!

Saturday

Friday afternoon had been a preliminary foray. The main Saturday excursion was to Catherton Common, about eight miles east of Ludlow over the Clee Hills, where the donkeys came from. We eschewed a donkey cart in favour of sharing a car.

Partners and family are welcome to come along on our weekend trips and often people stay for a few extra days to make a holiday of it, as Katharine and I were doing. However allowance is made for the fact that they may not share quite the same level of interest in natural history and there is no three-line whip on attending all field meetings.

Hence it was a reduced group of six which met on the Common, the others electing to study the tourist attractions of Ludlow. It was fairly cool and overcast but not raining, which was an improvement on the previous day.

As well as being a Shropshire Wildlife Trust nature reserve, Catherton Common is designated a Site of Special Scientific Interest (SSSI) for a range of different habitats including dry and wet heathland, bog, marsh and mire.

We had parked on one of the higher points in the dry heathland and found the tiny and very rare Bristle Club-rush almost as we got out of the car. Gabrielle led us on a gradual descent towards our final destination of Cramer Gutter.

On the way we recorded various heath grasses and rushes and admired the Bell Heather and Cross-leaved Heath. In a drier patch I found Slender Trefoil, a good example of the need to look twice when in unfamiliar territory. In wetter areas there were Lesser Spearwort, Oval and Star Sedges and low-growing Water-purslane.

Andrew Chadwick

Round-leaved Sundew

One side of the heath was bordered by woodland, and the transition region seemed to be ideal habitat for Tree Pipits. We heard and saw quite a number performing their song flights. There were also Stonechats with their characteristic stone-tapping calls.

Reaching Cramer Gutter, the hunt was on for some of its rarities. As implied by its name, the

gutter itself is the bed of Crump's Brook and it is the valley side that has interesting marshy habitat.

Andrew Chadwick

Small Pearl-bordered Fritillary

There were plenty of rushes and sedges, which required persistence to find and patience to identify. We managed False Fox, Oval, Carnation, Star, the taller Green-ribbed and Common Yellow sedges, as well as Many-stalked Spike-rush and Common Cottongrass. Today it was Rohan who had armed himself with a species list from a local ecologist to help with identification. However it proved to be a double-edged sword as we couldn't find all those listed, yet there were others not on the list.

It dawned on us that there were Marsh Violet leaves in all the wetter areas and, in case we needed confirmation, two Small Pearl-bordered Fritillaries appeared, attracted by their food plant! For those like me who prefer a bit of colour to their plants there was plenty of Bog Asphodel and Round-leaved Sundew.

On our excursions, small mammals seldom appear on our records. It's not necessarily that they are rare—Kestrels and Barn Owls seem to find plenty—but simply because to see them, you have to be in the right place looking in the right direction for the few seconds that they appear. Helen's luck was in, and she spotted a Water Shrew in the brook and had chance to alert others to it before it seemed to vanish under the rocks.

A rumour that it was lunchtime spread rapidly through the group so we called a temporary halt to our browsing. I feel a leisurely lunch is an important part of any naturalist field trip but my attempts at incorporating this in our constitution have so far failed, so it didn't seem long (to me) before we were exploring again.

Although somewhat early in the season we were hoping to find Marsh Gentian, mentioned in the SSSI designation as occurring here in its only Shropshire locality. We did find two of the other rarities listed, Lesser Skullcap, and Early Marsh-orchid although the leaves of the latter had become a rabbit's snack. The search was eventually called off without success and we made our way back up the hill, which had mysteriously grown steeper since we descended.

Helen Kitson

Red-tailed Bumblebee on Bird's-foot-trefoil

As we neared the cars we spotted a potentially interesting bird in the conifers which we spent some time pursuing with binoculars and camera. Eventually Helen managed a picture which we later identified disappointingly as a Chiffchaff, rather than the Spotted Flycatcher we had hoped for. Despite these sort of efforts

the bird list remained stubbornly short with the Tree Pipit, Stonechat and Redstart being the best of an average bunch.

The format of our weekend field trips invariably includes a group meal on the Saturday. This is an opportunity to socialise and maybe meet partners and family who we don't see very often at our other field trips during the year. We base ourselves in a reasonably-sized town so that there is plenty of accommodation and eating establishments available.

Andrew Chadwick

Fossil crinoids in limestone

Ludlow is very attractive and popular with tourists so had plenty of pubs and restaurants. However some COVID restrictions were still in force and at certain places a large group was not permitted but we managed to book a table at the Church Inn. As befitted its name, the service was rather sedate, but that gave us plenty of time to chat.

Sunday

The Sunday meeting was at a site called Stretton Westwood Quarry. Although this is about twenty miles away from Ludlow it was on the route home for those who were returning.

The quarry is situated on Wenlock Edge which is another SSSI designated for its geological interest. The limestone is Silurian, formed in shallow tropical seas when this area lay south of the equator about 425 million years ago. It is world-famous for reef fossils, including abundant brachiopods, corals and crinoids, as well as the more elusive trilobites. Like Ludlow, Wenlock is another name that has been used for one of the series in the Silurian period.

Despite its distinguished provenance, the limestone has been extensively quarried in the past and is still being exploited. Those that oppose similar developments should perhaps consider that many of the most valuable wildlife sites have evolved from former industrial workings.

Stretton Westwood Quarry is a prime example. Begun in 2016, the aim is to create calcareous grassland, a UK Biodiversity Action Plan priority habitat, from a disused quarry. Soil, gravel and limestone excavated during the construction of two flood alleviation ponds just outside Much Wenlock were transferred to the disused limestone quarry. Nature is being relied on to do the rest. A fine array of limestone plants has grown up, along with ruderal species, bird-sown plants and garden escapes.

Katharine Chadwick

Sherard's Downy-rose

The site is not marked on the map or signposted but Gabrielle had been assured that it was accessible to the public. All three cars made a sweep of the surrounding area before finally homing in on the small car park, helped by a few phone messages and good old-fashioned waving from the side of the road.

Even the car park could have produced a respectable plant list but we did explore further, and found many more species including Dwarf Spurge, Common Gromwell, Vervain, Ploughman's-spikenard, and Sherard's Downy-rose. I find it fascinating to see how nature manages to regenerate on this kind of former industrial site. Helped by improved weather, we kept ourselves amused clambering around the quarry until early afternoon. Those of the party who were returning home decided to set off and pick up some food on the way. My wife and I were staying on for a few more days so we had an extended lunch for a change, then explored some more of Wenlock edge, before heading back to Ludlow.

Our long-awaited trip to Shropshire had finally taken place and, as usual, it had turned out to be a weekend that could be enjoyed not just by dedicated naturalists, but by other family members as well.

Acknowledgements

Thanks to Gabrielle Jarvis for organising our itinerary and to Gabrielle and Helen Kitson for much of the botanical and geological information in this article. However the opinions are all mine!

Contributions

Contributions to the Bulletin are always welcome. These can be on any subject connected with natural history such as records of species, observations, reports on visits or something more subjective like opinions or feelings about nature, maybe even expressed as a poem! Or you may just have a photograph which would be suitable for the front cover.

Please send your contributions to editor@hullnats.org.uk or via the Secretary at info@hullnats.org.uk

The next issue of the Bulletin will be published when we have amassed sufficient material, so there is no specific deadline.

Ideally your contribution should be in the form of a Windows compatible text or word-processor file or an email containing the text of the article. Any photographs should be sent as separate files, even if they have been inserted in the article. They should be clearly identified and be referenced from the text where necessary. You should have obtained permission to use any photographs or material that is not your own. However, don't let that put you off. We can cope with most things, even a hand-written article!

Although we are grateful for all contributions, the Editors reserve the right to edit or abridge them. Any extensive revision will be discussed with the contributor. In very rare cases, the article may be declined as unsuitable, but this will only be done after consultation with all current Officers.

Notes on May Lily *Maianthemum bifolium*

Gabrielle Jarvis

This year some members of Hull Natural History Society visited the two local sites where this rare plant grows, in the nature reserve at Allerthorpe Common VC61, and in Cockrah Wood VC62, where I had last seen it about eight years ago.

On our Allerthorpe field trip which was very early, April 25th, at the end of a very cold dry period there was little to see but on a return visit on May 27th, I found an area of approximately 2 m by 2 m covered in May Lily's heart-shaped leaves with about ten flower spikes beginning to unroll. On June 3rd, after a rainy period, this had risen to about 100 shoots in flower, which was unusual.

At Cockrah Wood on May 9th, May Lily was harder to find. Eventually, deep in the leaf litter just over a dozen single, parallel-veined leaves were found—non-flowering shoots growing straight up from a rhizome. Only the flowering shoots bear the two alternate stem leaves indicated by the name *Maianthemum bifolium*. This elusive plant intrigued me and I thought it worthy of further study.

Distribution

Extant in Britain in only a handful of sites, and isolated from its European neighbours, *Maianthemum* is a rarity but it is frequent throughout Europe, except for the Mediterranean area. It is a common plant in the ground flora of forests across northern Europe to Siberia and even Japan. In Japan it is represented by the closely related species, *Maianthemum kamtschaticum*. These Eurasian populations are not considered threatened but in Great Britain, at the westernmost edge of its range, it is now highly localised and considered to be vulnerable.

History

Known in Britain both in the wild and in horticulture since 1597 (Gerard), there is some evidence that *Maianthemum bifolium* was once more widespread than at present. Parkinson (1640) wrote *"It growes in moist shadowie places in many parts of the Realme".* However, since Victorian times, when it was extensively pillaged for herbariums and gardens, it has been considered a rare plant.

