

Chapter 2

Coombe Hill, Apperley, Deerhurst, and Tewkesbury

Introduction

Coombe Hill is a short bus ride south from Tewkesbury. Walking down the steep, canopied lane next to the Swan Inn, you soon arrive at the eastern terminal of the derelict Coombe Hill Canal. The canal and a large area of adjacent meadow form the Coombe Hill Nature Reserve, a designated SSSI, run by the Gloucestershire Wildlife Trust. The hedge and brambles on either side of the canal support good numbers of small birds including residents, such as Bullfinches, summer-breeding migrants including many warbler species, and winter visitors such as Fieldfares and Redwings. After about a kilometre or so, you can enter the northern meadows of Coombe Hill Nature Reserve and visit the Grundon Hide to see what birds are on the scrapes and surrounding meadows. Recent improvements have made access to the hide easier during wet periods, but at times even the canal tow-path becomes submerged. A circular walk through the reserve takes you to a second hide overlooking Long Water that, as its name suggests, retains some water throughout the year and supports many ducks and waders. Apperley sits atop a hill overlooking the reserve. There are many ways to reach it from the hides—you can





follow the canal further west or take more direct pathways across farmland. Old orchards harbour yaffles and the occasional bull, and some of the pathways are full of stinging nettles that are hazardous for those who wear shorts.

From Apperley you take a footpath that descends a steep valley to Coal House on the banks of the Severn, where some fine local beers

are sold. The path continues north along the river for several kilometres until you reach Deerhurst, where a visit to Odda's Chapel is a must. Built in 1056, it is a place of great serenity, and sitting in it always brings to mind the Saxon chronicler's analogy that man's life is like an arrow appearing suddenly through the high window on one side of the great hall only to pass



quickly through the opposite window. Saint Mary's Priory Church is the second, and much grander and still used, Saxon place of worship in this tiny village. The famous ninth-century carved Angel of Deerhurst, found at the back of Saint Mary's, has a beauty that transcends her present position high up on the wall of a derelict apse. From Saint Mary's you can either

return to the river or take the overland route along Long Plantation and around the golf course. The inland route requires a short steep climb, but you are rewarded with grand views out across the Severn Valley, and you can check out the comings and goings of a substantial rookery adjacent to the golf course during the spring



and summer months. The land up here is arable, and the fields are vast and largely denuded of their hedgerows, a sorry monument to modern agribusiness I'm afraid, although the tractor drivers (all contractors I expect) invariably give you a wave as you pass. I once saw a magnificent and exceptionally large dog fox in

broad daylight here. From the golf course you descend to Lower Lode Lane, where you are treated to extensive views over the Ham and to Bredon Hill in the distance. The walk along the river also has its rewards—you never know what you might see as it is a major highway for travelling birds, and there is a Sand Martin colony built in the far bank that, while prone to flooding, is used in some





seasons. The path along the river also brings you to Lower Lode Lane, where in July you may be greeted by the sight of battling knights in armour as the annual re-enactment of the Battle of Tewkesbury takes place.

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In many ways the bird life of the UK and New Zealand could not be more different. New Zealand's native land birds are few in numbers but a high proportion of them are endemic, which means that they are found nowhere else. Modern DNA analysis has shown that a number of these endemic birds are highly primitive with respect to their relatives elsewhere and by implication have been in New Zealand since the land first formed. Despite its geographical isolation from other landmasses, large numbers of Bar-tailed Godwits and Red Knots, as well as smaller numbers of other waders, arrive in the New Zealand spring from their breeding grounds in Alaska and Siberia to escape the northern winter. Apart from these migratory waders, two species of cuckoo also visit New Zealand. As I write this, I can hear the call of the Shining Cuckoo outside my open window. This small bird winters in the Solomon Islands and travels south to New Zealand to breed. Like its British counterpart, this cuckoo is a harbinger of spring and, like other cuckoos, lays its eggs in the nest of a host species.

