

Grey wagtails  
move into  
urban areas.



Brent geese feast  
on eelgrass.



Maggies  
gather in  
large winter  
roosts.



Female holly  
trees produce  
brilliant red  
berries.

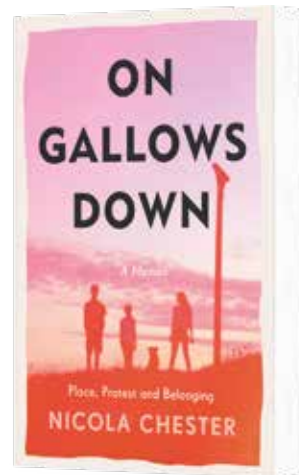


Long-tailed tits  
roost in neat lines  
along branches  
hidden in  
the scrub.



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BOOKSHELF



■ *Amara and the Bats* **Emma Reynolds** £6.99  
In this inspiring children's tale, Amara is upset to move away from her beloved bats, and sets out on a community-building quest to bring back bats to her new neighbourhood.

BOOK OF THE SEASON

■ *On Gallows Down* **Nicola Chester** £20  
In this personal, thoughtful and hopeful nature journal, our own Nicola Chester (see previous spread) celebrates nature's everyday joys, such as the song of a nightingale, the badger cubs in her garden and the rewilding of post-missile Greenham Common.



■ *Birds* **Tim Flach** £45  
A collection of startlingly arresting portraits that lay bare the spirit, intelligence and humour of birds all over the world, revealing clarity and detail that a naked eye would miss.

THINGS TO SEE

Mistletoe

Without their leaves, trees sometimes reveal the evergreen globes of mistletoe, hanging mysteriously within like great baubles. Look carefully at their favourite host trees – lime, poplar, apple and hawthorn, and once you've 'got your eye in' you'll see more. The 'wishbone' stalks split and split into intricate lacy balls. Established plants can be several feet across. The pearly white berries are not ripe for 'planting' until March or April.



TINY & WILD ROSS PIPER

Insect galls

As their leaves fade, autumn trees continue to incubate an entire microcosmic community of hidden life...

At some point you have probably noticed strange structures on a plant that look like they don't really belong there. These are galls and, as well as insects, they can be the work of viruses, bacteria, fungi, nematodes and mites. The ability to make galls has evolved independently in lots of insects, but most of them are the work of midges or wasps.

These galls can be quite simple structures, such as curled leaves or pouches all the way up to complex organs where one type of plant tissue has been forced to differentiate into many. We have known about galls for thousands of years, yet exactly how the gall-former forces the plant to make these structures is still a mystery.

What we do know is that in the case of insect galls, some stimulus from the insect makes an actively growing part of the plant, such as bud, switch from its normal path of development to an abnormal path that ends in the formation of a nice, sheltered den made of food for the young of the gall-former. Typically, a gall insect only goes for a specific part – often the developing leaves – of one species of plant and the structures they create are distinctive enough to allow the

The oak apple gall wasp (below) lays an egg in an oak leaf bud. The hatching larvae induces the tree to form a gall around it, in which it grows and eats until ready to gnaw its way out as an adult.



The attractively fluffy 'robin's pincushion' gall adorns dog-rose stems, and is the work of the larvae of a tiny gall wasp, *Dipolepis rosae*.



Some galls are triggered by fungi rather than insects. The weird 'alder tongue' gall unfurls from the female catkin of alder trees.



Oak apple gall wasp pupae (*Biorhiza pallida*) inside their gall.

GALLS TO LOOK OUT FOR

Oak trees host lots of conspicuous galls, including marble galls, spangle galls and the very large oak apples. Each of these is the work of a different wasp species that often have very complex life cycles with alternating asexual and sexual stages. Depending on the species in question, the gall houses a single gall-forming larva, or many. For example, at the centre of marble gall is a single gall wasp larva, while the robin's pincushion and bramble galls house multiple larvae, each of which is housed in a tiny cell.

ARNE'S GOAT MOTH TREE

On the reserve at RSPB Arne in Dorset, there's an oak tree, thought to be more than 400 years old, that has been shaped by the activities of goat moths for centuries. The goat moth's name comes from the goatly smell the caterpillars give off. While not gall creators, these giant moths lay eggs beneath the bark and the caterpillars munch their way into the tree for three or four years, growing up to 10cm. This leaves distinctive holes, which produce sap. Many rare and threatened invertebrates – including the larvae of two rare hoverflies, and other moths such as copper underwing and red underwing – then feed on the sap, and tachinid fly *Xylotachina diluta*, which parasitises the goat moth larvae themselves. There's a whole ecosystem of rarities in this old tree!



**Dr Ross Piper** is an entomologist, zoologist and explorer. His book *Animal Earth* is a cutting-edge introduction to animal diversity. Find out more at [rosspiper.net](http://rosspiper.net)

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