

CHARLIE PYE-SMITH

Bloomin' Foreigners

Invasive Aliens: The Plants and Animals From Over There That Are Over Here

By Dan Eatherley

(William Collins 326pp £16.99)

In the opening pages of *Invasive Aliens*, an exploration of the impact of non-native species on our flora, fauna, landscape and culture, Dan Eatherley deplores the use of emotive terminology. It isn't just the preserve of tabloids, he writes; 'even serious scientists will talk about "demon shrimps" and "killer algae"'. Furthermore, he claims that some of the language used when discussing invasive species has a xenophobic flavour. 'Some argue that the current fixation with non-indigenous wildlife is bound up with subliminal, and not so subliminal, antipathy to arrivals of the human kind,' he says. 'Worries about many non-natives can be whipped up unnecessarily, and sometimes for unsavoury political ends.'

Eatherley fails to expand on this claim, so I have no idea whether or not it is true. My suspicion is that he is simply trying to grab the reader's attention. Like the tabloids that hype up the threats posed by non-native species, he has a fondness for melodrama, which this fascinating subject doesn't require. After all, as Eatherley points out, 'the story of invasive species is the story of our own past, present and future'.

Recent figures suggest that 3,163 non-native species were present in England, Scotland and Wales in 2017, around two-thirds of which were reproducing in the wild. Only a small proportion of these are considered 'invasive' in the sense that they are having a negative impact. Most people will be familiar with grey squirrels, mink and Japanese knotweed, but there are scores of other, less visible aliens, such as quagga mussels, oak processionary moths, the fungus that causes ash dieback disease and various flatworms, all of which are having a significant impact on our native wildlife. It is estimated that damage inflicted by invasive species now costs the UK £1.7 billion a year.

Invasive species have often devastated native populations through predation.

Cats, rats and other animals introduced on tropical islands by sailors and settlers have caused, or contributed to, the extinction of a significant number of ground-nesting and flightless birds. Closer to home, in 1974 someone released six hedgehogs into a garden on South Uist in the Outer Hebrides. Two decades later their number had risen to five thousand and they were having a significant impact on the popula-



Guinea fowl: menace to society?

tion of local wading birds, whose eggs and chicks they were eating. Invasive species also compete for food with native wildlife and spread disease. The grey squirrel, an import from Canada and carrier of squirrel pox, has been responsible for a steady decline in the number of red squirrels here.

Eatherley has an impressive grasp of history – both human and natural – and he leads us through the successive waves of new arrivals that have reached our shores, either by design or by chance. Many crops, including oats, rye, barley, raspberries and blackberries, were brought in from elsewhere, as were primitive breeds of pig

and cattle. Less welcome were the bacteria, viruses, ticks and lice that came with them, as well as house mice and rats. The Romans introduced all manner of useful animals and plants, as did the Normans, including pears, cherries, guinea fowl, fallow deer, rabbits and dozens of plants with therapeutic properties.

Eatherley writes that 'in the early centuries of European exploration, ten times as many species of plant, animal and pathogen moved from Europe to North America than vice-versa'. However, over time increasing numbers of new species began to arrive in the UK. In the early 19th century, the 11th Duke of Bedford introduced over a thousand foreign animals to his estate at Woburn. This large-scale experiment in 'acclimatisation' was designed to test which species could adapt to local climatic and ecological conditions. Eatherley concedes that the duke did much to conserve some species – he probably saved the Père David's deer (a native of China) from extinction – but he also gave us the eastern grey squirrel and the muntjac deer, both of which are pests.

Eatherley's convivial, matey style of prose may not be to everyone's liking, but *Invasive Aliens* provides a well-researched overview of this complex and controversial topic. There is plenty here to surprise as well as enlighten. For example, in 1890, the chairman of the American Acclimatisation Society, a German immigrant called Eugene Schieffelin, released sixty European starlings in New York City's Central Park. This was part of an eccentric scheme to populate the continent with every sort of bird mentioned in the plays of Shakespeare. Starlings, which feature in *Henry IV, Part 1*, are now North America's most abundant bird and devour an estimated \$750 million worth of agricultural produce every year.

This was precisely the sort of 'ecological explosion' that the ecologist Charles Elton warned against in the 1950s. He believed that we faced, in Eatherley's words, 'a decisive battle whose outcome would determine the fate of the world'. Today, scientists take differing views about whether non-native species pose a threat or provide an opportunity. Eatherley brings our attention to two opposing schools of thought. Some scientists

suggest that the threat of invasive species has been exaggerated and that we should welcome the benefits they bring. Others, however, call not only for the elimination of non-native species but also for the reintroduction of those native animals and plants that our ancestors wiped out.