By contrast, the British avifauna contains many more species, but only the Scottish Crossbill is endemic. All other British land birds are also found in Scandinavia, continental Europe, or further afield. Ignoring vagrants (birds that generally excite twitchers because they are rare, irregular visitors to the UK) and regular passage migrants, the avifauna is composed of three distinct parts of roughly equal size. The first group of species is resident within the British Isles throughout the year. This group includes most of the common garden birds and some of the more iconic species such as the Mute Swan. Some resident species also have migratory populations that seek warmer climes when breeding is finished, and other resident species migrate within the British Isles, leaving their breeding grounds as autumn progresses. Mountain birds from Wales like the Raven or those marvellous raptors, the Peregrine Falcon and Merlin, disperse to the lowlands and can be found

around the hams of the Severn Valley during the winter months. The male Merlin is often spotted as a low-flying flash of grey, scattering groups of small birds as it tries to ambush the unwary. Peregrines are attracted to concentrations of waterfowl and can often be seen perched on pylons overlooking sites where ducks gather. Many resident birds also have their populations supplemented by Scandinavian or European migrants during winter, so that individual Blackbirds or other small songbirds that come to garden feeders during the winter are just as likely to be continental migrants as resident British birds.

The second group of species is those that arrive in spring to breed in Britain, having spent their winters in southern Europe or northern or sub-Saharan Africa. Many of these species have become part of British folklore as their arrival heralds the return of spring. The first Common Cuckoo call is a much anticipated event, as is the return of Swallows and House Martins to their nests under the eaves of many country cottages. Spring migrants fill the rather empty late-winter countryside with new life, and suddenly there are so many different types of birds. Many of these are accomplished songsters, indeed one of them—the Nightingale—is renowned as the most accomplished of all. So not only is life renewed and invigorated, and biodiversity increased, but the air becomes filled with song as males strive to establish territories and attract mates.

The third group of species is winter visitors that have bred in northern regions (Iceland, Greenland, or northern parts of continental Europe and Asia) and who overwinter in the British Isles where conditions are milder. The arrival of these species often overlaps with the departure of the spring migrants, and there is a real feel of a changing of the guard. Ducks, geese, and swans can often be found in large numbers and provide truly majestic displays as they move between roost and feeding sites. My own favourite winter visitors are the Scandinavian thrushes that descend on the hedgerows to feast on berries. Both Redwings and Fieldfares usually arrive in force, and the constant chatter of the latter accompanies you as you walk along the hedgerows. The first arrivals are rather shy and move quietly ahead of you, but as their numbers increase, they become bolder and the volume of chatter rises, and rather than moving ahead of you, the birds will rise and settle again in an avian version of the Mexican wave. At the height of their migration, individual flocks can contain many hundreds of individuals. These large flocks quickly strip the hedgerows of their berries before moving on to new areas. One day there may be thousands of thrushes, the next hardly a bird to be seen other than a few stragglers. The Fieldfare is the larger of the two, and while its colours are muted, it is nevertheless a magnificent bird when seen close up or through binoculars. The Redwing is smaller but also very pretty with its streaked breast and white eyebrow. Its name is derived from the patches of russet red beneath its wings.

Added to this last group of regular winter visitors are species which usually arrive in small numbers and tend to be restricted to the east coast, but which occasionally invade in significant numbers in what biologists call irruption events. These irruptions are linked to poor food supply in Scandinavia or Europe. The winters of 2010/2011 and 2011/2012 saw the arrival of thousands of Bohemian Waxwings throughout the length and breadth of the UK. Several small flocks of a few dozen

birds could be seen at various times in Tewkesbury feeding on berry-laden trees at the back of the hospital or by the market in the middle of town. These starling-sized birds with their jaunty crests and bright-yellow tip to their tails brought a touch of the exotic to the stark landscape of snowy Gloucestershire.

