A haven for farmland birds

The unexpected treasures of a small patch of arable land in the Cambridge green belt

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For further information see johnmeed.net/ecology

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- *Environmental issues*. LBCNC (2013)
- *Ecology* (with Siobhan Smyth). LBCNC (2011)
- *Learn for your Life* (with Eddy Knasel and Anna Rossetti). Pearson Education (2000)
- *Farming for Tomorrow: Integrating conservation into the agriculture curriculum* (with Eddy Knasel). RSPB (1999)

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About the book

Chapter 1 begins by setting the scene. I will describe the crisis facing farmland biodiversity, and introduce the area that has formed the focus for my study.

Grey partridge flourish across the site, and have become the central focus of my study. Chapter 2 introduces these remarkable and endearing birds and summarises some of the key research into their catastrophic decline. Chapter 3 describes what I have learnt about their behaviour during pairing. Chapter 4 examines their extended family lives. Chapter 5 discusses population variations during the course of each year.

In Chapter 6 I turn my attention to another species that has suffered particularly from the changes in agriculture: the corn bunting. I will discuss how this fascinating species thrives in the fields I study, and how they organise their complex social lives.

Chapter 7 will focus on four other emblematic farmland species – skylark, yellow wagtail, yellowhammer and linnet – and discuss what I have learnt about their ecology, their behaviours, and the reasons why they may be flourishing in the fields around Nine Wells when elsewhere they face such worrying declines.

Chapter 8 looks at the wider ecosystem – or indeed ecosystems – in the area. How can we tell if an arable ecosystem is functioning well? To which extent might this be true of the fields and other habitats around Nine Wells? And does this offer any lessons for other areas of arable land?

Introduction

At 7 o'clock of an early December morning there was little daylight. There had been drizzle as I cycled over but it was clearing, leaving a cold, grey dawn. I walked along Hobson's Brook and as I entered the small wood around the springs that give Nine Wells its name, a thrush burst into song.

I climbed the track leading up to White Hill and a dark shape moved across the field in front of me. The fox turned to look at me and then decided it could sit down safely in the middle of the field. A couple of hares, apparently unalarmed, remained a few metres away. After five minutes the fox sauntered off, and as I continued upwards the hares raced away.

By the time I reached the top of White Hill the light was growing. Ahead the Gog Magog Hills stretched away south eastwards, and the first commuters descended towards the town. To the north lay the lights of the Biomedical Campus and the city of Cambridge and beyond that the fenland drained away towards Ely and the sea.

As I stood on White Hill that winter morning I reflected that I could not remember a time when I was not fascinated by wildlife. I had the good fortune to spend my early years under the Pennine Hills, in Rochdale. We would walk across Rooley Moor on the Cotton Famine Road, built in the 1860s by cotton workers for poor relief when the

American Civil War cut off supplies of cotton to the mills. High on the moor curlew, lapwing, wheatear, whinchat, meadow pipit and skylark hung in the air.

My teenage years were spent further south, in the rolling countryside close to Buckingham where I learnt to appreciate a farmed landscape, at a time when farmland birds were still abundant, skylarks rose from every field, lapwing soared above the land, the purring song of turtle doves floated on the air, and a walk across wet meadows would put up snipe.

Three books profoundly influenced my young self: Henry Williamson's *Tarka the Otter* and Gavin Maxwell's *Ring of Bright Water* magnified my longing for wild places.[1,2] They also gave me a yearning to see a wild otter which went unsatisfied for over 35 years until, on a beach in Ardnamurchan, my younger son and I sat for two hours as showers rolled in from the Atlantic until at long last an otter swam across the tidal pool, and sat eating a fish on the rocks opposite us.

The third was Rachel Carson's *Silent Spring*, which warned of the damage that pesticides were doing to biodiversity and helped explain why I had never seen a peregrine falcon, a sparrowhawk, a buzzard or a red kite – let alone a golden eagle. It also impressed me that, in a man's world, it had taken a woman to write one of the most important environmental texts ever published.[3]

I studied at Leeds, but during the holidays I worked for a tenant farmer. Ken Orchard taught me much about the pleasures, challenges and sheer hard work of the farming life, and gave me a respect for farmers that has remained to this day. Mixed farms like his are a rarity now, the mosaic of habitats replaced by monocultures, the hedges uprooted to make space for larger machinery, and the unkempt corners tidied and brought to heel. By the time I moved to Cambridge at the end of the 1970s I found large arable fields without turtle doves or tree sparrows, and with very few of the other arable specialists.