May Lily was discovered in Yorkshire in 1857 by Scarborough naturalists Reynolds and Braby and declared *"clearly indigenous"*. Once discovered it became fashionable, as confirmed by the many contemporary herbarium records. Between 1857 and 1887 many collectors descended on the area, some making multiple visits, digging up material not just for their own herbariums and gardens, but also to sell to private collectors, to exhibit or exchange at learned societies.

May Lily leaves and bud

Despite this, May Lily survived here and by 1947, after some conifers had been felled, was even *"flowering abundantly"*, according to the Natural History of the Scarborough District (Walsh and Rimington 1953), at least until more conifers were planted.

The first published record for May Lily in East Yorkshire (VC61) was in 1990 in Eva Crackles Flora, but it was first seen at Allerthorpe Common in 1981. Botanical Society of Britain and Ireland records dating from 1985 pinpoint its position in the nature reserve.

With no Victorian pedigree and turning up on a site that is not ancient woodland, this plant has unsurprisingly been treated as an introduction, notable by its absence in documentary records.

It does not figure in the official round-up of plants of interest from a Yorkshire Naturalists' Union field meeting in 1984, nor does it occur along with the native rarities in the 1984 designation of Allerthorpe Nature Reserve. In 1999 Eva Crackles wrote a letter to the YNU Bulletin, listing all of the rare plants that would disappear because the botanical establishment had failed to defend the Common, an irreplaceable area of lowland wet heath, from afforestation. May Lily is not mentioned, not being one of the heath's native treasures. Anyway, as A.S. Burke notes in his 1997 study, the Common was very thoroughly botanised in the 1950s and 60s by naturalists (including the Hull Natural History Society) but May Lily was not found.

Native in VC62?

In 1913 A. B. Jackson *"toured the realm"* in a major survey to evaluate all the then known May Lily sites, including herbarium and known introductions. His judgement of the Cockrah Wood population is intriguing. He accepts the existence of trustworthy historical records but notes the *"plant spreads in this area from one single focus"***,** some years flowering very sparingly and he quotes the judgement of local botanist J. A. Wheldon that it would be more impressive if it existed in adjacent dales with similar favourable conditions. He also notes the presence of a non-native tree planted in the ancient woodland. However, the population is seen as secure, growing under Oak on land never cultivated, covering an area 50–100 yd wide and 20 yd down, with a steep cliff in front and an area of reclaimed moorland behind, well away from human habitation.

A national perspective

Swann (1971) concludes that all of the English populations are naturalised aliens liable to diminish in size and die out.

Ashton follows Jackson's criteria of ecological considerations, longevity of records and lack of human intervention in considering the five significant populations, namely: Cockrah, North Yorkshire; Fulsby, Lincolnshire; Hunstanworth, Durham; Swanton Novers, Norfolk and Allerthorpe, East Yorkshire. He awards native status to the first three, the last two being considered introductions. But he views our two Yorkshire sites as problematic.

May Lily thriving

About the Cockrah Wood site he supplies intriguing information.

"In the same period of time [the previous 20 years] three populations at the Cockrah Wood, covering areas of 1–25 square metres, have maintained their size, although there has been both movement and fragmentation of some of the clones. However the original native population documented at the site since 1857 was lost in the 1980s".

He dismisses the Allerthorpe population, known since 1981, as

"… was probably introduced accidentally with conifers, and on the verge of extinction through grazing by slugs and shading by rank Deschampsia flexuosa".

Conservation at Cockrah

I shall look first into the conservation history of the Cockrah population.

The *Maianthemum bifolium* species card in the Cornfield Flowers conservation project, begun in 1997, reveals some little-known facts about earlier conservation efforts. In an interview with Harry Hicks, born 1915, who lived and farmed at Wrench Green for most of his life he is recorded as stating that when he was a boy the May Lily site at Cockrah had covered a quarter of an acre. He was so concerned at its decline that, together with a botanist Kit Robb, he removed some plants to a site on his own farm.

By the time the Cornfield Flowers project became involved with May Lily it had not been seen on its original site for fourteen years. Steps were taken by the Project to return the plant to its original site. After obtaining requisite permissions a small amount of plant material was taken from one of the introduced sites, multiplied in pots by volunteers and subsequently on a larger scale by Mires Beck Nursery at North Cave. By 2014 Mires Beck's work was so successful that 140 plants were planted out and its future seemed secure.

Coming into flower

Chris Wilson was closely involved with the project. He told me the Cockrah Wood site is now overgrown and threatened by Bracken. The main reintroduction site's 100 plants could now be hard to re-find because the plant moves unseen under the surface leaf mould seeking the light, particularly if shaded out by conifers. In his view the original population had been lost because the Forestry Commission planted conifers which compact the soil. When the canopy closed, May Lily was shaded out and Bracken colonised.

The 1930s replanting on the Hicks farm had been likewise hard to find. The volunteers were tasked by Natural England with retrieving '*crowns*' but the fine rhizomes had spread underground "*like a spider's web*". A fresh main site higher up than the seriously overgrown original site was found to be necessary. Funds had run out before the Bracken on the original site could be removed so there had been some cutting and burning and May Lily was replanted at the edges of the burnt areas. Oak saplings had subsequently been planted over the site. Chris Wilson emphasized May Lily needs loose soil and damp conditions and planting sites were chosen carefully, one on the slope and a second (since lost) under some tall Beech trees. May Lily hates a drought in spring, which is why there had been few flowers in the previous few years.

This was one of many translocations. Two other colonies in the wood were believed to be transplants from the original site.

From Burke (1997), using information from Forestry Commission sources, we learn that

P. Stuttard provided the first (unpublished) records for these sites in 1979 and at least one colony was thought to stem from material transplanted from the original population by E. R. Cross as far back as 1910.

A population at Oliver's Mount, Scarborough 1945–1980s was rumoured to be a translocation from Cockrah Wood made by "*a doctor from Scarborough hospital*" who feared the conifers of the Forestry Commission site at Cockrah would kill the May Lily.

These were deliberate transplantings by well-meaning persons to preserve May Lily from the threat of extinction.

The Allerthorpe Common plants

I believe Ashton's comments about Allerthorpe to be inaccurate. He clearly suggests *Maianthemum* was an accidental introduction with the conifers. But in that case it would have been found in the plantations, not in the nature reserve. Anyway, importing of bare roots trees came later.

What about the grazing snails and invasive tussocky *Deschampsia flexuosa*? This is an implied criticism of the conservation of the site which has lost two of its rare plants but kept its Adders . The circumstances in which the reserve was set up are of interest here. From the late 1960s the Forestry Commission planted conifers, releasing 16 acres of land, too wet for conifers, to the Yorkshire Naturalists' Trust (later Yorkshire Wildlife Trust) for a nature reserve. In her 1999 letter Crackles calls this a derisory offer since the site included a bomb crater, the bog, and a small area of heath. The site was selected as unwanted land.

May Lily enclosure at Allerthorpe Common

There is some Tufted Hair-grass (*Deschampsia cespitosa* not *flexuosa*) on site but it is not spreading and is located at the opposite end from May Lily, so unlikely to shade it out.

More importantly, I think, May Lily has been introduced here into the wrong habitat. There is no extensive ancient woodland, no real woodland at all and the May Lily must eventually die out. The Yorkshire Wildlife Trust seem to have found a way to combat the slugs. The introduced May Lily here enjoys dappled shade and protection from slug predators and trampling visitors alike. In this, at least, there has been some success as the population is flowering, temporarily secure in what amounts to a garden environment.

Ecology of May Lily

Given the controversial status and scarcity of May Lily in Britain, work on the ecology of the species has in the past been down to European, Japanese and Canadian botanists with their larger populations. However, the 1997 study by A. S. Burke contains interesting material, on which I have drawn to supplement other sources.

May Lily is commonly found with other acid-loving woodland plants, such as Climbing Corydalis (*Ceratocapnos claviculata*), Bracken (*Pteridium aquilinum*), Broad Buckler-fern (*Dryopteris dilatata*), Great Wood-rush (*Luzula sylvatica*) and Bramble (*Rubus fruticosus* agg). It is not merely shade-tolerant; it thrives in

dappled shade, mainly under Oak (*Quercus* spp.) and Birch (*Betula* spp.) (Ashton). The soil must also be acidic, free-draining and covered with a layer of humus.

The plants spreads via a rhizome which travels through the humus at a depth of about 7 cm, growing longer in summer and autumn when it produces new terminal and axillary buds. May Lily is very slow-growing. It can grow about 12 cm in a year or 6 cm if it expands radially. Every few centimetres there is a node from which adventitious roots grow out. These are not permanent but gradually die back after three years. After four years the rhizome attaching the clone to the parent disintegrates and they separate. With this system the plant can change its direction of travel in response to changes in light, moisture or nutrient availability. It is perfectly suited to the stable environment of the forest floor.

Above-ground shoots arising directly from the rhizome appear in May before the main underground growth period (Burke 1997). Tens of shoots can arise from a single plant (Ashton).

Flowering is for just 2–3 weeks (Burke 1997). Each tiny flower, which is less than 6 mm across, has four white tepals, four stamens and a fused carpel. The inflorescence is an erect raceme about 4 cm high (Stace 2019). Pollinators are hoverflies, *Syrphidae* being the most important, and at least four of the species observed visiting May Lily in Europe can also be found in Britain. It takes several years for the young plant to become sexually mature.

May Lily in cultivation

Red berries appear in late August, ripening to purple in September and containing two to four pale ovoid seeds. But fruit set is very low, only 5% of flowers producing berries, and most seeds are non-viable. The seeds have a hard coating which protects them through the digestive tracts of birds, the main agents of dispersal (Burke 1997).