Many of Britain's land birds are in serious decline and their conservation is a matter of urgent priority (DEFRA 2012). The dramatic decrease in the numbers of many resident species, such as the Skylark or Grey Partridge, can be put down to factors such as intensive farming methods, changes to farmland management, or creeping urbanisation resulting in habitat loss. It's been estimated that nationally there are now only half the number of birds that there were in the 1970s. And it is not just Britain that has suffered these losses; many once common farmland species are declining throughout Europe. The Royal Society for the Protection of Birds (RSPB 2011) pointed out that this decline coincides with the implementation of the EU's Common Agricultural Policy (CAP), and it is lobbying for changes in the CAP to encourage a more ecological and bird-friendly approach. Positive changes would include leaving field margins fallow, reducing the use of pesticides, decreasing the overall intensity of farming, and establishing set-aside areas. These changes would increase seed and insect food supplies, provide safe breeding sites for species like Skylarks and Lapwings, and cover for birds like the Grey Partridge. Sympathetic farmers have demonstrated that it is possible to farm effectively and to promote a healthy ecology.

While a unified European approach is at least a theoretical possibility because there is a degree of political union within Europe, the solution to the equally worrying decline of many of Britain's spring migrants is more problematical because the causes of decline in many species' numbers are unknown, and any potential solution would require action in countries where the birds breed, where they overwinter, and over which they migrate. While the annual slaughter of migrating songbirds in Malta and other Mediterranean countries clearly doesn't help, the more fundamental causes must be related to ecological factors within the wintering and/or breeding ranges. Conservation solutions involving migrating species transcend national borders and require concerted action from a number of governments which are often geographically distant and which can be economically and politically divergent. At present there are no mechanisms to facilitate this cooperation at governmental level. In the absence of political action, the scientific and conservation communities work primarily at the national level while simultaneously promoting international cooperation and exchange of information. The waders that spend their time in New Zealand during the southern summer provide an instructive example. These birds migrate from New Zealand to Siberia or Alaska in stages, stopping in eastern and northern Australia and East Asia to feed and rest so that they arrive on their breeding grounds in peak condition. Formulation and implementation of conservation strategies for these waders require data about their numbers and, in particular, changes in their numbers (is there a problem and if so what is its size?), protection of breeding grounds (against potential loss or disturbance by, e.g. oil and gas exploration), protection of transit feeding grounds and roost sites from development (a significant problem in East Asia where there are large human populations in regions adjacent

to suitable sites), and protection of feeding grounds and roost sites in New Zealand where they spend the austral summer recuperating from their arduous journey and readying themselves for the next breeding season. A breakdown in any one of these links will have a potentially significant effect on the population size of these species.

While only a small number of waders breed in the British Isles, many other waders and waterfowl stop over on their spring and, more particularly, autumn migrations, and a significant number overwinter. The British Isles are, therefore, key to the conservation of these species. One of the major factors responsible for the decline of many birds is habitat loss. Waders and waterfowl suffer particularly from this factor, as important habitats (estuarine feeding grounds and adjacent roost sites and wetlands) are prone to disturbance or loss. Roost sites adjacent to intertidal feeding grounds can be prime areas for housing or industrial development, and the wetlands to drainage to improve agricultural productivity. And while conservation of these species has to be viewed in the context of international and national action, it is the local initiatives to protect or improve these habitats that have an immediate public impact.

Coombe Hill Meadows and Ashleworth Ham are two such local initiatives run by the Gloucestershire Wildlife Trust. These two reserves are adjacent to the River Severn and are managed to provide habitat for both winter and spring migrants. The hams of the Severn Valley must once have been a haven for these birds, as they provided extensive areas of winter wetlands and summer meadows. As farming intensified, many of these wetland areas were drained and brought into permanent agricultural use, a process that was greatly accelerated as Britain strove to feed itself during and immediately after the 1939–1945 war. As wetlands disappeared and meadows were put to the plough or more intensively grazed, these prime bird habitats were lost. The GWT aims to reverse this process and to provide habitat for winter migrants and encourage waders and other spring migrants to breed on the reserves. At Coombe Hill Reserve drainage systems put in during agricultural conversion have been removed, water level in the main parish drain is controlled, and the fields have been landscaped to create scrapes that become filled with water after heavy rainfall or winter flooding. The scrapes eventually dry out over the summer, but in the meantime provide suitable sites for winter migrant ducks like Teal and Wigeon, which are found in large numbers on the reserve, and feeding areas for waders like Snipe and Green Sandpipers. A pre-existing lake and its surrounding vegetation are also managed to provide suitable habitat for ducks and waders. The surrounding meadows provide grazing for geese and swans, including overwintering Bewick and Whooper Swans.

