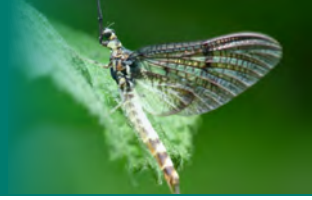
Do you have the bug ?



A fascination and enthusiasm for the mini-marvels of this world.....

Eight

July 2023

.....for stories from the insect nation.

Stroud Nature

Stroud Great Green Partnership

in association with

buglife

Do you have the bug?

Are you a professional entomologist
Do you study them for a living
Is it an amateur interest
Do you find them fascinating
Are you just curious and want to know more.

This magazine is for you.

If you would like to contribute to the magazine, you would be most welcome to write something and/or send in some images (photographic or illustrative).

You would be credited.

If I have misidentified any of the species or any information is incorrect, please let me know.

Steve

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Contents

You can go straight to a page by clicking on the contents below.
Click on some images and blow them up larger.
Some link to other information including short movies.

I think it's fair to say that so far this year, insect numbers are down on last. Some really cold winter days, a cold, wet spring. Everything seems to be a couple of weeks behind the norm!

Taking the garden as an example, there is simply not the variety of species that there were in 2023. Not helped by some key plant species that are struggling to repeat the previous year. I remain hopeful that the remainder of July and August brings greater numbers.

Still, I wander around the garden most days when the weather seems suitable for insects and record what's around. Certain plants still provide the greatest opportunities. Wild Carrot, Marjoram, Knapweed and the Fennel will be at their best late July and into August.

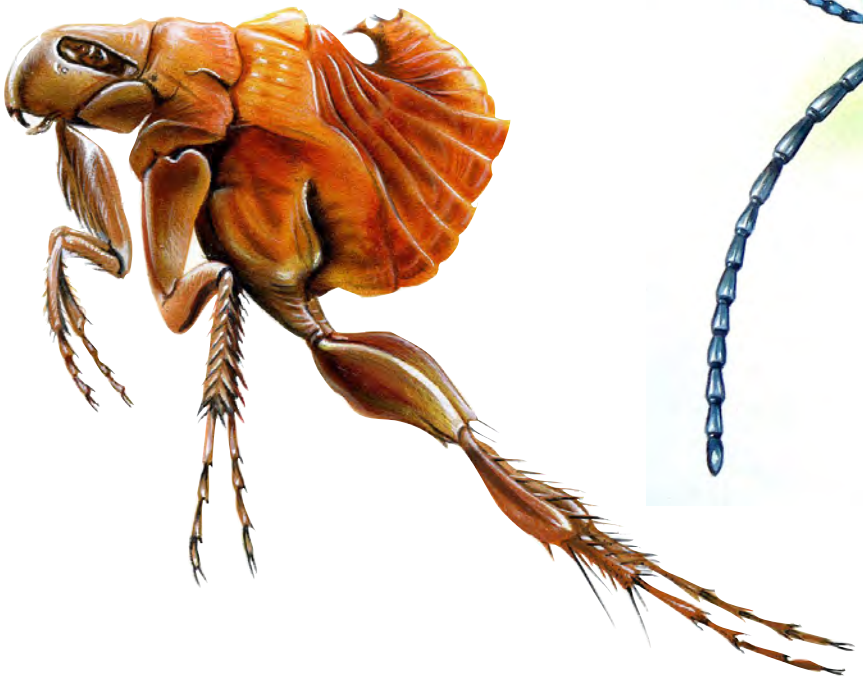
Hoverfly - Sphaerophoria scripta on Fennel

Flea beetles and leaf beetles

Front cover

Flea Beetles (around 9,000 known species) are members of the leaf beetle family (over 25,000 species). Leaf beetles are all very small, nearly all are leaf eaters and many are brightly coloured.

Flea Beetles have an enlarged femur on the hind leg, an adaptation that they use to jump from danger. Inside the femur is a system of muscles that acts like a catapult and it can propel the beetle at a distance hundreds of times its own body length.
In one highly sophisticated scientific study, the acceleration of the beetle can reach an explosive peak of 8,650 metres per second squared, which is 865 times the acceleration of gravity.The peak power output was measured at 100 to 200 times that of a powerful rally car.
WOW!



Flea beetles are so named because their jumping ability is like that of the flea (left). Human, cat and dog fleas can leap great distances compared to their body length. An adult cat flea (less than 3mm long) has been recorded jumping a distance of 48cm, 160 times its body length.

