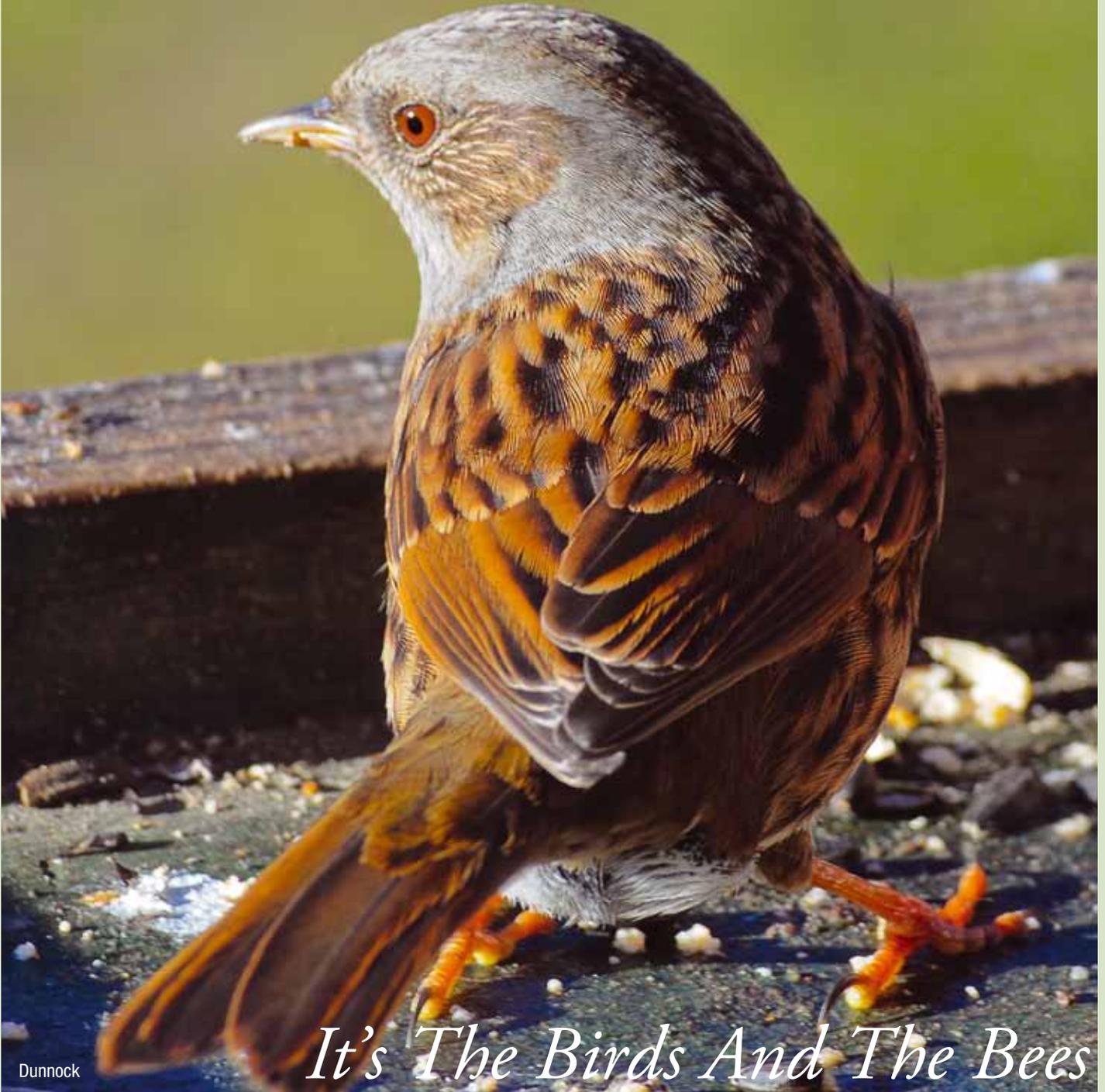


# PROBLEMS WITH PESTICIDES:



Graham White

**I**T is not just bees which are disappearing in vast numbers across Europe; a recent EU report found that over 300 million European birds have vanished in just 20 years.

