

# Wild about SEPTEMBER

Hills and moors are blanketed in purple heather, supporting grouse.



The dog-rose bears red rosehips that feed birds and small mammals (like this harvest mouse).



The ruff wades through our coastlines on its journey southward.



Pine martens feast on blackberries and bilberries.



Jays come out of hiding to hoard nuts and seeds for the winter.



## TINY & WILD ROSS PIPER

### Silk spinners

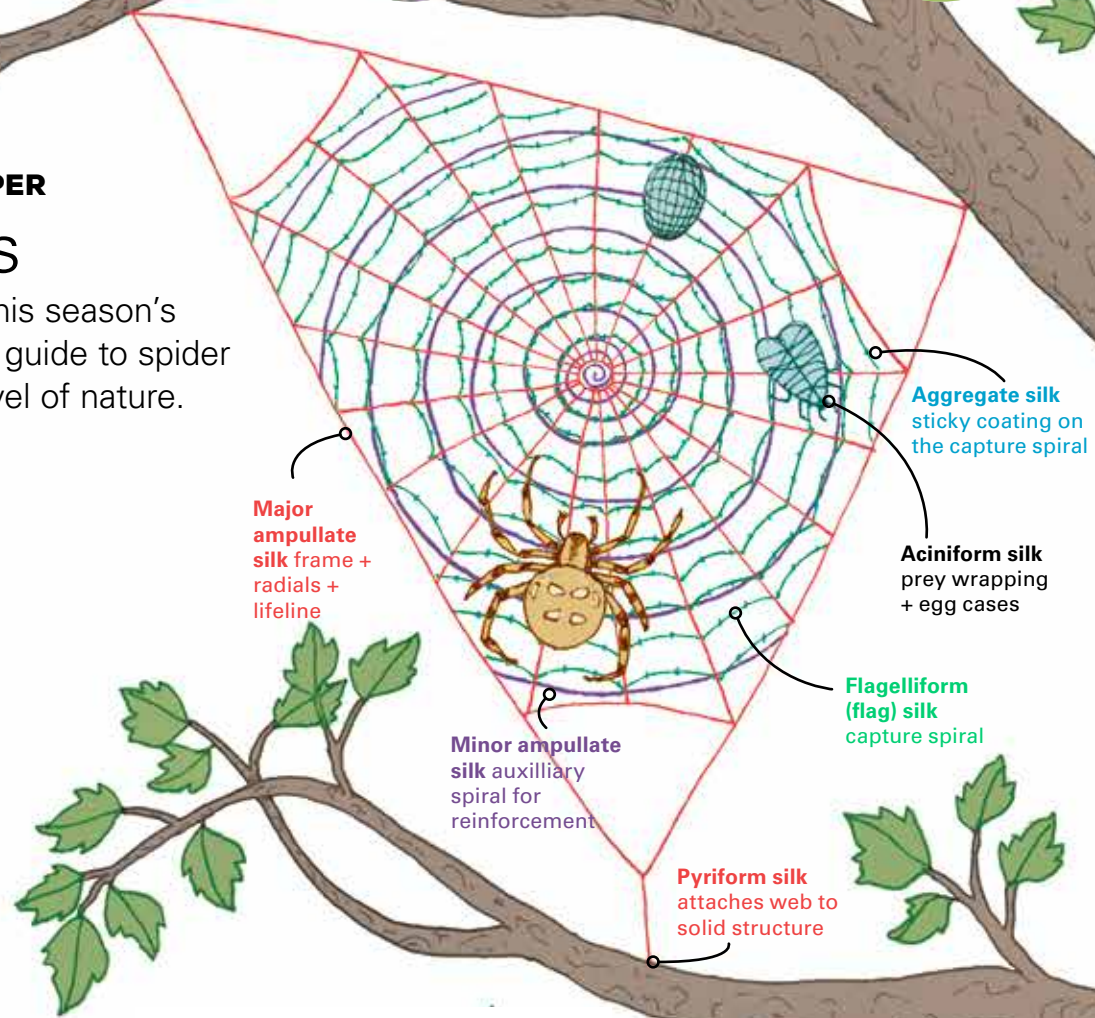
Take a closer look at this season's webs with this expert guide to spider silk – a multi-use marvel of nature.

Spiders are right up there among the most loathed and misunderstood animals, which is a real pity as everything about them is absolutely fascinating; not least their singular skills in producing and using silk.

A huge variety of arthropods use silk, but spiders are the undisputed masters. Most conspicuous are the elaborate structures to snare prey – webs in all their glorious diversity.

Not just used to make traps or snares, spider silk is also used to wrap and store prey, protect eggs and line the lairs of these animals.