Flea Beetles (continued)

Other members of the large leaf beetle family are less impressive in their athletic feats. But many are brightly coloured and often very metallic looking.

Species of the genus Cryptocephalus are very metallic in appearance. Cryptocephalus hypochaeridis (below) frequents grasslands where it takes a liking for yellow composite flowers, such a hawkweed, hawkbit and cat's ear.

Above: A male Green Dock Beetle mating with a female, whose abdomen is swollen with eggs.

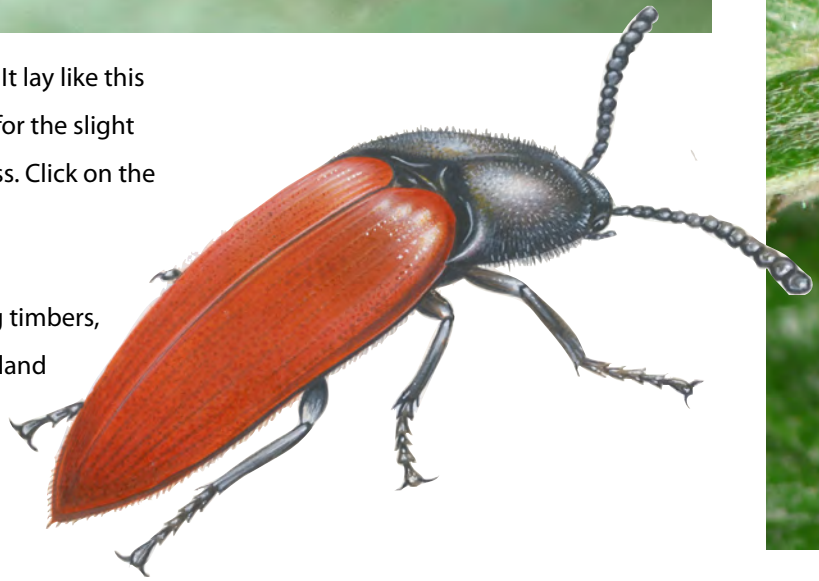
Below: Chrysolina cerealis with a banded, prismatic like pattern frequents dry, sandy places and is often found on Wild Thyme. The coloration of the bands can be variable.

Jumping ‘click’ beetles

Flea Beetles are not the only beetles that jump to avoid predators. Click beetles. of which there are 7000 known species worldwide, are well known for their jumping prowess. But the jump is the second part of the escape process. The first is to play dead, lying on its back. To right itself the click beetle bends its head and thorax forward, hooking a spine into a notch on the abdomen. When the spine is released, it makes a click, and the beetle is hurled into the air.

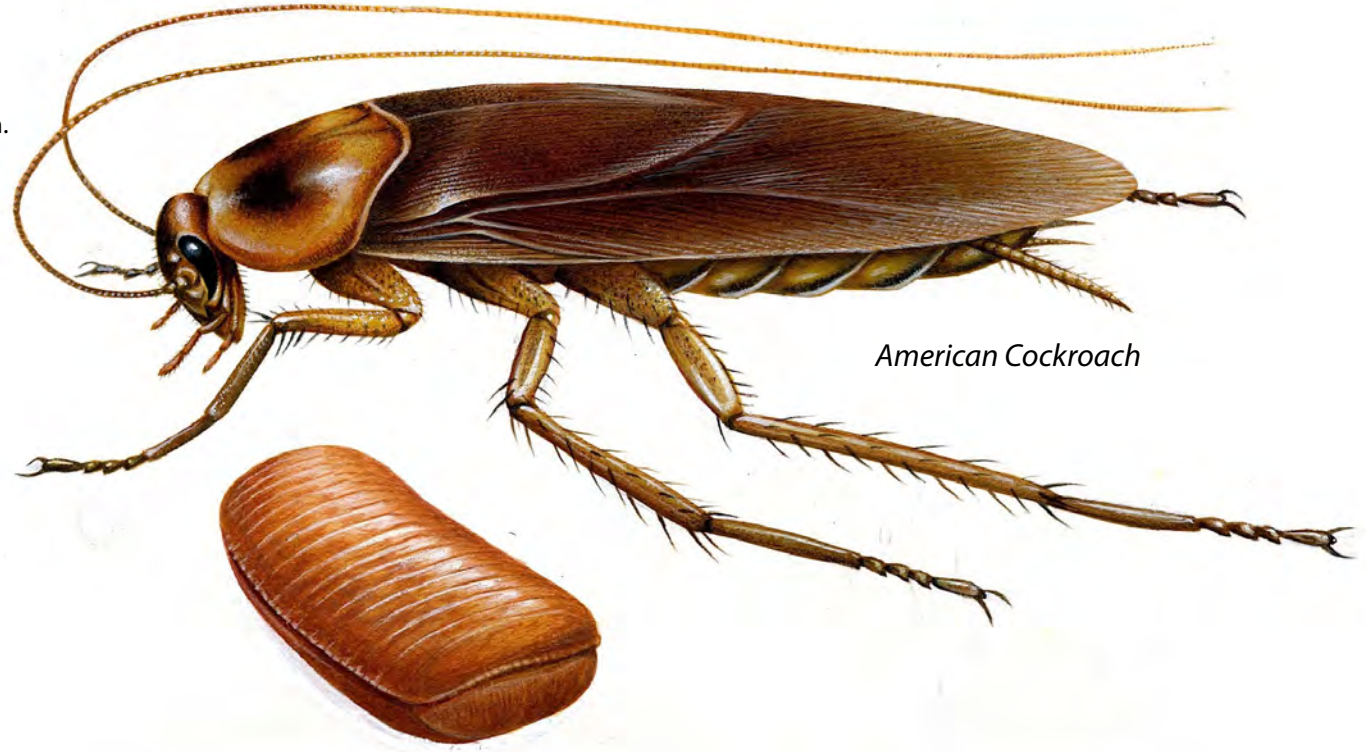
The species playing dead above is ***Kibunea minuta***. It lay like this for a few minutes and was still like it when left. But for the slight movement of one of its hind legs, it appeared lifeless. Click on the image and watch the lower right leg.