Self-fertilisation appears unlikely as the plant can already pass 100% of its genes on by vegetative reproduction. Sexual reproduction would be a response to adverse conditions to start a colony further afield and would bring in fresh genes. Burke attempts to compare DNA by correlation of naturally-occurring enzymes in leaves from the five British sites. Correlation is close except for Allerthorpe, which is so far out as to skew the results. His results, particularly if they could be replicated, would strongly suggest the population at Allerthorpe has been deliberately planted, originating perhaps from a foreign holiday or even a plant nursery.

Burke (1997) suggests that ground-feeding woodland birds such as Blackbirds may have brought May Lily to Britain. Millions migrate every year from Scandinavia, Germany and Holland, where May Lily is very common, to over-winter here. This would explain why May Lily is found only in eastern England.

Burke further suggests all the extant English populations would be introductions, but that as they arrived naturally via bird droppings and not by human intervention, they could be considered native, both sources and destinations being within the natural range of

May Lily. The populations would occur where birds first made landfall in ancient woodland.

This beguiling and on the surface plausible theory has, however, a major drawback: it contradicts our oldest reliable records from Gerard, a herbalist and gardener, who mentions Lancashire sites and Parkinson (quoted previously). These records indicate that May Lily was once widespread

So, no, May Lily's native status must rest on these old records and habitat destruction must account for its widespread disappearance.

The future

Burke (1997) rightly attributes May Lily's vulnerability to lack of genetic variation, and suggests a conservation method of manipulating the canopy to induce flowering and reduce out-competing ground flora. This fails to address the problem of the aftermath of multiple translocations at Cockrah. Perhaps fresh material might even be needed to increase genetic diversity? Brian Walker, a retired Forestry Commission Wildlife Officer, told me he has never found berries there, so fruit set anyway has always been low. In any case, a lot more work needs to be done at Cockrah Wood before we can properly assess the current state and distribution of May Lily there.

Maianthemum bifolium is surviving at our two local sites, both native and introduced, but reproducing only vegetatively. For the species to be resilient enough to cope with change, fresh genes need to be introduced via sexual reproduction. It is not immediately "…*on the verge of extinction…*" but it is vulnerable and ill-equipped to survive a changed environment or extreme weather events, particularly long droughts.

Acknowledgements

I am indebted to Richard Middleton for generously providing initial links, to Jackie Guthrie for photos, lifts and advice, to Gill Smith for her enthusiasm and encouragement. Chris Wilson perhaps helped the most with his dedication to May Lily and inside knowledge of the Cockrah site and so many translocations, but also by bringing A. S. Burke's investigation to my attention. John Killingbeck was likewise informative about conservation issues at Allerthorpe Common. Finally, I would like to thank the following who have answered questions or dug out information at my request: Brian Walker, Rohan Lewis, Derrick Boatman, Brenda Jackson, Cath Bashforth from Forestry England, Helen Laycock and Lara from Natural England.

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Other information

Herbaria United—specimen search—May Lily

Garden for butterflies

Andrew Ashworth

Most people with an interest in wildlife will have nectar plants in the garden to encourage butterflies and bees especially. These plants will also attract moths, hoverflies and a wide variety of other insects. Such nectar sources are very important, but do give a thought to plants, mainly native ones, that provide food for larvae, without which we would not have the adult insects. Insect larvae also play a critical part in your garden's ecosystem providing food for many other invertebrates and birds.

Orange-tip female

I describe some of the plants that mean the most to me but the list is far from exhaustive and you may have plants you think are even better.

If you only have one plant in a wildlife garden it has to be a Buddleia. Starting from scratch, I would advise a 'dwarf' Buddleia like 'Buzz'. Most Buddleia grow big and fast, the more so as they mature. They create a lot of pruning waste. The butterflies can be so high you need binoculars to see them. A dwarf Buddleia is much more manageable. It is easy to 'dead head' which massively prolongs the flowering season to early October. Insects can be appreciated at eye level, like a visiting Hummingbird Hawkmoth.

Amongst the shrubby plants, Hebe, Rosemary and Lavender are very good. The smell of Lavender with the buzz of bees is a joy for the senses.

If you don't have well-drained soil, maybe create a small plot by adding plenty of sharp sand to the soil. Here you can encourage a wide variety of nectar plants, native or not. Viper's-bugloss is a biennial which flowers from late spring through to late summer. Red Valerian and Eryngium (Sea-hollies) do well. I have all these in an area cut out of the lawn of 2 m x 1 m. You need to plant or sow the Viper's-bugloss two years in a row. All these will then self-seed. You just need to weed out competitors.

The best spring flowering plants for bees and butterflies are native species and a lot depends how far you can let go of being 'tidy'. Herb-Robert, Garlic Mustard, Red Campion, Hedge Woundwort and more, can run riot in the garden. Some areas can look quite 'messy' by August, but it's all worth it.

Brimstone female egg laying

I sowed some Hedge Woundwort decades ago because I like it and noticed bees love it. Only much later did I discover it had become host to Woundwort Shield-bug and the moth, *Coleophora lineolea*, after noticing the larval cases on the underside of a mined leaf. It is also used by Wool Carder Bee, although I also grow another *Stachys*, Lamb's-ear. This not only has nectar but the female Carder Bee uses the soft fibres to create felt partitions for her larval chambers. The male Carder Bee

makes the plant his territory and sees off all intruders by head-butting them until they leave!

Scabious, Aster (Michaelmas-daisy), Marjoram and Fleabane are good perennials for many butterflies mid to late summer.

Holly Blue

Try if you can to have at least one sunny spot for native Ivy. This is one of the most important plants of all, year round. By nature it creeps, so try to contain it. Ivy provides nectar for insects when all else has finished in early autumn. On a warm day at the end of September and early October, it will be buzzing with insects such as hoverflies and bees. Ivy flowers give the last chance of food for Red Admiral and Comma to top up their fat stores for the winter. For the Painted Lady, Ivy nectar can help fuel their reverse migration to southern Europe and Africa.

Ivy is the obligatory food plant for Holly Blue. This bivoltine species can use a small variety of plants in the spring, of which Holly is just one. It can only use Ivy in late summer to complete the cycle. Ivy also provides winter roosting for many insect species. Learn to love Ivy!

The first generation Holly Blues will egg lay on Pyracantha. Under a window this adds extra home security with the sharp spikes. Bees love the flowers and the berries are soon gobbled by hungry Blackbirds.

Plant an Alder Buckthorn. It is almost the perfect shrub or small tree for the garden. It has a long flowering season and can be buzzing with a wide variety of bees for weeks. The berries are eaten by birds. The leaves are eaten by Brimstone caterpillars. If you plant an Alder Buckthorn you will get Brimstones. Many caterpillars will be eaten but enough will survive. Don't be too tidy around it. The larvae need other plants when they mature to suspend and turn into pupae. Alder Buckthorn can be grown from wild seed. Otherwise buy a plant of local provenance if you want to speed things up.

Tips

For native plants grow from local seeds for free. It takes a little longer to get to a flowering plant but worth it. Only buy native plants from a trustworthy source. They should have been grown from seed of local provenance.

Most fruiting trees and shrubs are not just good for us but also wildlife. Grow what you can and avoid pesticides.

Painted Lady on Ivy

Don't have more lawn than you need. Create a small meadow area if you have the space. Even 2 m x 2 m would attract a lot of insects. Be brave. If you have a very small garden, consider having no lawn at all.

Wintering Redshanks on the River Hull

Africa Gómez and Wesley Payne

Redshanks (*Tringa totanus*) are medium-sized waders of conservation concern due to declining populations. They are grey-brown above and white below, with a white eye ring and bright red legs and bill base, a long, straight bill and a characteristic, broad, white wing bar (Figure 1). They were much more widespread in the Hull area in the past, when they used to breed, but are now primarily present along the River Hull during the winter.

In this article, we aim to give an overview of the status of Redshanks wintering along the River Hull within the city limits, including estimates of recent population sizes and management implications, as well as providing some historical perspective.

Redshank population trends and status

Redshanks are a high conservation priority species, classed as amber-listed in the UK due to recent breeding and wintering population and range declines (Eaton et al., 2015). They are also a designated feature of the Humber Estuary Special Protection Area (SPA), where the five-year population average is 2881 individuals, constituting a population of international importance (Woodward et al., 2019; Frost et al., 2021). However, since the baseline winter (1998/1999), the Humber population has declined by 54%, which has triggered a high alert for the site (Woodward et al., 2019).

Figure 1: Redshank in winter plumage feeding in the Museums Quarter

This means that the decline has been significant enough to require research, investigation and precautionary measures. The assessment process also found that declines have been greater on the Humber than in the surrounding region, pointing to local site-specific adverse pressures influencing this species (Woodward et al., 2019).

In addition to the estuary, Redshanks use the River Hull regularly in winter as shown by site counts in The Wetland Bird Survey: Tophill Low reservoir (five-year average of 17 individuals), and Pulfin Bog and High Eske (five-year average of 44 individuals), but also with an apparent declining trend. Little is known, however, on the population sizes and trends within the lower reaches of the River Hull through the city, as this stretch is not part of any structured recording scheme.

The River Hull

Within the city of Hull, the river is tidal and its historical meanders are fixed by flood defences. From Stoneferry Bridge upstream, most of these defences are soft, and a belt of reeds, Sea Aster and other riparian vegetation, including some Willows, has developed. In contrast, most of the banks downstream of Stoneferry Bridge are hard defences with buildings either adjacent to the wall or forming part of the defence, constraining the river to irregular widths between 19 and 35 m, with a gradual widening to 50–70 m at its mouth. Along the river, mud banks of various lengths, widths and heights on the river bed become exposed as the tide drops. Upstream, mud banks tend to be smaller and often narrow, some only exposed at spring tides. The largest mud banks are in the Old Town.