I live by the River Tweed in the Scottish Borders in an area that is rich in wildlife. The Tweed Valley is home to otters, salmon, herons, kingfisher, mergansers, goosanders, cormorants and goldeneye. The fields near the river feed mute swans and whoopers – while the woods above shelter nuthatch, lesser spotted woodpeckers, buzzards and tawny owls. The wetlands and sloughs are

rich in frogs, newts and toads and there is a fair variety of insect life. Mayfly carpet the entire river in Spring,

However, on the arable land above, the biodiversity falls dramatically, especially among the fields of wheat, barley and oilseed rape which dominate the landscape. Why does this happen? Industrial farming has reduced the ecological tapestry to a tattered remnant of its former glory; herbicides have erased the wildflowers; blanket use of systemic insecticides have poisoned trillions of bees and insects. The landscape is reduced to sterile, industrial, monoculture patches of

cereals or oilseed rape.

Plants build the foundation of the pyramid of life; insects form the second storey, birds and mammals the third. If farmers reduce the number of plants in a field to just one or two species, instead of the hundreds that used to live there – the foundations of the pyramid are undermined and the whole ecological edifice crashes down.

Most wildflowers are pollinated by bumblebees or other wild pollinators; they have evolved together for 65 million years in highly specific partnerships. Some

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wildflowers can only be pollinated by a single species of bumblebee; if it becomes locally extinct the plant cannot survive. Moths and butterflies cannot reproduce if their food plants are wiped out. The Hummingbird Hawk Moth flies a thousand mile round-trip from France each year, to lay its eggs on just one plant, Lady's Bedstraw – here in the Borders; if the perfumed bedstraw is stripped from the verges, the Hummingbird Moth dies without issue.

A farming system that exterminates all wildflowers, as well as all the insects, worms and other invertebrates produces an ecological desert. If a field is repeatedly sprayed with herbicides, fungicides and insecticides – many times for a single crop, the soil degrades to a sterile mineral substrate, devoid of all animal life. In America, farmers can no longer plough-under the old cereal straw or corn stalks because they will not decompose as they used to; there are simply no longer enough fungi and invertebrates left to break them down into humus. The barren substrate has to be force-fed with truck loads of chemical fertiliser each Spring – to replace the natural nutrients that would otherwise have occurred. In a wet spring or autumn, untold amounts of fertiliser are washed down the ditches to the river, along with soluble herbicides and insecticides; it is little surprise that the 'resident' coarse fish have long since vanished.

When I brought my bees here in 2001 the first thing I noticed was the absence of frogs in the miles of water ditches; no toads or newts either. Yet just five miles away in the Cheviot sheep country, frogs and amphibians abound. At that time we still had a few lapwings, redshank, coverts of partridges; every field held several pairs of skylarks and yellowhammers sang from the hedges. The garden sheds hosted ten or more swallow nests each summer and a hundred young hirondelles would line the wires before departing for Africa. We had just two pairs of swallows this year and they only reared one brood. The farm used to boast a large sparrow flock – a hundred birds or more; the 'whirring' of their collective wings made you flinch if they skimmed past along the hedge unexpectedly; starlings were equally numerous but now there is only a single lonely bird.

The rapid decline in bird and insect life began here around 2003 – when neonicotinoids really began to be universally and prophylactically applied to wheat, barley and oilseed rape. The potato field beyond my garden was sprayed with six different pesticide applications last year, in addition to seed treatment with insecticides

and fungicides; finally – sulphuric acid was sprayed to 'burn-off' the green potato tops. What happened to the eyes of the leverets or the partridges or the skylark chicks in that acid-drenched field? Nobody asks that question.

Our farm-sparrow population has fallen by 75%; just 20 birds now survive on the entire farm, mostly in my garden. The skylarks have vanished – along with the barn owls which had nested in the old Ash for generations. Lapwings occasionally display over the fields in Spring but they don't stay long and only one set up a territory last year. Flocks of fieldfares which arrived from Scandinavia in December found scant pickings in the 'neat and tidy' hedgerows, which had been flailed to splintered sticks in July, while some birds were still breeding after the wet Spring. The vast scarlet harvest of hawthorn berries, miles in length, was flailed to pulp and entirely wasted. So the Danish fieldfares flew away hungry. In winter these leafless hedges support no birdlife whatever and the vast empty fields are like the Siberian tundra, devoid of all living things.

### CRASH IN EUROPEAN BIRD POPULATION

The local decline in skylarks, sparrows, starlings and greenfinches is repeated across Europe. A recent study estimates that over 300 million birds have disappeared in just 20 years (<http://www.guardian.co.uk/environment/2012/may/26/eu-farming-policies-bird-population>).