Right: ***Ampedus sanguineus***. Its larvae live in rotting timbers, especially conifers. The adult is often seen on woodland flowers.



Cockroaches

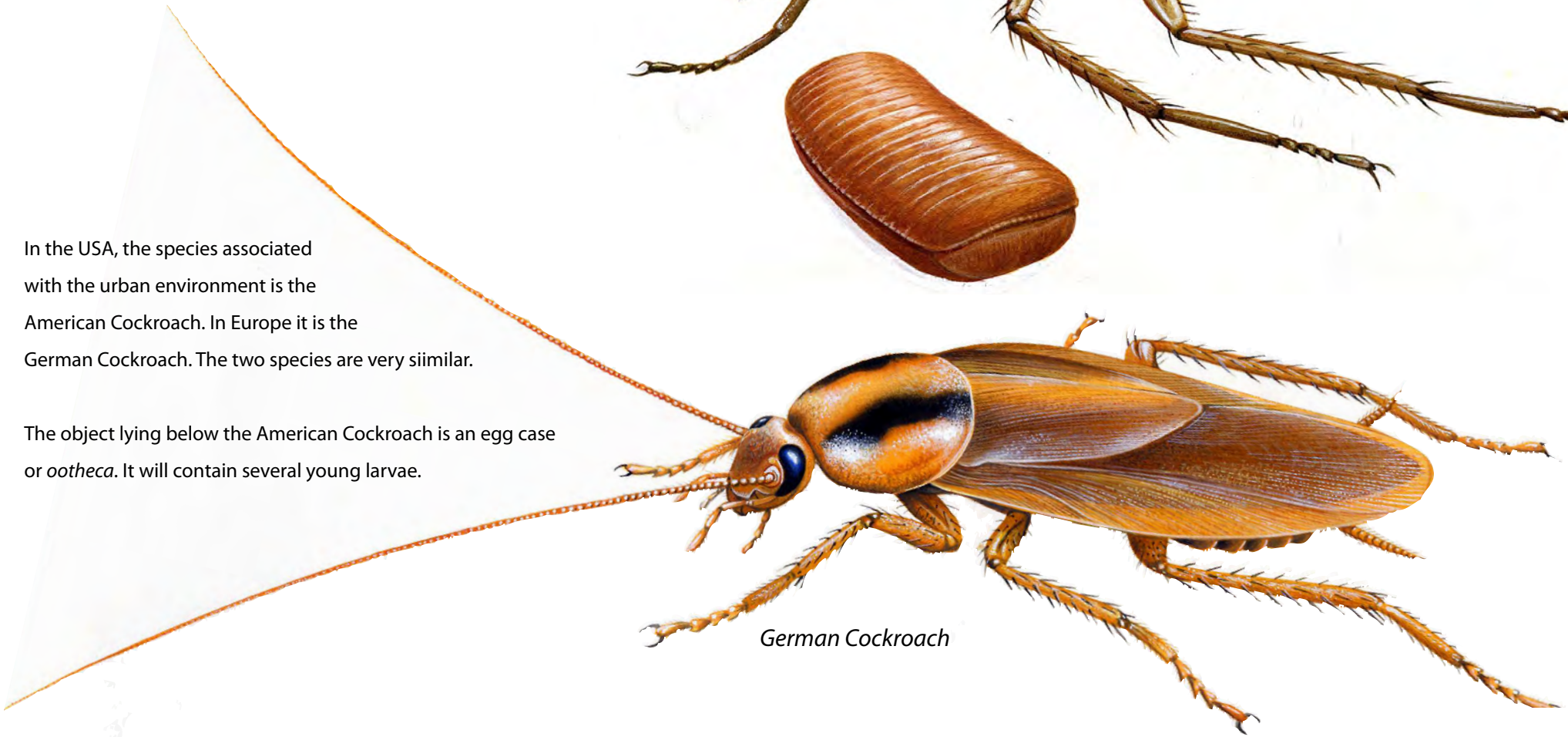
There are certain insects that arouse emotions of horror and revulsion. Cockroaches are one group of insects that do this. It comes from their association with the darkest recesses of our own human dwellings, among our waste and detritus.