Silk also helps spiders to get around in some ingenious ways. Active hunters, such as jumping spiders, use silk as safety lines during their impressive leaps and some spiders leave a line of silk to trace their way back to their burrow. Most remarkable of all though is the way in which spiders use silk to fly, an ability known as ballooning. Hatchlings and adults of small species let out long strands of silk that hoist them skyward via a combination of static electricity in the atmosphere and air movements (see right). Ballooning spiders can reach altitudes of 4km and travel for hundreds of kilometres. Indeed, this ability is key to the success of these animals as it enables them to disperse to new habitats over vast distances. Among the first



Spiders produce lots of different silks. For example, orb-web spiders such as the common garden spider produce at least six types of silk.

animals to colonise new islands and islands wiped clean by volcanic activity are these eight-legged wonders.

The astonishing ways in which spiders use silk relates to its mechanical properties. Spider silk is composed of proteins and the way in which these proteins are arranged gives the threads incredible strength and stretchiness. Some types of spider silk are stronger than steel and its elastic properties are also unique because rather than ping-pong back to its original position, it can dissipate the energy as heat. Within the spider's abdomen is a

veritable chemical engineering facility in miniature – the emulsion of which is still way beyond human technology.

Glands in the abdomen of the spider produce the silk as a liquid. Narrowing ducts channel the silk from the glands to numerous spigots housed in the animal's spinnerets. The physical process of the silk being drawn through the ducts and the spigots, either by the legs of the spider or the body of the spider moving from a fixed point, changes the liquid silk into a solid.

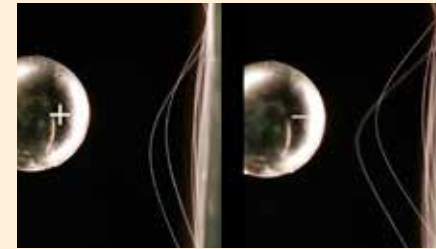
There's enormous commercial

interest in producing spider silk in industrial quantities because of its unique mechanical properties. It's humbling to think that spiders have been doing it for hundreds of millions of years and that we're unlikely to match the finesse of how they make and use this wonder-stuff any time soon.



**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)

## SILK ENGINEERING



### HARNESSING ELECTRICITY

Glue coating the capture spiral of orb-webs is attracted to airborne objects, including prey, so webs can actually bend out towards them. This photo shows web silk springing towards an electrically charged sphere. Ballooning spiders also harness this electrostatic force.



### SILK ROADS

Spiders also use silk to get around. Some create safety lines (pictured), or walkways, casting it out Spider-man-style until they feel the other end catch on something. Ballooning spiders use it as a parasail! Negative ions in the air repel positive ions in surfaces, lifting the spider into the air.



### TRIP WIRES

Radial web builders lay tripwires radiating out from a silk-lined tunnel. If passing prey makes contact with one, the spider will feel it and emerge to attack. Several UK spider species make webs like this, such as *Segestria senoculata* and *S. florentina*.

## ON YOUR DOORSTEP

### Countryside

Three late-summer rural habitats to explore...

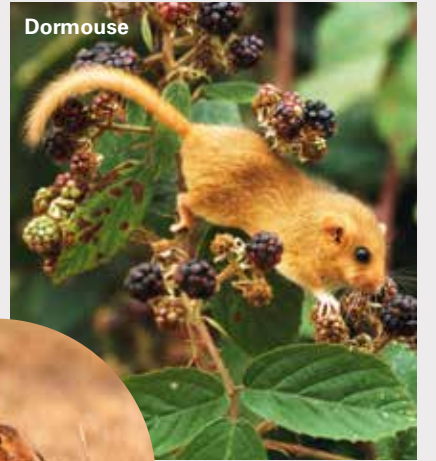
#### 1. HEDGEROWS

These crucial countryside communities are home to over 30 species of nesting bird, as well as dormice, hedgehogs, and butterflies. In late summer, hedgerows bear colourful fruits and berries to forage, from sloes to plums.

#### 2. STUBBLE FIELDS

Seed-eating birds flock to stubble fields to feed – look out for skylarks, sparrows and buntings. This arable environment is traditionally home to the UK's smallest rodent, the harvest mouse, and is a great place to spot brown hares.

Dormouse



Hare

#### 3. GRASSLANDS

Grasslands are home to hundreds of different species of flowers and grasses, attracting plenty of pollinators. Organic meadows come into their full glory in the summer, with a rainbow of flowers, the buzz of bees, and birds flying overhead. Look out for speckled wood butterflies near long grass and painted lady butterflies in flower-rich areas.

## THINGS TO SEE

### Lizards

Common lizards can be spotted basking on hot days across many habitats, from heathland to woodland, grassland to gardens, and particularly in dry stone walls. They vary in colour from brown to greenish grey, with rows of spots or stripes down their backs and sides. Between three and 11 young are born live, from eggs incubated inside the body, in July, so look out for these babies as they explore their new world.



### Thistledown

Look for the cottony parachutes of thistledown floating on the breeze and the chinking, chiming flock of goldfinches and linnets teasing out the tiny seeds that weighted them. Leave dandelions and hawkbits to seed in your garden and you'll be rewarded by visits from goldfinches, bending and sliding down the stems like trick budgerigars, to get at the seeds.