During the 1990s my work brought me into regular contact with agriculture colleges as well as the RSPB and Natural England, and I became acutely aware of how bird populations had fallen. Nonetheless, when I began conducting breeding bird surveys in an area of farmland in 2010 for the British Trust for Ornithology (BTO), it still came as a shock when I recorded just one yellowhammer and corn bunting, two skylarks and grey partridge and three linnets. No yellow wagtails were present.

I also had the opportunity to participate in the Volunteer and Farmer Alliance for the Royal Society for the Protection of Birds (RSPB), working with farmers on the border between Cambridgeshire and Suffolk. Again, I was struck by the relatively low populations, despite the fact that one of the farmers in particular was passionate about birds and extremely committed to making his farm as wildlife-friendly as possible.

In 2012 I became aware that part of the green belt south of Cambridge risked being released for development. I knew that many of the threatened farmland birds were found there, and I decided to draw on my experience as a surveyor to test out my feeling that the area was more favourable to farmland birds than those I had been studying. This turned out to be just the start of a journey of discovery that has already lasted for ten years.

No-one reading this book will need reminding that we are facing an extinction crisis, caused in large part by human impacts. But while the problems facing habitats such as rain forests are well-publicised, the risks to species in the UK are often less well-known. And farmland birds are very much at risk – already the turtle dove is 'critically endangered' in the UK.[4] With a decline of 82% between 2008 and 2018, and a total population of just over 3,000 pairs, it is hard to see a way back for a bird that was common on the fields I helped to farm in the early 1970s.

Several other iconic farmland species have also declined sharply over recent decades, notably grey partridge, corn bunting, yellow wagtail and linnet and even skylark and yellowhammer. My study over the last ten years has confirmed that a small area, which at first sight looks like much of East Anglia's intensively-farmed arable landscape, does indeed host flourishing populations of these iconic farmland birds.

This book will discuss how habitats like the one I study may be able to bring these species back from the brink; and how the quite fascinating characters, relationships and social lives of these birds makes it all the more imperative to do so.

Chapter 1

Why these fields matter

One early June afternoon I sat in a small grassy area close to where the new road crosses the railway line. A corn bunting was singing his heart out from a sapling, with three admiring females perched on nearby branches, and a graceful yellow wagtail paused briefly beside them. Linnets flew overhead chattering and occasionally stopping to bathe in a seasonal pond or to sing in the bushes around me, while skylarks rose skywards pouring out their liquid song and further away a yellowhammer joined the choir. I knew that a pair of grey partridge were nesting in a nearby hedge, and could picture the female sitting on the eggs, her perfect camouflage offering at least some protection from the stoats who were raising a family close to the ditch which water voles also frequent.

On the grass around me a small copper butterfly spread its burnished wings to celebrate the first days of summer, and I knew it would be joined by the common blue and brown argus, forming a trio of our most delightful butterflies. Soon crickets and grasshoppers would start their chorus as a long winter and a cold spring finally gave way to the promise of summer.

That June afternoon gives some idea of the biodiversity of the area that I have been studying over the last ten years. In this chapter I will begin by examining how the crisis of farmland biodiversity has meant that such areas have become few and far between. I will then explore my study area in more detail by describing a spring walk around the site, and giving a brief overview of the changing seasons. Finally, I will explain how my research developed a dual focus that will inform the remaining chapters of the book.