Natural vegetation has developed high on some of the banks, especially around swing bridges and also on the concave section of meanders, where silting has occurred, and on the wider stretch between Scale Lane Bridge and the mouth of the river.

Foraging Redshanks

Redshanks feed along the exposed mud banks of the river. They often forage while wading at the water's edge, walking in a steady, determined way, occasionally stopping to peck or probe the mud with their bills. Some Redshanks establish foraging territories and competitive interactions can be observed as they protect these from other individuals. Birds forage on their own, rather than in the small flocks often seen on the estuary, perhaps due to the smaller area of foraging habitat available along the river making territorial behaviour more profitable. If disturbed, they will stand quite upright and sharply bob their body up-and-down, then often flying away with loud calling. Redshanks can also be quite vocal when assembling to roost. Like many other waders, Redshanks are known to be highly site faithful to their breeding and wintering grounds (Burton, 2000; Rehfisch et al., 1996) and adults use areas with lower predation risk when compared to first-year birds (Cresswell, 1994). GPS tracking in the Humber has shown that individual ranges vary between 2.1 and 14.1 km^2 (Cook et al., 2016). From this research we can infer that the Redshanks using the River Hull are likely to represent a distinct pool of individuals making use of a profitable feeding habitat, rather than a passing or ephemeral population.

The diet of Redshank has been widely studied by observation and by collecting and dissecting pellets which can readily be found at roost sites. These preserve the hard parts of their prey, unlike faeces. A study in the Wash shows that their diet is diverse, and changes seasonally. It is based on small invertebrates, such as mud shrimps (e.g. *Corophium* sp.), crabs, snails (e.g. *Hydrobia ulvae*), bivalves and ragworms, and even small fish (e.g. Goby (*Pomatoschistus microps*)) (Goss-Custard and Jones, 1976).

Roosts

Urban development in recent decades has removed alternative feeding habitats to mud banks (e.g. flooded fields) for Redshank using the River Hull through the city. Therefore, when mud banks in the river become submerged on rising tides, Redshanks become more sociable and gather in loose groups in a favoured, sheltered and undisturbed spot to roost (Figures 2, 4, 5, 6).

Figure 2: Examples of Redshank roost on the River Hull near Wilmington bridge, making use of the river hard defences. Note the presence of pellets and faeces around the roost site.

As each mud bank is exposed at different times in the tidal cycle, the number of birds at the roost is quite dynamic, with birds arriving and leaving at different times, and numbers peaking at the highest tide. Given that individuals forage away from each other along the river, counting Redshanks at high tide roosts is the optimal way to estimate population numbers, and counting over this period is the standard wetland bird survey methodology.

Research at the Wash and Moray Basin has shown that Redshanks are highly faithful to roost sites within and between years and only move short distances once in their wintering grounds (0.5–2.7 km) (Rehfisch et al., 1996; 2003). This suggests that individuals roosting on the River Hull may use different roosts along the river, rather than being distinct populations, but are likely to return to the river each year. Juvenile birds are more likely to change roost sites than adults (Rehfisch et al., 2003) and this may explain the initial colonisation of the River Hull.

Field visits

During the last two years (2020 and 2021) we have regularly searched for and counted high-tide roosts at various sites in the city where the river is publicly accessible. Three regular roost sites have been identified, although the particular place where individuals roost varies, depending on tide or disturbance (Figure 3). Visits were ad hoc, and each area has been visited with different frequencies. Redshanks were present in the river between the first week in October and the third week in April, with the exception of a single individual in August by Scale Lane Bridge.

Map data ©2021 Google

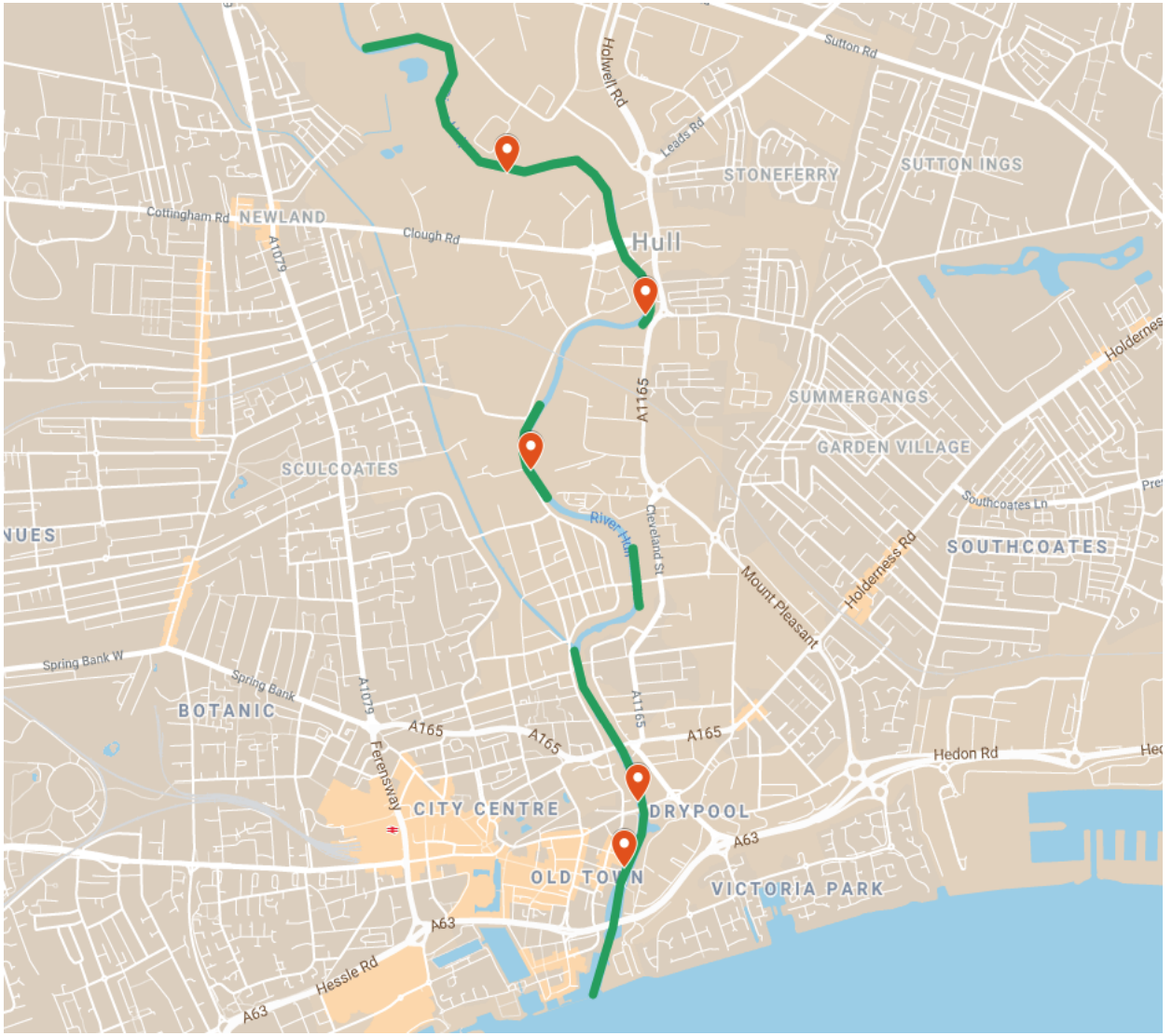

Figure 3: Map of Hull showing the Redshank roosts identified (orange icons) and the approximate areas of the river that are visible at low tide (green lines)

Stoneferry

This area has been visited irregularly and not always at high tide, four times in 2020 and six times in 2021. We were informed by Nathan Pickering of the presence of a roost at the Croda berth between 1999 and 2004 of up to 45 individuals. Five individuals were found roosting at the flood defence wall by the scrapyard (OS grid reference TA 0980 3173) on 13/4/2021 at a very high tide.

Figure 4: Redshanks roosting in riparian vegetation in the Stoneferry area

We've had a similar number of feeding Redshanks in this stretch of the river from the Oak Road area to Stoneferry Bridges and a short stretch downstream. Another site (TA 1032 3115), on a newly repaired flood defence wall held four individuals on 2/4/2021, although the tide was not very high. No birds were seen there on 13/4/2021 at very high tide, when a roost was present at the scrapyard. Faeces and pellets were present at this location, suggesting at least occasional use as an alternative roost used by the same birds.

Wilmington Bridge

This site was visited at least weekly in 2021. The roost is usually on the recently repaired west wall, south of the bridge, adjoining Rix (TA 0980 3041). Between 9 and 17 individuals have been seen here. The peak number was recorded by Andrew Gibson of Yorkshire Wildlife Trust on 13/4/2021, on night high tide. Upon disturbance due to works, the roost gathered upstream on the wall by the old Sculcoates school building (TA 0977 3062). Usually, only 2–4 birds can be seen feeding in the visible stretch of river, indicating that this roost includes birds feeding on a larger stretch of the river.

Old Town

This was visited ten times each in 2020 and 2021. The roost comprises 19–23 individuals with the peak on 6/10/2020. The location of the roost varies along an approximately 400 m stretch of the river. For example, 23 roosted at the back of the former Trinity House Buoy Shed building on 6/10/2020, with 18 present at the same roost on 3/12/2020. About 13 roosted just opposite on the mud by the old mooring of the Arctic Corsair on 20/1/2020. Although this site is safe from human disturbance, as it is not visible from the closest bank and the opposite bank is not publicly accessible, the site is unavailable during very high tides. On the high tide on 12/4/2021, 19 individuals roosted on the north-west side of Drypool Bridge on the top of the defences but with only 8 birds present in the same location on 16/4/2021.