In spring the overwintering species disperse to their northern breeding grounds and the breeding migrants start to arrive. The reserve is managed to encourage them to breed through grazing and vegetation control. In 2011 Redshanks, Curlews, and Lapwings had successfully bred at Coombe Hill Meadows, and it is hoped that other spring migrants, such as the Little Ringed Plover, will eventually breed too. Many resident and migrant warblers nest in the vegetation along the adjacent canal and in trees around the margins of the reserve, and Redstarts are starting to use nesting

cavities in willows that are pollarded specifically to provide suitable nesting sites. As the yearly cycle comes full circle, autumn migrants stop over at the reserve en route to their overwintering sites further south. It is a particularly interesting time to visit as you never quite know what you are going to see.

What fascinates me about reserves such as Coombe Hill Meadows is how quickly they become used by such a wide variety of birds, mammals, and insects. And it is not just in rural reserves that this phenomenon can be observed. The London Wetlands Centre is run by the Wildfowl and Wetlands Trust and is within spitting distance of Hammersmith and surrounded on all sides by a completely urban environment. The reserve was created on the site of the former Barnes Reservoirs (that I remember well as a boy) and has been staggeringly successful in attracting a wide range of avian visitors. I find it almost unbelievable that you can observe overwintering Bittern or migrating Ring Ouzel in the middle of London. And this is not a unique occurrence, as the RSPB's Rainham Marsh reserve on the borders of East London attracts, if anything, an even greater diversity of species. While conservation news is often rather depressing, these observations are a reminder that there is an inherent flexibility within nature and that given the chance species can respond rapidly if conditions are favourable.

While wildlife reserves are important for the birds that use them and some reserves that protect the habitats of endangered species are vital to their conservation, I suspect that the total area of reserve land is too small to be of significant conservation value for declining species such as Skylark, Cuckoo, or Nightingale or breeding waders like Lapwing or Curlew. Perhaps a reserve's greatest importance is educational because by attracting visitors the conservation message can be promoted to as wide an audience as possible and a political constituency built in favour of increasing both their numbers and sizes. Achieving an expanded network of interconnected conservation areas (not necessarily just reserves, but also land managed with conservation values in mind) that achieves enough critical mass to become of significant conservation value in the future is primarily a political issue.

The number of people who volunteer their time or regularly visit reserves throughout the length and breadth of the British Isles shows how important conserving wildlife is for many people. The army of volunteers who work to support reserves plays a vital role in promoting conservation values to the wider general public. Many of these volunteers are retired people who have the time to spare. They represent an extremely valuable conservation resource, and as the demographic trend in developed countries like Great Britain unfolds, there will be an increasing number of them. Members of the baby-boomer generation are not only living longer but are remaining healthier and active well into old age. Conservation work is an ideal pastime for this demographic because it engages the mind, it gets people out into the fresh air, and it keeps them socially connected. Given the right sort of promotion and encouragement, there should be no shortage of skilled and enthusiastic conservation practitioners to support a larger conservation estate.

There has been a long history of cooperation between amateur naturalists and professional scientists in Britain. During the Victorian period an interest in natural history was almost *de rigueur* amongst the educated classes and biological