The crisis of farmland biodiversity

Since the mid-twentieth century our farmland has been in crisis. We have lost vital farm habitats including over 250,000 miles of hedgerow and half of all ponds, and we are losing the plants and animals that depend on them. There have been catastrophic declines of all the birds I could see on that June afternoon: since 1970 we have lost 93% of our grey partridge (below left) and 89% of our corn buntings (centre). Yellow wagtails (right) are down by 68%, lapwing by 64%, yellowhammer by 60%, and skylark and linnet by 56%.[1,2]



The *State of Nature 2019* report confirms that 'bird species most closely associated with farmland have declined more severely than birds in any other habitat' and declines in bird populations indicate much deeper problems – the habitat and foods they depend on have also gone.[3] We lost over half of our farmland butterflies between 1976 and 2014, and other farmland invertebrates have also been hit hard.[4]

What caused this crisis?

Several factors led to this crisis, of which three are central. Following the second world war and the food shortages that had led to rationing the government sought to make the UK more self-sufficient in food production. The *Agricultural Act 1947* aimed to boost farm production and protect farming incomes by offering guaranteed prices. When the UK joined the EEC in 1973 the Common Agricultural Policy continued the national government's priorities of increasing food production, guaranteeing food supplies and protecting farmers' incomes.

At the same time new technologies were becoming available. In the early 1970s my farm work had involved lifting hay bales onto an old wooden trailer, using pitchforks. All this changed with the introduction of much larger machinery for cultivation, spraying and harvesting. Within ten years the pitchfork had gone, and the small rectangular bales we handled were replaced by large round bales – or, more often, silage. Government funding helped farmers invest in the new machinery which in turn needed larger fields, and Ministry of Agriculture money even encouraged farmers to uproot hedgerows.

The third factor was pesticides. Insecticides killed crop pests but at the same time massively reduced the insect larvae which most young birds need in their early weeks. Herbicides exacerbated the problem by killing the weeds on which insect larvae could feed, and reducing the number of seeds available to birds.

The combination of these changes with new seed varieties and cropping patterns led to a major intensification of arable farming. Not only was vital summer chick food lost; autumn cultivation and sowing greatly reduced the in-field winter plant and insect food that had been available to farmland birds in stubbles and uncultivated, weedy areas.

Livestock farming was also revolutionised, with more efficient grazing, increased use of nutrients and the move from hay to silage – leading to the loss of 95% of herb-rich meadows, 80% of downland

grassland and 40% of lowland wet grassland. Drainage removed other wetland habitats and damp areas.

The loss of mixed farming further reduced the diversity of habitats on which birds depend for a year-round food supply. A particular loser in East Anglia has been the tree sparrow. The *State of Nature 2019* report explains how all this affects farmland birds:

> 'The shift to autumn sowing has resulted in a fall in skylark breeding productivity as cereal crops become too tall and dense in the breeding season, and the loss of overwinter stubbles has meant poorer survival for granivores such as yellowhammer. Increased pesticide use has resulted in less invertebrate food for young grey partridges, while the drainage of wet grasslands and the loss of mixed farming systems has led to a decline in lapwings.'

While changes in farming practice have had a crucial impact, they are not the only factors in play. *State of Nature 2019* also discusses the impact of urbanisation – both development and infrastructure, notably road building: 'Urbanisation has direct consequences for wildlife in terms of land use and land cover changes, but it also acts to fragment landscapes by creating barriers between habitats, thus isolating some populations and in turn reducing their genetic fitness.' Recent research has shown that roads may also reduce species richness and diversity by creating environments that benefit common species at the expense of others.[5]

Farmland birds face other pressures as well. Migrating species like turtle dove and yellow wagtail face challenges in their wintering quarters and their migration routes.

This was the alarming context within which I began my study. From the outset it was clear that there were important and viable populations of threatened farmland birds on the site, considerably more than in much of the surrounding farmland, or in the other areas I was studying. So now is the time to explore the area.