### REMEMBRANCE OF THINGS PAST

Anyone over 60 will recall childhood excursions when car windscreens had to be washed-clean of dead insects after every summer drive in the country. At dusk, headlight beams were clouded by a silver blizzard of moths and insects; car radiator grilles became clogged with a thick dried mat of bees, butterflies and moths, which had to be raked out regularly or the water would boil.

Most of that insect life has been wiped from the face of the countryside since the introduction of neonicotinoids in 1992 – on hundreds of millions of acres of crops in Europe and the USA. Applied as seed coatings, these systemic poisons are so hyper-toxic that they kill every single aphid in a hundred acre wheatfield, as well as contributing to the deaths of most bees, bumblebees, hoverflies, moths and other pollinators.

Moreover, since 90% of the nerve-poison leaches into the soil from sown seed, and persists there for up to six years – it also

poisons the earthworms, beetles, snails and other invertebrates in the soil. The upshot is that almost every field of barley, wheat, oilseed rape, potatoes, peas, beans and brassicas in the entire EU is reduced to a biologically sterile desert.

### NO INSECTS MEANS NO SPARROWS

It was recently discovered that although sparrows eat seeds and grain, they are exclusively insectivorous when rearing their chicks; 99% of a baby sparrow's diet in the first week consists of thousands of tiny, tiny aphids. Thus a farm without aphids is a farm without sparrows. A farm without caterpillars, bugs, beetles or worms means the fields and hedges will feed no skylarks, no yellowhammers, no partridges. All the birds which are declining are insectivores. The same is true for our own urban gardens, lawns, golf courses, roadside verges and parks.

### THE POISONED HEART OF KEW

In June 2012 I spent three days in the London Boroughs of Islington, Camden, Hackney and the Royal Botanic Gardens at Kew - and was shocked by the almost total absence of birds. In over three days in the capital I did not see a single sparrow or starling - including the four hours I spent at Kew. When I lived in London in the 1970s there were probably ten million of these birds in the capital; every rooftop held a line of chirping sparrows and vast flocks of starlings darkened the evening skies with their aerobatics.

The train from Islington to Kew travels around 20 miles, stopping at a dozen stations - so I was able to view the platforms, the rooftops and the leafy embankments on a slow 50 minute ride. I recorded little birdlife of any kind - a few pigeons, but no sparrows, no starlings, no blackbirds, no bluetits, robins or wrens. On a beautiful June day, the blue sky was clumped with fluffy white cumulus - but the sunlit void was empty of life; there was no movement or sound, apart from the metallic whine of big jets.

In the 1980s every London roof held a silhouette of birds; the background noise of the streets was the chirp of territorial cock sparrows and at dawn blackbirds sang from every garden. The sky was criss-crossed by birds of all kinds. We are witnessing the disappearance of millions and millions of birds from London and other cities.

It seems obvious that a mass-extinction is taking place. I had thought my visit to the Royal Botanic Garden's 600 acres of trees, gardens, glass-houses and lakes would bring some respite; but the 'great vanishing' has

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Robin



Blue Tit

affected even the sanctuary of Kew. In four hours there, I encountered only a handful of birds, mostly crows, magpies and wood pigeons; I saw two blackbirds, one robin and a single wren.

In the 1980s the vast lawns of Kew sported a resident blackbird every thirty yards or so - defending his worm-territory. Lunch in the outdoor cafe was always enriched by the fearless, hungry sparrows which invaded any table as soon as diners departed; pigeons scurried around one's feet for crumbs. But now, the cafe was silent as a funeral parlour.

When I asked a gardener if they used pesticides she said they had sprayed all of the oak trees with systemic insecticides against 'processionary oak moths'; this act alone would have eradicated most insect-food for birds from the gardens. A single oak tree harbours 400 different insect species - so blanket application of insecticides would result in a massive loss of insect-life; chicks would go hungry.

A team of gardeners were digging-over the flower beds by the palm house and 300 square metres of freshly-turned loam gleamed in the sun, but no bird arrived to harvest any worm, though I watched for around 20 minutes. When I asked the team leader why there were no birds, he said that they had used a 'soil fumigant' related to Methyl Bromide, which was only discontinued the previous year; that probably accounted for the lack of invertebrates. He was not embarrassed in any way by this confession.

Here we were, in the sanctuary of Britain's most prestigious botanical garden, a beacon in the fight to save the world's biodiversity - and a gardener was telling me, quite openly, that they fumigated the soil of the flower beds with deadly, highly persistent pesticides - to kill all invertebrate life. When I asked why they did this, he replied that 'bedding plants are valuable'; the massacre of earthworms is apparently the price of a good geranium display.