Eatherley's own view is more nuanced. Most non-natives, he believes, have done little harm. Indeed, many of them – the foodstuffs we eat, the pets we keep, the game animals we hunt, the flowers we grow – provide us with sustenance and pleasure. Nevertheless, some cause serious problems,

and he accepts that continued efforts need to be made to control them. 'But, in the end,' he concludes, 'wherever humans go, it seems certain elements of nature will go too, with or without an invitation.'

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NIGEL ANDREW

Meet Fido, Our New Nematode

Never Home Alone: From Microbes to Millipedes, Camel Crickets, and Honeybees, the Natural History of Where We Live

By Rob Dunn

(Basic Books 323pp £22.99)

One April day in 1676 a Dutchman with an enquiring mind looked through his home-made microscope at a sample of water and was amazed by what he saw: 'an incredible number of very little animals of diverse kinds', a world of life where none had seemed to be. That man was Antonie van Leeuwenhoek. He had just become the first person ever to see bacteria.

That pivotal moment in science is the starting point of American ecologist Rob Dunn's eye-opening, at times jaw-dropping new book about the teeming life – from the microscopic to the all too visible – with which we share our homes. The sheer abundance of it is staggering. Dunn and his colleagues have identified some 200,000 species, of which three quarters are bacteria, found on our bodies and in dust, water and food: 'It is the normal condition of mammals to be covered in a shaggy layer of bacteria,' Dunn writes. 'Even when naked, we are cloaked, and the same is true of the surfaces in our houses.' The rest of the species are mostly fungi, with arthropods (insects and so on), plants and others making up the numbers. And these figures don't even include viruses.

Life is everywhere in our homes. Dunn's description of what goes on in the rich 'bio-film' inside our showerheads is astonishing stuff: 'Right now, in your showerhead ... tiny "pikes" [predatory bacteria] are latching on to other bacteria, drilling holes in their sides, and releasing chemicals that digest them. Showerhead biofilms also sustain protists that eat the "pikes" and even nem-

atodes that eat the protists, as well as fungi doing their own fungal thing. This is the food web that falls upon you as you bathe.' Everywhere Dunn and his researchers look, life is teeming in incredible diversity. Even newly manufactured 'drywall' (American for plasterboard), fresh from the factory, is packed with fungal life.

Why have we overlooked all this life? Partly it's because so much of it exists on a microscopic scale and its mind-boggling diversity was not known until the necessary advances in DNA identification had been made. But a deeper-seated reason is that either biologists are not very interested in what is under their noses in their own homes or, if they are, they assume that someone must already have 'done the work', so go to more exotic locations. It has been left to scientists of Dunn's particular bent to do the work and it has yielded spectacular results.

Moving up to the macroscopic scale, Dunn devotes a chapter to the camel cricket, a natural cave dweller that can clearly be identified in a Stone Age carving and now lives happily in American homes. The phenomenally successful German cockroach gets a chapter to itself, as do cats and dogs, of which the cat seems to be the more problematic. Cats carry *Toxoplasma gondii*, the parasite that makes mice suicidally reckless in the presence of their feline enemies and might well affect human behaviour too.

If all of this is making you reach for the bleach, the pesticides and the antibacterials that 'kill 99 per cent of germs', then think

again. The reassuring fact is that of all these thousands of species, only around fifty bacteria pose a direct threat to human health. Even if you factor in viruses, the figure is still less than a hundred. The message of Dunn's book is that the biodiversity in our homes is overwhelmingly beneficial to us humans – and that, conversely, the lack of it is harmful. As we have become *Homo indoorus* (Dunn's phrase), living in immaculate homes sealed off from the outside world, we have developed a range of disorders, such as asthma and allergies, that were once rare and are now common – all of which seem linked to the comparatively sterile surroundings in which we now live.

Some of the species that teem around us have the potential to be used in the production of new drugs or enzymes, or to help us dispose of some of the waste that threatens our environment. But perhaps the most important function of this biodiversity is to ensure that pathogens and pests are naturally controlled. That control is precisely what is taken away when we attempt to sterilise our environments. In the absence of competition, the more resistant pathogens have the field to themselves. The attempt to exterminate them has the effect of encouraging mutations, giving rise to ever more resistant species – the emergence of antibiotic-resistant bacteria is proof of this – and the battle becomes unwinnable. If we continue along this path, we are heading for disaster.

Never Home Alone is a fascinating and thrillingly readable book, a report from what is still a relatively new frontier of science, one that could become ever more important as we reap the consequences of our misguided war on domestic biodiversity. Read this and you will look at your home – especially its grubbier corners – with new, wondering eyes.

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