A spring walk around the area

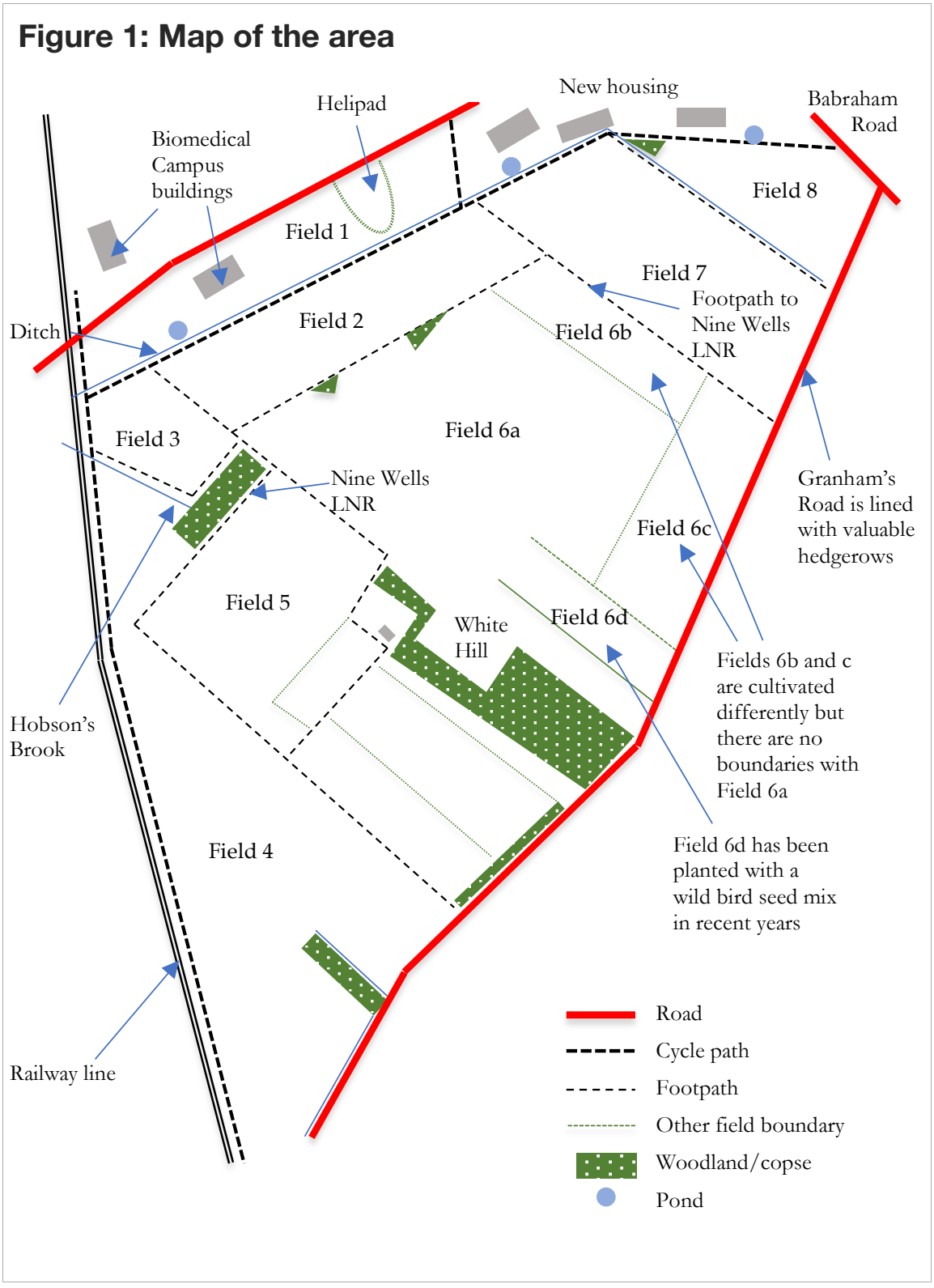
The area is made up of arable fields immediately south of Cambridge centred around White Hill and the Nine Wells Local Nature Reserve (LNR). Following an Enclosure Act of 1834, the medieval open fields were replaced by a new pattern of fields, hedgerows, roads and ditches, most of which has remained largely unchanged.[6] Recent development has encroached on the area which is now bounded by a Biomedical Campus and new housing to the north, the railway line to the west, and Granham's Road to the south-east.

Let's start by taking a walk around the site, starting at the Babraham Road entrance in the far north-east corner of the site. I do this walk early in the morning three times every spring and early summer. Using the BTO's methodology, I have mapped out two parallel transects, each one kilometre long, and divided into five 200m sections. I record all the birds I see in each section. It allows me to compare one year with the next, and also to compare this site with others that I survey for the BTO. And later in the summer, I use the same transects to survey the butterflies, dragonflies and damselflies on behalf of the UK Butterfly Monitoring Survey.