As with the previous roost site, the numbers of individuals at the high tide roost is much larger than the number of birds that can be seen feeding at low tide in the area. This discrepancy between numbers of Redshank seen at roost and present at low tide may suggest that birds gather from large parts of the river in order to roost together. However, it is also possible that some Redshank roosting on the River Hull may forage within the Humber Estuary.

Overall, adding up maximum roost sizes, an estimate of Redshank using the river totals 45 individuals. As some stretches of the river are not visible from publicly accessible places, this number could be an underestimate, with

further roosts being present. In addition, it is possible that some of the Redshank roosting on the river move to forage on the estuary, which would indicate that the river should be considered as linked to the Humber SPA population.

Where do Hull wintering Redshanks breed?

The bulk of Redshank records in the city in the last couple of decades, from October to April, indicate the presence of a wintering, rather than breeding, population.

Figure 5: Redshanks roosting next to Wilmington Bridge by temporary scaffolding during repair works

This matches the pattern on the estuary, with the vast majority of Redshank on the Humber migrating to more suitable habitats in the spring to breed.

Ringing data collected by the Humber Wader Ringing Group (HWRG) indicates that many Redshanks around the Humber breed in Iceland, but they also include birds breeding around the UK. There is very little data for movements of Redshanks in Hull, but one ringed individual was found on the small area of intertidal at the south end of Corinthian Way (Victoria Dock) on 16/12/2020, close enough that it could have been using the roost on the River Hull. This individual was ringed on the Wash in September 2020 and remained in Hull until the spring. Another individual was present at Drypool Bridge, with a yellow flag and red ring on 12/4/2021, but no code could be read.

Redshank conservation: a flagship species for the River Hull?

Redshanks used to be common until the late 1990s, not only at the foreshore of the city of Hull, but also on the outskirts, where birds used to breed and winter, feeding on wet fields. Breeding occurred during the early and mid-20th century on flooded fields at Bransholme, eastern docks at Saltend, and land by the River Hull north of Stoneferry. The last documented breeding within the city boundaries happened in the late 1980s (Broughton, 2002), where numbers were also much larger during winter. The numbers described by Richard Broughton are unimaginable today:

"Wet fields on the Sutton Fields Industrial Estate were drawing in very large numbers of Redshanks in the late 1990s, with the Oak Road playing fields on the west bank of the River Hull holding 155 on 26th February 1997, 91 on 9th February 1998 and 145 on 20th November."

Sadly, this local decline mirrored what was happening more widely, as in the last decades the British breeding population has declined. Currently, Redshank are an amber-listed species in the UK as assessed by Birds of Conservation Concern (Eaton et al., 2015) due to recent breeding and wintering population declines, and the fact that the UK holds an important non-breeding population.

Given the previously mentioned declining wintering Redshank population in the Humber, an increased use of the River Hull by wintering Redshanks is welcome news. The numbers we are seeing now appear to have built up during

the last three years. Before this Redshanks were quite rarely seen in the river and in very small numbers (Andrew Gibson, Jennifer Woollin, personal communication). However no structured survey has covered this population so far.

Why are Redshank using the River Hull?

The River Hull is offering Redshank vital foraging and roosting habitat. Furthermore, in comparison with the Humber it provides sheltered conditions from high winds, which means Redshanks wintering on the River Hull will require less energy to stay warm than those on exposed parts of the estuary. It is also possible that artificial light along the river can be beneficial for night-time activity, allowing individuals to forage more efficiently and to more easily spot approaching predators. In any case, Redshank have proven to be an adaptable species, able to acclimatise to urban environments and the human disturbance found there.

Managing the River Hull for Redshank

Management of the wintering population in the Hull area should focus on the two key habitats used by Redshank during this period: roosting sites and foraging areas.

Maintaining or providing suitable, undisturbed roosting sites along the river banks and Humber flood defences is key to meeting the needs of Redshanks at high tide. Roosting Redshanks appear to be quite flexible and are able to find alternative suitable roost sites depending on tides and disturbance. Having so many potential roost sites available might help mitigate the effect of disturbance too, because when the birds are disturbed in one place they won't have to move far to find another suitable site. Given this, installing roosting platforms does not appear to be an effective management strategy on the River Hull.

Foraging Redshanks need exposed mud at low tide and this should be taken into account in any infrastructure projects, dredging or regular operations of the flood barrier that have the potential of increasing disturbance, causing loss or increases on the incline or decreasing availability of the mud banks of the Humber or the River Hull.

Where possible, dredging should be kept to a minimum or provision of compensatory foraging areas should be considered. Flood defence repairs, or other work with the potential to be a major source of disturbance, could be carried out during the summer months unless urgent.

For any necessary development causing habitat loss there should be compensatory actions such as managed realignment to create or allow the natural development of new mud banks.

Figure 6: Redshanks roosting between Drypool Bridge and North Bridge

Finally, the completion of regular surveys along the river will help document the state of the Redshank population, as well as the impact of any pressures from habitat change, predator activity or disturbance. Available data is recent and cannot accurately describe a trend in the number of birds on the river and further surveys would resolve this.

It would also be interesting to document whether the River Hull is able to support increasing numbers of Redshank over the next few years. Additionally, if ringed individuals can be regularly located, then movement along the River Hull and potentially links with the wider Humber Estuary could be established. In line with this, the stretch of river from the Beverley and Barmston Drain to the mouth of the River Hull has been recently designated as a Wetland Bird Survey site.

Acknowledgements

We gratefully acknowledge roost numbers provided by Nathan Pickering. We thank Ian Nicholson and the HWRG for providing ringing information. We also thank Andrew Ashworth for sharing his impressions on the changes in the local population and threats to Redshank in the River Hull valley. Richard Broughton kindly provided information on some of his ringed recoveries. Finally, thank you to Andrew Gibson for his enthusiasm for Redshanks and for providing some high tide roost counts.

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List of the macro-lepidoptera collected within eight miles of Hull

James William Boult, 1899

Reprinted from Transactions of the Hull Scientific and Field Naturalists' Club. 1(2). 55–64.

THE district round Hull is a very poor one for insects. There are no extensive woods, moors, commons or waste lands such as delight the heart of an entomologist. The land is cultivated to such an extent that there are very few suitable situations for insects to thrive, and what with dock extensions, new streets and buildings, etc., the district gets worse and worse every year. Several moths which were formerly common, are now extinct or nearly so. It is thought advisable, therefore, to place upon record a list of the species which occur in the vicinity of Hull, and it is hoped that this list will be of use to the members, especially the younger ones, in their rambles.*

The following list includes all the species that have been collected by myself or other members of the Club during the last twenty-five years. It could be made much larger if all the species that have been reported as having been found in the district were included, but as there is some doubt about several of these I have deemed it advisable to include only those which I have had an opportunity of personally examining, or which have been noted by competent lepidopterists. All together there are 25 species of butterflies, and 262 species of moths. The list for the whole of Britain includes 68 butterflies and 760 moths.

The list does not include the Micro-lepidoptera. We experience great difficulty in getting these satisfactorily named; in addition to which they have not been collected to the same extent as the butterflies and moths.

I have been assisted in the compilation of this list by Mr. J. Porter, Mr. C. W. Russell, and the late Mr. J. Hame.

Explanation of the initials in the following list : -

J.H. = J. Hame.	J.W.B. = J. W. Boult.	J.P. = J. Porter.	G.T.P. = G. T. Porritt.
G.S. = G. Sweeney.	C.W.R. = C. W. Russell.	C.H. = C. Holt.	

James Boult (1847–1924)

* We shall at any time be pleased to have particulars of additions to this list which will be duly recorded in future numbers of the Transactions. – ED. [Tom Shepard?]

(I have taken a good deal of trouble with Mr. Boult's list, the order and nomenclature of which, for purposes of comparison, I have reduced to that of Mr. G. T. Porritt's "List of Yorkshire Lepidoptera," 1883. All the items included in [ ] have been transferred from Mr. Porritt's volume.—J. R. Boyle.)