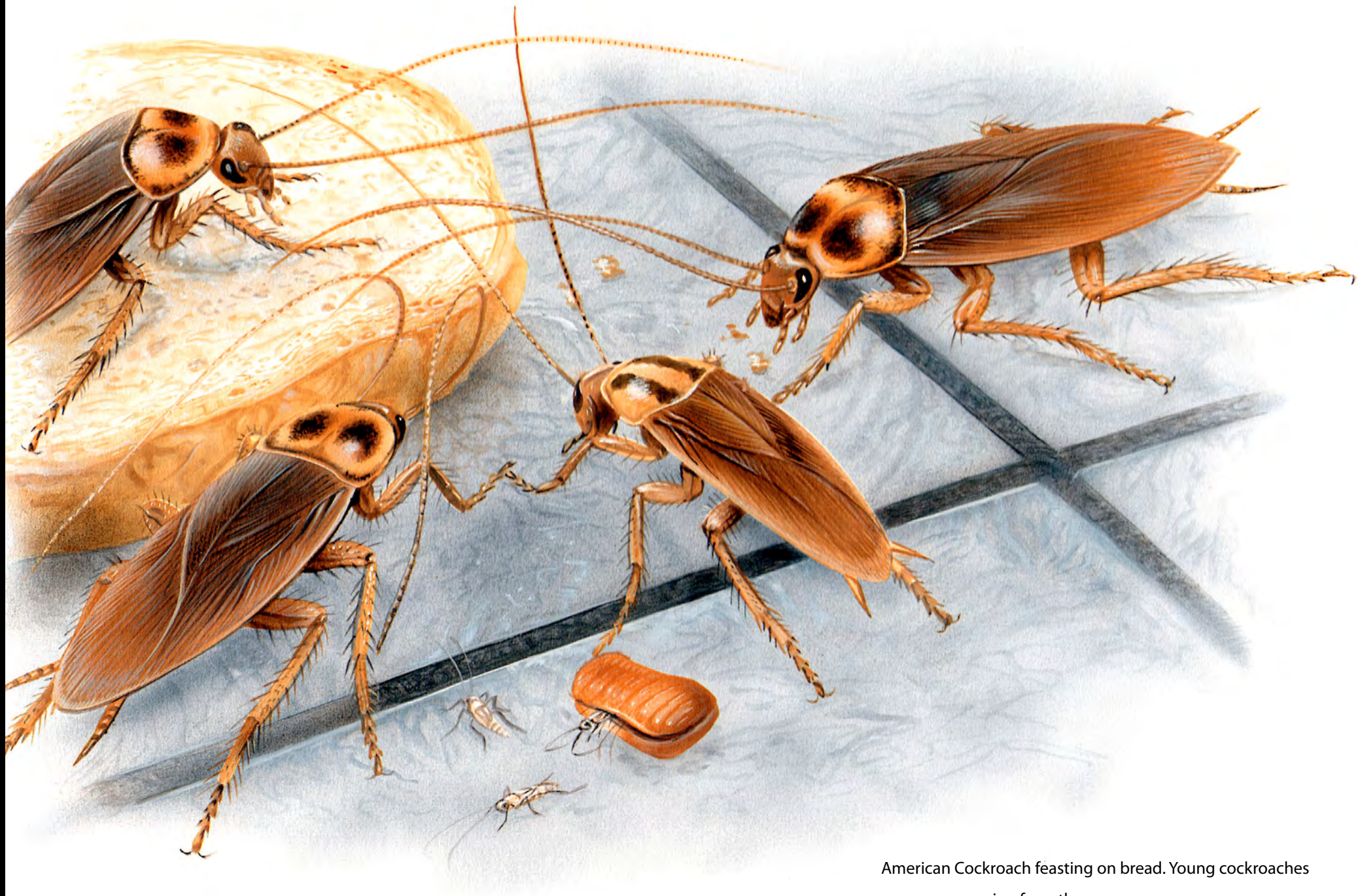
American Cockroach

In the USA, the species associated with the urban environment is the American Cockroach. In Europe it is the German Cockroach. The two species are very siimilar.

The object lying below the American Cockroach is an egg case or *ootheca*. It will contain several young larvae.



German Cockroach



American Cockroach feasting on bread. Young cockroaches are seen emerging from the egg case.

Longhorn Beetle

Pogonochoerus hispidulus

Some of the most impressive beetles in the world are members of the Longhorn family. While this species might look pretty fascinating, size is not one its main characteristics. It is very small.

Seen in spring and autumn in the UK on deciduous trees and shrubs, including gardens. Its larvae breed in old timbers. This individual was spotted crawling over an old wooden garden chair, festooned with the holes of wood-boring larvae. Whether this beetle also emerged from the same source, I do not know.

Thick-headed flies

Conopidae

In the UK, the conopid family of flies, falls into two distinctive looking groups. One group are wasp mimics and their colours, pattern and form reflect this. The other group are less obvious and might be missed, but once seen, never forgotten.

All are endoparasites of bees and wasps. Adult conopid flies lay their eggs in the body of their host, while they are in flight or hovering. The egg hatches and the larvae feed on the victim from within.

Two of the wasp mimics are shown here:
Right: *Physocephala rufipes*
Below: *Conops flavipes*

Click on the image above to view a video of a conopid fly who is sizing up a Common Wasp as a potential host for its young.

Thick-headed flies

The other group of similar looking conopid flies includes the two species shown here.

On the right ***Sicus ferrugineus.*** Below: ***Myopa testacea.***

Sicus is the largest of the two, it's large red eye on the creamy face a distinguishing feature. Both carry their abdomen curved forward beneath their bodies. Both are fond of Scabious and Knapweed.