Picture yourself in early May 2020 – the country is adjusting to the Covid pandemic, and is still in the initial state of lockdown. At 5.30 am there is virtually no traffic, and little sign of any other human activity. All is remarkably quiet.

At this point you might well be thinking: isn't this just another barren desert, along with so many of the vast arable expanses of East Anglia? Surely, there can't be any exciting wildlife in such an unprepossessing landscape? And so close to the city as well – the hedge on the right only partly obscures the new housing development that also bears the name Nine Wells. And haven't I just been talking about the sorry state of Britain's farmland birds?

Figure 1: Map of the area



Wait and see. Here's the view as I set out. There's an early morning mist hanging over the fields, obscuring the view across the fields stretching up towards White Hill but holding the promise of a blue sky. I walk west along the cycle path, with Field 8 on my left.

I take a moment to listen. On cue, a skylark launches heavenwards, carolling as it rises. A linnet trills its way across the field, and as I approach a small copse the first song thrush bursts into tune, and I can hear robins, blackbirds, great tits, blue tits and greenfinches. The human world may be on hold, but nature is in full flood, the songs and calls clear against the background stillness.

Leaving the copse behind, I continue west beside the hedgerow. A line of willows flourishes along the damp ditch. A couple of weeks ago the catkins were in their prime, and now the leaves are bursting through. The ditch is itself obscured by hawthorn, now in full bloom, brambles and wild roses.

Three more skylarks ascend in the field to my left, while a chiffchaff – the first migrant to return each spring – delivers the song that gives him his name. Half a dozen black-headed gulls pad across the field that is prone to flooding in wet periods; when the new houses were built a couple of ponds were dug to take water run-off, and as the summer blossoms the air will fill with dragonflies.

The hedge comes to an end and the cycle path now continues along the ditch that runs between Fields 1 and 2. Field 1 is now increasingly dominated by the Biomedical Campus, but around the helipad there is still room for nature – I count nine more skylarks and eight more linnets before I hear the reeling song of my first corn bunting, one of our most threatened farmland birds who I will return to in Chapter 6. Half a dozen rooks patrol the helipad. Just then I hear my first whitethroat of the year, returned from the Sahel, just south of the Sahara Desert. They will raise their young in one of the bushes along the ditch, and soon a pair of reed buntings will join them. A moorhen also prospects along the ditch.

By the time I reach the railway line the mist is lifting and a pair of grey partridge breakfast in Field 3; they make the most of the hours after dawn before passing the rest of the day in the safety of the long grass that grows at the foot of the hedgerow. These birds have become firm favourites of mine, and I will discuss their fascinating lives in the next four chapters. Another whitethroat sings in a bush beside the rail line.

This is the halfway point of my walk, and I now leave the cycle path and turn towards the Nine Wells Local Nature Reserve (LNR). I walk beside Hobson's Brook – a clear stream that was born from the springs that emerge where the chalk of White Hill meets the flatter and more impervious West Melbury Marl, a mix of chalk and clay. The brook is home to a good population of water voles and just before it passes under the railway line, on its way to join the River Cam and thence through the fens to the Wash, I sometimes see one of these charming creatures quietly chewing on the vegetation.

Hobson's Brook played an important role in the history of Cambridge, and as I enter the LNR I make my way up to the monument that commemorates this moment.

Hobson's Conduit

In the late sixteenth century, the authorities of the town and university of Cambridge became increasingly concerned about the poor quality of water in the town. In 1574 Andrew Perne, the Master of Peterhouse College, suggested taking fresh water from the springs of Nine Wells into the town, and in 1610 work began on the project. Thomas Hobson, a local carrier who gave rise to the expression 'Hobson's choice', bequeathed land to fund and maintain this supply of fresh water. The stream that flows out of the LNR, and the conduit that was created to carry water to the market square, have since borne his name.