The original version of this table contained the information given here in columns three and four only. Changes over the last 120 years made it extremely difficult to follow the nomenclature and identify the insect. In this version I have provided a modern vernacular name and a scientific name (and ordering) based largely on the *Checklist of the Lepidoptera of the British Isles* (Agassiz, Beavan & Heckford – amended 19/2/2016)

Richard Middleton

Taxon	Current name	Boult 1899	Notes
HEPIALIDAE			
Orange Swift	*Triodia sylvina*	*Hepialus sylvinus*	Occasional
Common Swift	*Korscheltellus lupulina*	*Hepialus lupulinus*	Very common
Map-winged Swift	*Korscheltellus fusconebulosa*	*Hepialus velleda*	One, Humber Bank, J.H.
Ghost Moth	*Hepialus humuli*	*Hepialus humuli*	Very common
COSSIDAE			
Goat Moth	*Cossus cossus*	*Cossus ligniperda*	Occasional
SESIIDAE			
Lunar Hornet Moth	*Sesia bembeciformis*	*Sesia bembeciformis*	Common
Currant Clearwing	*Synanthedon tipuliformis*	*Sesia tipuliformis*	Occasional, common in some gardens
ZYGAENIDAE			
Cistus Forester	*Adscita geryon*	*Procris geryon*	Beverley, 1864
Six-spot Burnet	*Zygaena filipendulae*	*Zygaena fillipendulae*	Banks of Marfleet Drain, C.W.R.
Narrow-bordered Five-spot Burnet	*Zygaena lonicerae*	*Zygaena lonicerae*	Common, west Humber bank to 1888. Now extinct

PAPILIONIDAE			
Swallowtail	*Papilio machaon*	*Papilio Machaon*	1803 near Beverley - extinct
HESPERIIDAE			
Dingy Skipper	*Erynnis tages*	*Thanaos tages*	One, Humber Bank, Hessle, 1884, J.W.B. Formerly very common there, now extinct
Large Skipper	*Ochlodes sylvanus*	*Hesperia sylvanus*	One, Sutton, July, 1888, C.W.R. One, Victoria Avenue, 1889, J.W.B.
PIERIDAE			
Orange-tip	*Anthocharis cardamines*	*Anthocharis cardamines*	Common
Large White	*Pieris brassicae*	*Piersi brassicae*	Some years very common, others very rare
Small White	*Pieris rapae*	*Pieris rapae*	Common in gardens
Green-veined White	*Pieris napi*	*Pieris napi*	Common in lanes
Clouded Yellow	*Colias croceus*	*Colias edusa*	Occasional. Common in 1877 or 1878
Pale Clouded Yellow	*Colias hyale*	*Colias hyale*	Few in 1877 or 1878
Brimstone	*Gonepteryx rhamni*	*Gonepteryx rhamni*	One in Pearson Park by Mr. Peak. One in Queen's Road, 1887, J.W.B.
NYMPHALIDAE			
Wall	*Lasiommata megera*	*Satyrus megaera*	Occasional, Sutton bank
Large Heath	*Coenonympha tullia*	*Chortobius Davus*	Cottingham, J C Dale, now extinct
Small Heath	*Coenonympha pamphilus pamphilus*	*Chortobius pamphilus*	Common, Humber bank

Meadow Brown	*Maniola jurtina*	*Satyrus janira*	Common
Gatekeeper	*Pyronia tithonus*	*Satyrus tithonus*	Occasional, Sutton bank
Marbled White	*Melanargia galathea*	*Arge Galathea*	"At one time a well-known Yorkshire butterfly, but now probably extinct. 'Near Beverley formerly, but probably extinct there'(N.F.D.)," G.T.P.
Red Admiral	*Vanessa atalanta*	*Vanessa alalanta*	Common
Painted Lady	*Vanessa cardui*	*Vanessa cardui*	Some years common, others scarce
Peacock	*Aglais io*	*Vanessa io*	Occasional
Small Tortoiseshell	*Aglais urticae*	*Vanessa urticae*	Very common
Camberwell Beauty	*Nymphalis antiopa*	*Vanessa antiopa*	One in garden, Hessle Road, G.S. [Common in area 1872]
Large Tortoiseshell	*Nymphalis polychloros*	*Vanessa polychloros*	Two at Bilton, 1878, J.W.B.
LYCAENIDAE			
Small Copper	*Lycaena phlaeas*	*Polymmatus phlaeas*	Occasional
Holly Blue	*Celastrina argiolus*	*Lycaena argiolus*	One, end of July, 1897, Westbourne Avenue, M. Waller
Common Blue	*Polyommatus icarus*	*Lycaena alexis*	Common
DREPANIDAE			
Chinese Character	*Cilix glaucata*	*Cilix spinula*	Common
Peach Blossom	*Thyatira batis*	*Thyatira batis*	Hessle Road, J.H.
Buff Arches	*Habrosyne pyritoides*	*Thyatira derasa*	Occasional

Common Lutestring	*Ochropacha duplaris*	*Cymatophora duplaris*	Holderness, Beverley, etc. N.F.D.
LASIOCAMPIDAE			
December Moth	*Poecilocampa populi*	*Poecilocampa populi*	Occasional
Oak Eggar	*Lasiocampa quercus*	*Bombyx quercus*	Formerly abundant, now becoming scarce
Fox Moth	*Macrothylacia rubi*	*Bombyx rubi*	Formerly abundant near Cottingham, now extinct
Drinker	*Euthrix potatoria*	*Odonestis potatoria*	Formerly abundant, now becoming scarce
SPHINGIDAE			
Eyed Hawk-moth	*Smerinthus ocellata*	*Smerinthus ocellatus*	Occasional. Was formerly common on Willows, Wold Carr.
Poplar Hawk-moth	*Laothoe populi*	*Smerinthus populi*	Common
Convolvulus Hawk-moth	*Agrius convolvuli*	*Sphinx convolvuli*	Occasional
Death's-head Hawk-moth	*Acherontia atropos*	*Acherontia atropos*	Occasional
Privet Hawk-moth	*Sphinx ligustri*	*Sphinx ligustri*	Larvae, Southcoates Lane 1884
Humming-bird Hawk-moth	*Macroglossum stellatarum*	*Macroglossa stellatarum*	Occasional
Bedstraw Hawk-moth	*Hyles gallii*	*Deilephila galii*	Hull, 1859 J.G.
Elephant Hawk-moth	*Deilephila elpenor*	*Chaerocampa elpenor*	One, Dairycoates, June 10, 1898 C.H.
Small Elephant Hawk-moth	*Deilephila porcellus*	*Chaerocampa porcellus*	Near Hull, 1859, J.G.
Silver-striped Hawk-moth	*Hippotion celerio*	*Chaerocampa celerio*	Brantingham, 1865, J.H.C. Kingston
GEOMETRIDAE			
Single-dotted Wave	*Idaea dimidiata*	*Acidalia scutulata*	Common

Small Fan-footed Wave	*Idaea biselata*	*Acidalia biselata*	Occasional
Small Scallop	*Idaea emarginata*	*Acidalia emarginata*	Hornsea, N.F.D.
Riband Wave	*Idaea aversata*	*Acidalia aversata*	Common
Blood-Vein	*Timandra comae*	*Timandra amataria*	Common
Shaded Broad-bar	*Scotopteryx chenopodiata*	*Eubolia mensuraria*	Common
Garden Carpet	*Xanthorhoe fluctuata*	*Melanippe fluctuata*	Very common
Red Twin-spot Carpet	*Xanthorhoe spadicearia*	*Coremia ferrugata*	Common
Dark-barred Twin-spot Carpet	*Xanthorhoe ferrugata*	*Coremia unidentaria*	Occasional
Silver-ground Carpet	*Xanthorhoe montanata*	*Melanippe montanata*	Very common
Yellow Shell	*Camptogramma bilineata*	*Camptogramma bilineata*	Very common
Common Carpet	*Epirrhoe alternata*	*Melanippe subtristata*	Common
Shoulder Stripe	*Earophila badiata*	*Anticlea badiata*	Common
Streamer	*Anticlea derivata*	*Anticlea derivata*	One Cottingham Road, J.W.B.; Willerby Lane, J.P.
Dark Spinach	*Pelurga comitata*	*Perluga comitata*	Formerly common at the end of Alexander Dock, now extinct there, but occurs at west end of town
Mallow	*Larentia clavaria*	*Eubolia cervinaria*	Brough, G.T.P.
July Highflier	*Hydriomena furcata*	*Hypsipetes elutata*	Common
Spruce Carpet	*Thera britannica*	*Thera variata*	One at Stoneferry, 1892, J.W.B.
Barred Yellow	*Cidaria fulvata*	*Cidaria fulvata*	Common
Purple Bar	*Cosmorhoe ocellata*	*Melanthia ocellata*	Cottingham J.H.

Phoenix	*Eulithis prunata*	*Cidaria prunata*	Common in some gardens
Chevron	*Eulithis testata*	*Cidaria testata*	Occasional
Autumn Green Carpet	*Chloroclysta miata*	*Cidaria miata*	Two, Anlaby, 1894, J.P.
Common Marbled Carpet	*Dysstroma truncata*	*Cidaria russata*	Occasional
Dark Marbled Carpet	*Dysstroma citrata*	*Cidaria immanata*	Common
Green Carpet	*Colostygia pectinataria*	*Larentia pectinitaria*	Occasional
Water Carpet	*Lampropteryx suffumata*	*Cidaria suffumata*	Common
Winter Moth	*Operophtera brumata*	*Cheimatobia brumata*	Common
November Moth	*Epirrita dilutata*	*Oporabia dilutata*	Common
Tissue	*Triphosa dubitata*	*Scotosia dubitata*	One, Cottingham, 1886, J.W.B.
Chimney Sweeper	*Odezia atrata*	*Tanagra chaerophyllata*	Two, Cottingham Road, 1889, J.W.B.
Treble-bar	*Aplocera plagiata*	*Anaitis plagiata*	Occasional at Kelsey
Twin-spot Carpet	*Mesotype didymata*	*Larentia didymata*	Common
Grass Rivulet	*Perizoma albulata*	*Emmelesia albulata*	Common near Holderness Road, J.W.B.
Sandy Carpet	*Perizoma flavofasciata*	*Emmelesia decolorata*	Occasional
Green Pug	*Pasiphila rectangulata*	*Eupithecia rectangulata*	Occasional
Larch Pug	*Eupithecia lariciata*	*Eupithecia lariciata*	Brantingham, G.T.P.
Plain Pug	*Eupithecia simpliciata*	*Epithecia subnotata*	Formerly common at end of Alexandra Dock, now destroyed
Lime-speck Pug	*Eupithecia centaureata*	*Eupithecia centureatae*	Occasional
Scarce Pug	*Eupithecia extensaria*	*Eupithecia extensaria*	Spurn, 1870; Hull 1873