When I entered the famous palm-house it was as quiet as a church on Monday. In the 1980s - this enormous glass-house was filled with the chirping of birds which enjoyed the constant warmth to raise their chicks in the crannies of the ironwork. But on this visit - there was no sign of bird or insect life: not a sparrow, not a single aphid or ant.

A young gardener told me that all of the palms and tropical plants were routinely treated with systemic, long acting pesticides (neonicotinoids?) and consequently there would be little bird life in there as there was no insect food. When I asked why they used such pesticides she answered: 'well the

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Starling



plants are valuable – what if an insect got in here’. When I asked what she thought Kew’s gardeners had done for the previous 150 years, before modern pesticides were created, she said: ‘Oh, I never thought of that’.

I then visited the rose garden behind the palm house for a good 30 minutes; hundreds of roses were in full bloom and a thousand flowers perfumed the air - but I could not find one single honeybee, bumblebee or hoverfly in my time among the roses. This leads me to suspect that Kew’s roses are treated against aphids with systemic neonics, which kill and disorient bees at infinitesimal doses. I did not see a single hoverfly during my entire four hours in the gardens. I did see ONE honeybee in the King William Temple garden and four or five bumblebees on a patch of clover outside the waterlily house; however, within five minutes a man came along with a mowing machine and promptly shredded the ‘untidy’ clover blossoms. He stood back and admired his smooth expanse of flowerless, sterile green lawn with evident satisfaction. There are hundreds of acres of close-mown grass at Kew – which may be treated with selective herbicides, since I barely saw a daisy, a buttercup or any wildflower of any kind in this vast green biological desert.

Kew even has a special area, called ‘the nature garden’ – in which the grass was left to grow long with wildflowers in it, but it was tiny in comparison to the vast, lifeless lawns.

After my visit I contacted the ‘wildlife officer’ at Kew by phone and by email on 18th July 2012 and asked if she could send me details of their pesticide policy, and what pesticides were actually used. I asked:

*Is there a public, transparent pesticide-use policy available at RBG Kew?*

*Are pesticides used on trees, on lawns, on roses, in plant-houses?*

*Which insecticides have been used to combat processionary oak moth caterpillars?*

*Which insecticides are used in the plant-houses? Are selective herbicides used on the mown-grass areas?*

*Are systemic insecticides used on grass areas?*

No response was ever received.

I was relieved to return to the Border Country, where at least my garden has a healthy sparrow flock, along with blue tits, coal tits, great tits, blackbirds and yellowhammers. When I left the train in Berwick-on-Tweed, the rooftops were busy with sparrows and pigeons, and, on impulse, I drove down to Holy Island, Lindisfarne; the first thing I saw was a flock of at least a hundred young starlings, plus abundant sparrows in the centre of the village. I realised that being deprived of Nature, being deprived of living things as part of everyday life, is just as damaging to ones wellbeing as being deprived of sunlight, or sleep.

The question of course is: how can we help our bees and our birds?

### THE GARDEN OASIS

Since I am living an ecological wasteland, the only option I have is to physically remove my bees to a more natural place and, for the birds, I provide food in my cottage garden during the bitter cold of winter.

In 2010 we had an incredible period of cold; 90 days of continuous snow, when the daytime temperature barely rose above zero. On the worst night the temperature fell to minus 14 degrees C and a friend found SIX dead blackbirds lying at the foot of her cypress hedge. Birds can withstand severe cold for an entire night - but minus 14 C, for 18 hours of darkness - caught them when their fat reserves were depleted. These small ‘feathered-furnaces’, can burn through such nights as long as they are sustained by fuel in the form of food, or fat reserves.

### FOOD IS FUEL

Below is a table of calorific values for various foods. I give them mixed seeds and the cheapest wholemeal bread I can buy at LIDL is 47p for a large loaf.

### LET THEM EAT LARD

Seed-eating birds have a digestive organ called the gizzard which grinds up seeds and reduces them to a slurry for digestion. The gizzard is a thick, muscular pouch lined

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Blackbird, female



Blackbird, male



Song Thrush

with horny ridges and grooves. Birds eat particles of grit - which stick in the grooves to act as 'grinding stones'. The gizzard is made of smooth muscle - like the heart, and it works continuously - grinding up any food which the bird eats. This process takes a lot of energy - just as grinding wheat in a mill needs waterpower. So although peanuts, sunflower seeds and other seeds contain lots of calories and good nutrition, it takes a lot of energy to grind them up in the gizzard.