Nine Wells was once designated a Site of Special Scientific Interest (SSSI) because it provided a home to two rare invertebrates: a flatworm and a cased caddis fly. However, in 1976 the combination of an exceptionally dry summer and over-abstraction of water from the chalk aquifer led to the springs drying up and the loss both of these invertebrates, and of the SSSI status. A new pipeline allows water to be pumped into the reserve when the natural supply is too low, and the City Council, who manage the reserve, comment that 'the chalk watercourses are being managed with the aim of re-creating the conditions favourable for a possible re-introduction of these rare species'. The reserve is also a Local Geological Site.

The signature tree of the Nine Wells LNR woodland is the beech, and these majestic trees give the area much of its character. In the understory grow elder and spindle, and winter greenery is provided by yew, ivy, holly and wild privet. This is home to a range of common woodland birds – I pick out blackbirds, robins, wrens, dunnocks, goldfinches and tits – and then a blackcap, newly arrived for the summer, launches into its liquid and melodious song.

I emerge briefly from the LNR to look across Field 5 where another pair of grey partridge are feeding. To my right, along the hedge between

Fields 4 and 5, another corn bunting sings. This hedgerow is well suited to farmland birds; it is kept at around 2 metres in height, with a thick grassy base, which makes it ideal for grey partridge nesting cover, and offers other species song posts, feeding and nesting sites. We will meet it again later in this book.

However, my transect continues in the opposite, easterly direction, skirting the edge of Field 5. On my right is White Hill, the last chalk prominence before the city of Cambridge which offers thin, well-drained calcareous soil. More skylarks rise up in song and by the time I leave Field 5 behind I have already counted 25 of them.

My path follows the seasonal ditch along the spring line between Fields 2 and 6 and I now come to one of my favourite spots in the area. I follow a permissive path with strip of new woodland on my right, while to my left runs a footpath with tall hedges on either side. This forms a kind of woodland glade, and in summer becomes a haven for butterflies, dragonflies, bees and other insects. Two more chiffchaffs sing along this stretch and as I come to a small copse of older woodland one of the rare and imposing black poplars stands in front of me, still laden with red catkins.

I continue with Field 6 on my right. While the fields I have passed so far have been relatively small by Cambridgeshire standards – up to 10 hectares in size – this is much larger, covering some 40ha of the northern and eastern slopes of White Hill. In practice it is divided into four areas: one large field and three other rectangular strips that are farmed differently, with a rotation of wheat and barley, interspersed with sugar beet, rape and occasionally peas or beans.

This is the prime site for the area's skylarks and today I count 18 though the total number of pairs each year will be in the region of 20–25. It is also home to the largest population of brown hares, and in early spring this forms the stage for their bouts of boxing, which are not fights between rivals, but females discouraging the attentions of unwanted males.

More willows line the damp ditch until the path turns 90 degrees to the right towards Granham's Road for the final section of my transect. I now follow a mature, tall hedgerow with a good variety of shrubs (all of which will carry berries in the autumn) interspersed by field maples. This final section has reserved the greatest treat of the whole walk; I watch entranced as a pair of yellow wagtails rest and preen in the branches of a maple. These graceful birds have just arrived from West Africa and as I watch I feel they must be taking pleasure in this quiet time in each other's company after such as long journey. We will meet them again in Chapter 7.

It's 7.30 am and I have reached the end of the walk. I have recorded 33 bird species and 212 individuals – remarkably similar to other recent years – and I am particularly gratified to have counted 43 skylarks, 11 linnets, 4 grey partridge and 3 corn buntings, and to have seen the safe arrival of the first yellow wagtails.

By now the mist has cleared but it's still far quieter than usual, a fraction of the normal commuter traffic. By contrast, just over a year later I would be interviewed for a documentary about Hobson's Brook. In between the passing trains, background traffic, ambulance sirens, helicopter take-offs and low-flying light aircraft, it was hard to find a suitable moment to film the interview.

Before I leave I take in the view over Field 8 with Field 7 behind and Field 6 sloping up to White Hill. By late June it will look like this.

The changing seasons

My transect walk was in late spring when the dawn chorus was at its peak, the days were lengthening, migratory birds were arriving and new life was stirring. But how do things change as the year advances?