Common Pug	*Eupithecia vulgata*	*Eupithecia vulgata*	Common
Orange Underwing	*Archiearis parthenias*	*Brephos parthenias*	Beverley, in Houghton Woods, N.F.D.
Magpie	*Abraxas grossulariata*	*Abraxas grossulariata*	Common
Clouded Magpie	*Abraxas sylvata*	*Abrax ulmata*	Hessle, J.H. One Beverley Road, J.W.B.
Clouded Border	*Lomaspilis marginata*	*Lomaspilis marginata*	East Park, 1899, C.W.R.
V-Moth	*Macaria wauaria*	*Halia wavaria*	Common
Brown Silver-line	*Petrophora chlorosata*	*Panagra petraria*	East Park, 1895, C.W.R.
Scorched Wing	*Plagodis dolabraria*	*Eurymene dolobraria*	Occasional
Brimstone Moth	*Opisthograptis luteolata*	*Rumia crataegata*	Very common
Bordered Beauty	*Epione repandaria*	*Epione apiciaria*	Occasional
Dark Bordered Beauty	*Epione vespertaria*	*Epione vespertaria*	Said to have occurred at Hunsley, near Beverley about 1858
August Thorn	*Ennomos quercinaria*	*Ennomos angularia*	Occasional
Canary-shouldered Thorn	*Ennomos alniaria*	*Ennomos alniaria*	Occasional
Dusky Thorn	*Ennomos fuscantaria*	*Ennomos fuscantaria*	Occasional
Early Thorn	*Selenia dentaria*	*Selenia illunaria*	Common
Lunar Thorn	*Selenia lunularia*	*Selenia lunaria*	Occasional
Scalloped Hazel	*Odontopera bidentata*	*Odontoptera bidentata*	Common
Scalloped Oak	*Crocallis elinguaria*	*Crocallis elinguaria*	Common
Swallow-tailed Moth	*Ourapteryx sambucaria*	*Ourapteryx sambucata*	Common
March Moth	*Alsophila aescularia*	*Anisopteryx aescularia*	Common

Pale Brindled Beauty	*Phigalia pilosaria*	*Phigalia pilosaria*	Common
Oak Beauty	*Biston strataria*	*Amphydasis prodromaria*	One in Park Street, 1888
Peppered Moth	*Biston betularia*	*Amphydasis betularia*	Occasional
Spring Usher	*Agriopis leucophaearia*	*Hyberia leucophaearia*	One at Anlaby, 1897, J.P. Common at Beverley
Scarce Umber	*Agriopis aurantiaria*	*Hybernia rupicapraria*	Common
Dotted Border	*Agriopis marginaria*	*Hybernia progemmaria*	Common
Mottled Umber	*Erannis defoliaria*	*Hybernia defoliaria*	Common
Waved Umber	*Menophra abruptaria*	*Hemerophila abruptaria*	Occasional
Willow Beauty	*Peribatodes rhomboidaria*	*Boarmia rhomboidaria*	Common
Mottled Beauty	*Alcis repandata*	*Boarmia repandata*	Occasional
Engrailed	*Ectropis crepuscularia*	*Tephrosia biundularia*	Occasional
Common White Wave	*Cabera pusaria*	*Cabaria pusaria*	Occasional
Common Wave	*Cabera exanthemata*	*Caberia exanthemaria*	Common
Light Emerald	*Campaea margaritaria*	*Metrocampa margaritata*	Common
Little Emerald	*Jodis lactearia*	*Iodis lactearia*	Willerby Lane, J.H.
Common Emerald	*Hemithea aestivaria*	*Hemithea thymiaria*	Occasional

NOTODONTIDAE

Puss Moth	*Cerura vinula*	*Dicranula vinula*	Common
Sallow Kitten	*Furcula furcula*	*Dicranula furcula*	Occasional
Poplar Kitten	*Furcula bifida*	*Dicranula bifida*	Occasional
Pebble Prominent	*Notodonta ziczac*	*Notodonta zicsac*	Occasional

Swallow Prominent	*Pheosia tremula*	*Notodonta dictaea*	Occasional
Pale Prominent	*Pterostoma palpina*	*Ptilodontis palpina*	Occasional
Coxcomb Prominent	*Ptilodon capucina*	*Notodonta camelina*	Occasional
Buff-tip	*Phalera bucephala*	*Pygoera bucephala*	Very common
EREBIDAE			
Snout	*Hypena proboscidalis*	*Hypena proboscidalis*	Very common
White Satin Moth	*Leucoma salicis*	*Liparis salicis*	Few, Park Street, Spring Bank, Park Road, 1888
Yellow-tail	*Euproctis similis*	*Liparis auriflua*	Very common
Vapourer	*Orgyia antiqua*	*Orgyia antiqua*	Common
White Ermine	*Spilosoma lubricipeda*	*Arctia lubricipeda/menthastri*	Very common/Common
Ruby Tiger	*Phragmatobia fuliginosa*	*Arctia fuliginosa*	Occasional. Common on west Humber bank down to 1880
Garden Tiger	*Arctia caja*	*Chelonia caja*	Common
Cinnabar	*Tyria jacobaeae*	*Euchelia jacobeae*	Occasional
Four-spotted Footman	*Lithosia quadra*	*Lithosia quadra*	One at British Gasworks, W. Towle
Waved Black	*Parascotia fuliginaria*	*Boletobia fuliginaria*	One at lamp, Earle's Shipyard, Sept., 1896, C.R.
Mother Shipton	*Euclidia mi*	*Euclidia mi*	Kelsey Hill, occasional
NOCTUIDAE			
Spectacle	*Abrostola tripartita*	*Abrostola urticae*	Occasional
Dark Spectacle	*Abrostola triplasia*	*Abrostola triplasia*	Occasional
Burnished Brass	*Diachrysia chrysitis*	*Plusia chrysitis*	Common

Silver Y	*Autographa gamma*	*Plusia gamma*	Common
Beautiful Golden Y	*Autographa pulchrina*	*Plusia V-aureum*	Common
Plain Golden Y	*Autographa jota*	*Plusia iota*	Common
Gold Spot	*Plusia festucae*	*Plusia festucae*	Beverley N.F.D.
Figure of Eight	*Diloba caeruleocephala*	*Diloba caeruleocephala*	Common
Alder Moth	*Acronicta alni*	*Acronycta alni*	One Spring Bank West, June, 188, R. Chapman
Dark Dagger	*Acronicta tridens*	*Acronycta tridens*	Occasional
Grey Dagger	*Acronicta psi*	*Acronycta psi*	Common
Miller	*Acronicta leporina*	*Acronycta leporina*	Four larvae on poplar, Spring Bank, G.S.
Knot Grass	*Acronicta rumicis*	*Acronycta rumicis*	Occasional
Poplar Grey	*Subacronicta megacephala*	*Acronycta megacephala*	Occasional
Coronet	*Craniophora ligustri*	*Acronycta ligustri*	Beverley, N.F.D.
Small Yellow Underwing	*Panemeria tenebrata*	*Heliodes arbuti*	One, Springhead, 1897, J.P.
Shark	*Cucullia umbratica*	*Cucullia umbricata*	Occasional
Chamomile Shark	*Cucullia chamomillae*	*Cucullia chamomillae*	Beverley N.F.D.
Mullein	*Cucullia verbasci*	*Cucullia verbasci*	Larvae common
Copper Underwing	*Amphipyra pyramidea*	*Gonoptera libatrix*	Common
Mouse Moth	*Amphipyra tragopoginis*	*Amphipyra tragopogonis*	Common
Green-brindled Crescent	*Allophyes oxyacanthae*	*Miselia oxycanthae*	Common
Early Grey	*Xylocampa areola*	*Xylocampa lithoriza*	Beverley, N.F.D.
Bordered Sallow	*Pyrrhia umbra*	*Heliothis marginata*	Holderness, N.F.D.

Marbled Beauty	*Bryophila domestica*	*Bryophila perla*	Common
Mottled Rustic	*Caradrina morpheus*	*Caradrina morpheus*	Occasional
Pale Mottled Willow	*Caradrina clavipalpis*	*Caradrina cubicularis*	Common
Uncertain	*Hoplodrina octogenaria*	*Caradrina alsines*	Common, west Humber bank
Rustic	*Hoplodrina blanda*	*Caradrina blanda*	Occasional, west Humber bank
Treble Lines	*Charanyca trigrammica*	*Grammesia trilinea*	Common, west Humber bank
Brown Rustic	*Rusina ferruginea*	*Rusina tenebrosa*	Beverley, common, the specimens not being so dark as Scotch examples, N.F.D.
Old Lady	*Mormo maura*	*Mania maura*	Occasional
Straw Underwing	*Thalpophila matura*	*Cerigo cytherea*	Common, west Humber bank
Angle Shades	*Phlogophora meticulosa*	*Phlogophora meticulosa*	Common
Small Angle Shades	*Euplexia lucipara*	*Euplexia lucipara*	Common
Crescent	*Helotropha leucostigma*	*Apamea fibrosa*	Three at sugar, west Humber bank, 1894, J.H.
Frosted Orange	*Gortyna flavago*	*Gortyna flavago*	Formerly very common, now very scarce
Rosy Rustic	*Hydraecia micacea*	*Hydroecia micacea*	Occasional
Butterbur	*Hydraecia petasitis*	*Hydroecia petasitis*	Beverley N.F.D.
Ear Moth	*Amphipoea oculea*	*Hydroecia nictitans*	Occasional
Flounced Rustic	*Luperina testacea*	*Luperina testacea*	Common
Large Wainscot	*Rhizedra lutosa*	*Nonagria lutosa*	Common, west Humber bank
Bulrush Wainscot	*Nonagria typhae*	*Nonagria typhae*	Larvae common in the stems of bulrush
Fen Wainscot	*Arenostola phragmitidis*	*Leucania phragmitidis*	Formerly common, becoming scarce