developments were keenly followed. Charles Darwin's *On the Origin of Species* (Darwin 1859) was not only an important scientific work of its time but also a best-seller that ran to six editions, and Alfred Russel Wallace, the co-founder of the theory of evolution by means of natural selection, was a prolific author who earned his living largely from writing popular scientific works. Cooperation between amateurs and professionals continued into the twentieth century, particularly in such fields as entomology and ornithology, although it is probably fair to say that the contribution to research by amateurs lessened as biology became more specialised and moved away from its natural history roots. Today there has been a renaissance of the citizen scientists as the Internet has made collection and collation of data much easier, and the many bird-watchers and other amateur naturalists have been co-opted as data collectors for a variety of studies. There are a number of areas where observational data can be gathered by amateurs to help answer scientific questions. For example, the estimation of absolute or relative changes in population size of target species is of fundamental importance in defining the magnitude of a conservation problem or in monitoring remediation effectiveness. Charities such as the British Trust for Ornithology (BTO) and the RSPB, amongst others, have been active in organising citizen scientists in a variety of such projects. Over 10,000 bird-watchers have been involved in the BTO's Bird Atlas project and some 16,500 households are involved in weekly garden surveys. The RSPB also runs a garden bird census carried out over a single day in January that attracted over 600,000 responses in 2011. Some of these data go back to the early 1960s and have recently been collated and analysed in a comprehensive survey of British wild birds over the past four decades. This definitive study (DEFRA 2012) gives an accurate picture of the changes in 121 species of British breeding birds and documents the steep decline in specialist farmland and woodland birds. Long-term conservation strategies can use these data to be maximally effective. If the RSPB is successful in lobbying for changes to the CAP, then the effectiveness of any changes can be monitored using the baseline data contained in this and other studies. Another area where amateurs could contribute is the study of the timing of natural events such as first appearances or times of departure of migrant species. Such data are useful in evaluating the pace of climate change and can help our understanding of how species respond to such changes which in turn can help inform future conservation strategies.

While there are many advantages in using skilled amateurs in conservation work, a significant problem is that in many cases the data they generate are dispersed and can be difficult to access and aggregate. For example, there is a wealth of information about species and their numbers contained in logbooks kept in the Grundon Hide at Coombe Hill Meadows Reserve. In their present form these data are not readily available, although some of it does find its way onto the excellent Gloster Birder website which records data from reserves and other sites throughout Gloucestershire. Other reserves have their own websites in which sightings are recorded, usually daily, and this appears to be a good strategy to overcome the problem of access. It does, of course, depend on somebody to run the website and others to provide the information, but neither of these difficulties seems insurmountable with the help of modest financial grants and an active educational programme.

The problem of aggregation is perhaps trickier to solve, not because of any inherent difficulties in the process itself, but because aggregation needs to be done for a specific research purpose. One might, for example, start by going through the logbooks and listing all the different species that were recorded at the site each year. Such information could be collated nationally to provide distributional data to input into the BTO's Bird Atlas (Balmer et al. 2013) database and could also be used as a metric to measure site usage over time. Then a list of regular visitors might be extracted and annual information about the first and last occurrences recorded and compiled for each migrant species. These data could again be collated nationally as a way of monitoring species' response to environmental change. For a smaller subset of species, one might start to collate their numbers using the reserve. In conjunction with a compilation of breeding species and number of fledged young, these data could help site managers monitor the effectiveness of the reserve's contribution to the overall conservation effort for these species. These data could then be published online and made available to the research community. In New Zealand, the Ornithological Society is promoting the use of eBird as a way of recording bird observations. The data recorded on this site can be aggregated and manipulated to yield important information about species numbers, site biodiversity changes and usage, population changes, and so forth.

While ad hoc data collection can be made use of, directed research is far more useful because the data collection can be designed to answer very specific questions. There are many examples around the world where citizen scientists have been recruited for large-scale scientific projects, apart from those UK examples already discussed. For example, the OSNZ has been running volunteer-based national wader censuses twice yearly since 1983 as a way of monitoring long-term population changes; in North America, similar studies of Monarch butterfly numbers have been conducted by volunteers since 1994; the Evolution MegaLab project, carried out by thousands of volunteers in 15 European countries during 2009, surveyed some 3,000 populations of the polymorphic snail *Cepaea nemoralis* to compare proportions of each morphotype with historical records in order to examine the response of this species to climate change (Silvertown et al. 2011). Whilst wildlife charities and the professional scientists they employ are doing a splendid job, there seems to me to be an untapped potential to get ordinary people involved in conservation research, and I wonder why academic institutions are not being more active in this field or why secondary school students are not offered a chance to get qualifications in practical conservation work. The world is changing and policymakers need to wise up quickly if our education systems are to remain relevant.

Citizen science needs to be more than just doing under instruction if a scientifically literate society is to develop. There is more to science than practical application because the doing is a result of a broader 'way of seeing' the world. Being aware of these broader issues is important to understand how science operates and how it changes and advances knowledge. These issues are central, in my view, to creating a scientifically literate society and form the basis of the following essay.

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