Summer

Already at the time of my transect walk the first summer visitors had arrived. Soon they are joined by a host of other migrants – lesser whitethroats and garden warblers join the chiffchaffs and blackcaps, while willow warblers and sedge warblers pass through, along with occasional rarer visitors. In 2021, a pair of reed warblers also nested, successfully, in Hobson's Brook.

As spring progresses the skies fill with swallows, house martins and, later, swifts. Swallows breed in the outhouses of White Hill Farm and under the bridge over the railway, where they have recently been joined by house martins. A colony of house martins also breeds nearby in Addenbrooke's hospital, and swifts visit regularly.

Cuckoos are occasional visitors; in 2016 I observed a female searching for nests to lay her eggs in the hedge between Fields 2 and 3. Our summer falcon, the graceful hobby, may pass through on migration, and sometimes visits to hunt during the summer. Perhaps the most unexpected regular summer visitors are common terns, which breed nearby and regularly fly over after trips to gather food, returning with their beaks laden with fish.

In total, over 40 species of birds breed across the site, along with many mammals including – in addition to the brown hares and water voles – badgers, foxes and deer.

Most of the flowering plants one would expect to find in a calcareous arable landscape are present and as June unfolds the margins become a riot of colours. The flowers provide food for bees, butterflies, dragonflies and a range of other insects and invertebrates.

Autumn

Shakespeare reminds us that 'summer's lease hath all too short a date' and by August the breeding season is coming to an end, and the birds fall quiet. This is the time when they moult – renew their feathers ahead of the winter – and this makes them more vulnerable to predators, so they skulk out of sight in the bushes.

The summer visitors prepare to leave. The swifts are the first to go, often in early July though in some years they will linger later into the month. Blackcaps are gone by late August, though whitethroats and swallows can linger into September. Chiffchaffs are the last migrants to go and may hang around, and indeed sing, until late-September or mid-October – they have less far to fly than the other migrants and spend their winter in southern France or Spain. A trained eye can even distinguish a willow warbler from the very similar chiffchaff by the longer wings they need to travel to Africa.

I have one intriguing record of two blackcaps on October 10, 2016. They were almost certainly migrating, but were they leaving or arriving? People recently started seeing blackcaps on their garden feeders, and it was initially assumed they were summer visitors that had chosen to stay on during the winter. However, it has since emerged that they are birds who pass their summers in central Europe, and have chosen to migrate north-west to make the most of a warmer Atlantic climate, and our increasingly mild winters.

By mid-September the hedgerows and margins are laden with fruit and seeds, and the birds re-emerge to take full advantage. Large flocks of linnets plunder the thistle seeds, and families ('coveys') of grey partridge venture out into the fields now that the youngsters can fly. Robins start to sing again, though now with their more melancholic winter song. Migrating birds call in, this time on their way south.

Butterflies and dragonflies make the most of the last warmer days, while bees swarm around the late-flowering ivy.

Autumn brings wheatears…

…and whinchats

Winter brings grey herons…

…and little egrets

Winter

In winter, much wildlife goes into shutdown. Apart from the ivy-clad tree trunks, and a scattering of holly and yew, leaves (let alone flowers) are out of fashion. Most autumn stubble has gone and the fields are either ploughed or covered in the early, timid shoots of winter cereals.

Around Nine Wells, winter is the season of winds and mud. Despite their low altitude, the Magog Hills are reputed to be the first higher land west of the Urals, and easterly or northerly winds are raw and biting. Barely a winter passes without a storm that brings down one of the trees along the spring line. Coveys of partridge huddle out in the fields seeking any shelter from the winds. Flocks of corn bunting, yellowhammers, linnet and up to 100 skylark scour the hedgerows and fields in search of food.

Despite the wind and rain the slopes of White Hill and above all the hedgerows offer some shelter and I choose my winter routes with care. And it's rare that a winter visit goes by without a surprise; here is one entry from my notepad in late 2020:

> I seem to have got wet every time I ventured out over the last few days. But it's been worth it. Today I met a fox – it strolled across a field casting an occasional glance in my direction and then settled down to rest (in full view) in the shelter of a small wood. Remarkably a pheasant walked right up to it without a care and they both ignored each other. Then on the way back I encountered a group of 250+ very chatty starlings.