Fat does not need to be ground' - so it is perfect as a quick energy source. It can also be stored as body-fat more easily. When it is really cold and snow lies on the ground, birds need **calories**. I find that a block of lard - or beef dripping - stuck to the bird table or the windowsill - is the best emergency food. Lard has a calorific value of about 940 calories per 100 gm. Sainsbury's sell 500 gm blocks of Britannia Dripping for just 65p.

Blackbirds, thushes, bluetits, coaltits, great tits and robins all attack the lard greedily - and it will help to get them through these bitterly cold nights. So - feed your birds seeds of all kinds - along with wholemeal bread and raisins - but add lots of fat as well. In terms of 'bangs for your bucks' it wins hands down.

I improvised a bird table from a beehive floor which I have lodged on my windowsill with a simple prop. The idea was to photograph the birds feeding from just 2 feet away through my window glass - which has worked quite well. These photos are my first attempts, taken from a range of just two or three feet. You can do it just as well with a compact zoom camera.

## RESOURCES

Dr Henk Tennekes 'Farmland Birds' website is the best and most entertaining summary <http://www.farmlandbirds.net/en/taxonomy/term/26%209%2013%2011%2014%2015%2025%2012%208%2010%2017>

## The Royal Society for the Protection of Birds

<http://www.rspb.org.uk/>

## The British Trust for Ornithology

<http://www.bto.org/>

Of the 36 species of farmland birds in Europe - species that also include the lapwing, the skylark and the meadow pipit - numbers are now stunningly low. Devastating declines in their numbers have seen overall populations drop from 600 million to 300 million between 1980 and 2009, the study has discovered.

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## Typical Energy Values of Bird foods

Food	Calorific Value (per 100g)
Mealworms	150 calories
Raisins	300 calories
Apples	350 calories
Oats	370 calories
Cheese	400 calories
Niger	480 calories
Sunflower Seed	500 calories
Peanuts	560 calories
Sunflower Hearts	600 calories
<b>Suet/ Lard/ Fat</b>	<b>940 calories</b>

The RSPB and the BTO have collated the population data for 19 common farmland bird species in the UK and found that collectively, populations of those 19 species had declined 'on average' by 60 to 70% in just twenty years. <http://www.bto.org/science/monitoring/developing-bird-indicators>.

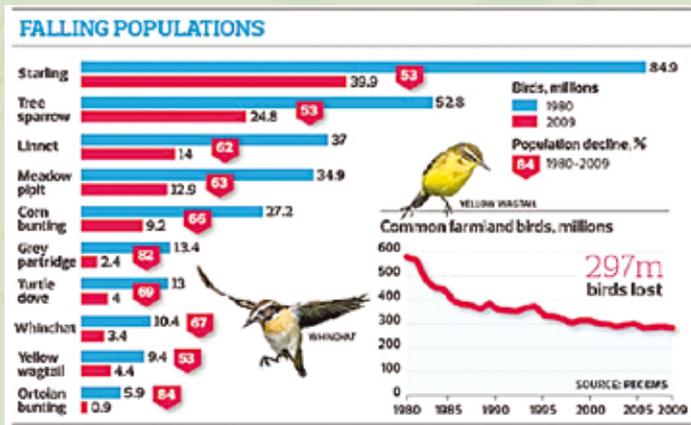
### Mark Avery's Blog

<http://markavery.info/2012/06/07/bring-bunting/>:

Farmland birds have declined steeply and there is no obvious redemption in sight.



Chaffinch, male



### EUROPEAN BIRD CENSUS COUNCIL

The most recent science on the subject was a report produced from national bird monitoring schemes across Europe, including the UK, by the European Bird Census Council. About 300 million birds have been lost from the European countryside (in just the countries contributing to this report) and the UK is reported to be one of the worst offenders.

In the Daily Telegraph the NFU's Diane Mitchell seems to try to muddy the waters by suggesting that declines of farmland birds on farmland may not be that much to do with farming. And anyway, it's only the specialists that are declining – the skylarks, grey partridges, turtle doves, tree sparrows etc etc

Meanwhile, NFU President, the overwhelmingly re-elected farmers' choice to be their mouthpiece, called for 'super farms' and a 'complete rethink' in the face of climate change and weather shocks. (via Wikimedia Commons)

All photos by Graham White

*bee craft 1/4 page  
to come*