Small Wainscot	*Denticucullus pygmina*	*Nonagria fulva*	Occasional
Least Minor	*Photedes captiuncula*	*Miana arcuosa*	Occasional
Dusky Brocade	*Apamea remissa*	*Apamea gemina*	Common
Clouded Brindle	*Apamea epomidion*	*Xylophasia hepatica*	Occasional, west Humber bank
Clouded-bordered Brindle	*Apamea crenata*	*Xylophasia rurea*	Common
Large Nutmeg	*Apamea anceps*	*Mamestra anceps*	Occasional
Rustic Shoulder-knot	*Apamea sordens*	*Apamea basilinea*	Common
Small Clouded Brindle	*Apamea unanimis*	*Apamea unanimis*	Larvae common where food is found plentifully
Dark Arches	*Apamea monoglypha*	*Xylophasia polyodon*	Very common
Light Arches	*Apamea lithoxylaea*	*Xylophasia lithoxylea*	Common
Common Rustic	*Mesapamea secalis*	*Apamea oculea*	Common
Rosy Minor	*Litoligia literosa*	*Miana literosa*	Some years common, others scarce
Cloaked Minor	*Mesoligia furuncula*	*Miana furuncula*	Common locally
Marbled Minor	*Oligia strigilis*	*Miana strigilis*	Very common
Middle-barred Minor	*Oligia fasciuncula*	*Miana fasciuncula*	Very common
Pink-barred Sallow	*Xanthia togata*	*Xanthia silago*	Occasional
Sallow	*Cirrhia icteritia*	*Xanthia cerago*	Occasional
Dusky-lemon Sallow	*Cirrhia gilvago*	*Xanthia gilvago*	Beverley, N.F.D., Hull J.W.B.
Beaded Chestnut	*Agrochola lychnidis*	*Anchocelis pistacina*	Very common
Brown-spot Pinion	*Agrochola litura*	*Anchocelis litura*	Common
Red-line Quaker	*Agrochola lota*	*Orthosia lota*	Common

Yellow-line Quaker	*Agrochola macilenta*	*Orthosia macilenta*	Beverley, N.F.D.
Brick	*Agrochola circellaris*	*Xanthia ferruginea*	Common in some seasons
Lunar Underwing	*Omphaloscelis lunosa*	*Anchocelis lunosa*	Occasional
Chestnut	*Conistra vaccinii*	*Cerastis vaccinii*	Occasional
Dark Chestnut	*Conistra ligula*	*Cerastis spadicea*	Common
Sword-grass	*Xylena exsoleta*	*Calocampa exoleta*	Occasional
Red Sword-grass	*Xylena vetusta*	*Calocampa vetusta*	Occasional
Satellite	*Eupsilia transversa*	*Scopelosoma satellitia*	Occasional
White-spotted Pinion	*Cosmia diffinis*	*Cosmia diffinis*	Occasional
Lesser-spotted Pinion	*Cosmia affinis*	*Cosmia affinis*	Beverley, N.F.D.
Dun-bar	*Cosmia trapezina*	*Cosmia trapezina*	Larvae common
Centre-barred Sallow	*Atethmia centrago*	*Cirroedia xerampelina*	Occasional
Suspected	*Parastichtis suspecta*	*Orthosia suspecta*	Three in Park Avenue, 1880, J.W.B.
Dingy Shears	*Apterogenum ypsillon*	*Orthosia ypsilon*	Occasional on willows, J.P.
Merveille du Jour	*Griposia aprilina*	*Agriopis aprilina*	A few at Springhead
Brindled Green	*Dryobotodes eremita*	*Hadena protea*	Occasional
Grey Chi	*Antitype chi*	*Polia chi*	One, Springhead Road, 1889, J.W.B.
Brindled Ochre	*Dasypolia templi*	*Dasypolia templi*	Neptune Street, October, 1894, J.H.
Large Ranunculus	*Polymixis flavicincta*	*Polia flavocincta*	Common but local
Dark Brocade	*Mniotype adusta*	*Hadena adusta*	Occasional
Pine Beauty	*Panolis flammea*	*Trachea piniperda*	Beverley, common, the green variety also occurs

			in some quantity, N.F.D.
Clouded Drab	*Orthosia incerta*	*Taeniocampa instabilis*	Common
Common Quaker	*Orthosia cerasi*	*Taeniocampa stabalis*	Common
Small Quaker	*Orthosia cruda*	*Taeniocampa cruda*	Beverley N.F.D.
Powdered Quaker	*Orthosia gracilis*	*Taeniocampa gracilis*	Beverley, scarce, N.F.D.
Hebrew Character	*Orthosia gothica*	*Taeniocampa gothica*	Common
Twin-spotted Quaker	*Anorthoa munda*	*Taeniocampa munda*	Occasional
Feathered Gothic	*Tholera decimalis*	*Heliophobus popularis*	Occasional
Antler Moth	*Cerapteryx graminis*	*Charaeas graminis*	Occasional
Nutmeg	*Anarta trifolii*	*Hadena chenopodii*	One at Anlaby, 1894, J.P.
Beautiful Yellow Underwing	*Anarta myrtilli*	*Anarta myrtilli*	Beverley N.F.D.
Grey Arches	*Polia nebulosa*	*Aplecta nebulosa*	Beverley N.F.D.
Pale-shouldered Brocade	*Lacanobia thalassina*	*Hadena thalassina*	Occasional
Dog's Tooth	*Lacanobia suasa*	*Hadena suasa*	Common on west Humber bank
Bright-line Brown-eye	*Lacanobia oleracea*	*Hadena oleracea*	Very common
Dot Moth	*Melanchra persicariae*	*Mamestra persicaria*	One larva beaten from elder tree, Hessle Road, J.H.
Broom Moth	*Ceramica pisi*	*Hadena pisi*	Occasional
Shears	*Hada plebeja*	*Hadena dentina*	Occasional
Cabbage Moth	*Mamestra brassicae*	*Mamestra brassicae*	Very common
White Colon	*Sideridis turbida*	*Memestra albicolon*	Occasional

Campion	*Sideridis rivularis*	*Dianthoecia cucubali*	One at Cottingham, 1886, J.W.B.
Bordered Gothic	*Sideridis reticulata*	*Neuria saponariae*	Occasional
Broad-barred White	*Hecatera bicolorata*	*Hecatera serena*	One at Springhead, J.P. [Mr Dobree says it occurs at Beverley, but is scarce.]
Lychnis	*Hadena bicruris*	*Dianthoecia capsincola*	Common
Brown-line Bright-eye	*Mythimna conigera*	*Leucania conigera*	West Humber bank, 1894, J.H.
Common Wainscot	*Mythimna pallens*	*Leucania pallens*	Very common
Smoky Wainscot	*Mythimna impura*	*Leucania impura*	Common
Clay	*Mythimna ferrago*	*Leucania lithargyria*	Common, west Humber bank
Shoulder-striped Wainscot	*Leucania comma*	*Leucania comma*	Very common
Pearly Underwing	*Peridroma saucia*	*Agrotis saucia*	Occasional
Garden Dart	*Euxoa nigricans*	*Agrotis nigricans*	Occasional
Heart & Dart	*Agrotis exclamationis*	*Agrotis exclamationis*	Very common
Turnip Moth	*Agrotis segetum*	*Agrotis segetum*	Very common
Dark Sword-grass	*Agrotis ipsilon*	*Agrotis suffusa*	Common
Flame Shoulder	*Ochropleura plecta*	*Noctua plecta*	Common
Barred Chestnut	*Diarsia dahlii*	*Noctua dahlii*	Occasional, J.H.
Ingrailed Clay	*Diarsia mendica*	*Noctua festiva*	Occasional
Small Square-spot	*Diarsia rubi*	*Noctua rubi*	Occasional, west Humber bank
Red Chestnut	*Cerastis rubricosa*	*Taeniocampa rubicosa*	One, Hedon Road, 1880, J.W.B.
Large Yellow Underwing	*Noctua pronuba*	*Tryphaena pronuba*	Very common

Broad-bordered Yellow Underwing	*Noctua fimbriata*	*Tryphaena fimbria*	Occasional
Lunar Yellow Underwing	*Noctua orbona*	*Tryphaena orbona*	Common
Least Yellow Underwing	*Noctua interjecta*	*Tryphaena interjecta*	Few larvae, Willerby Lane, 1890, J.H.
Lesser Broad-bordered Yellow Underwing	*Noctua janthe*	*Tryphaena janthina*	Occasional
Stout Dart	*Spaelotis ravida*	*Agrotis ravida*	Common in some years, not found in others
Great Brocade	*Eurois occulta*	*Aplecta occulta*	About 20 in Park Avenue, 1880 and 1881, but none since, J.W.B.
Double Dart	*Graphiphora augur*	*Noctua augur*	Common
Green Arches	*Anaplectoides prasina*	*Aplecta herbida*	Beverley, N.F.D.
Dotted Clay	*Xestia baja*	*Noctua baja*	Few at sugar, J.P.
Square-spot Rustic	*Xestia xanthographa*	*Noctua xanthographa*	Very common
Six-striped Rustic	*Xestia sexstrigata*	*Noctua umbrosa*	Common
Setaceous Hebrew Character	*Xestia c-nigrum*	*Noctua C-nigrum*	Common
NOLIDAE			
Short-cloaked Moth	*Nola cucullatella*	*Nola cucullatella*	Common