New visitors arrive. The resident thrushes and starlings are joined by arrivals from northern Europe. Redwings take up residence in the trees of Nine Wells and along the spring line, their presence betrayed by their 'tseep' calls.

Flocks of fieldfares roam across the arable fields and, later in the winter, the paddocks of White Hill. The flocks can number 50 or even 100 birds – though one bird shunned company for much of late 2020 as it had found a hawthorn bush laden with berries and was in no hurry to share these with anyone else.

Winter also brings two of the most beautiful visitors: graceful little egrets stalk the ponds, streams, ditches and areas of standing water, while azure kingfishers come to fish for sticklebacks and bullheads in Hobson's Brook. Snipe – and even the rarer jack snipe in January 2017 – may probe in the mud of the streams and ditches.

Meadow pipit also over-winter, along with a pair of stonechats and the occasional siskin. Large flocks of up to 300 golden plover fly over, while smaller groups stop to feed. Rainy winters bring extra mud and black-headed gulls make the area their home, their numbers swelled by the surprisingly uncommon 'common' gull as well as herring gulls and both lesser and greater black-backed gulls. A rare visitor is the merlin, our smallest falcon.

As the new year turns, however, change is in the air. There is excitement among the grey partridges as they begin to form pairs. Hares gather, numbers building towards 25 as the winter progresses. Corn buntings start to sing on sunny late winter days, joining the robins who are now launching into their joyful spring song. In March the winter visitors prepare to depart and towards the end of the month the first chiffchaffs and blackcaps arrive. Spring is not far away…

It's not just about the numbers

I hope this chapter has convinced you that these fields, far from being arable deserts, are indeed home to varied and exciting wildlife. Six threatened species of farmland birds are doing very well there; in recent years I have been recording: over 50 pairs of skylarks; 15 or more pairs of grey partridge; around 15 pairs of linnets and yellowhammers; 10 corn bunting territories; and 2–3 pairs of yellow wagtails. All are designated as 'red list' species of high conservation concern.[7]

At the start of my research, my focus was on gathering data on populations: I wanted to build an accurate picture of the number of breeding pairs of these farmland birds and, crucially, the viability of these populations, and to share these data in the hope that they would support informed decision-making.

However, as I came to know the birds more intimately, I became fascinated by their behaviour, and by the subtle complexity of their social lives. Grey partridge, for instance, pass very little, if any, of their time alone; they spend their lives in their family group or in a pair. Pairs and groups work out ways to live alongside each other, and while this process is not always smooth, they negotiate relationships that work most of the time, and that they appear comfortable with. I have increasingly come to see their behaviour as having meanings that may be as important to them as ours are to ourselves.

A lifetime of watching wildlife has convinced me that birds and animals have intelligence, personality and emotions. For far too long, such attributes were deemed to belong to humans only, or grudgingly to other primates. However, more recently scientists have increasingly been coming to similar conclusions. As Jennifer Ackerman writes in *The Genius of Birds*, 'birds possess ways of knowing beyond our ken, which we can't easily dismiss as being instinctual or hardwired'.[8]

We now know that songbirds have to learn their repertoire in a way that echoes our own ability to learn a language, and skylarks like those I watch around Nine Wells learn a vocabulary of some 300 syllables.[9]

They do this by listening to other singers in the neighbourhood, and it is common for birds in one area to develop an 'accent' that may differ somewhat from the songs in other areas. In the early spring I have listened to blackbirds discretely rehearsing their lines. Newly arrived blackcaps also quietly run through phrases before launching into their full, melodious songs.

The chapters to come will examine the threatened species of farmland birds in more detail with a dual focus: firstly, what we know about their ecology, why they are under such threat, and why they may flourish in the small area I study; and secondly, what I have learnt about their behaviour, their relationships, and their social lives. I devote most space to the grey partridge, both because I have learnt most about them, but also because they can be seen as 'countryside barometers'. Later chapters will discuss the other species.

I hope the book will demonstrate that the arable fields of East Anglia do not have to be wildlife deserts – they can be thriving ecosystems with a rich and varied flora and fauna, a network of relationships, and a wealth of stories waiting to be told.