Insect highways

It's a logical proposition. That insect pollinators moving across the UK countryside will follow those routes where the plants that they pollinate are growing. Recognising this, Bug Life, the international invertebrate charity have mapped these main routes and presented them to us all as B-lines. The whole UK has been included.

Stroud Nature, convenors of the Stroud Great Green Partnership that produces this magazine, are delivery partners in the restoration of the Cotswold Canals, Phase 1B, to be precise. We are alaso involved in delivering interpretation along the towpath. This phase will join the already restored Phase 1A section at Stonehouse with the Gloucester Ship Canal at Saul Junction. It comes as no surprise that the corridor through which the canal runs east-west from the Severn Vale into the Stroud Valleys, has been identified as a B-line by the charity Bug Life.

Although they are called b-lines, these insect routes refer to all kinds of invertebtates that have a roie in pollinating our wild (and cultivated) flowers and plants. Insects populations will generally follow areas where flowering plants are already in greater abundance. These tend to be more lowland areas along river vale and river valley. Insects will also follow landscape features such as rivers and hedgerows. They will follow the Canal and its neighbour, the River Frome . These are lined with range of flowering plants, shrubs and trees.

While Bug Life has identified these B-lines, the project is seeking to encourage other organisations (councils, conservation bodies, community groups) to build on this. To plant new areas of wildlflowers and link to those already existing.
This can reap real benefits for wildlife and people.

The partnership responsible for delivering the second phase of the Cotswold Canals restoration is commited to ensuring that the canal corridor remains an attractive highway for insects to follow, drawing them into the towns and villages of the Stroud Valleys for more people to discover, connect with and enjoy.

Clouded Yellow in wildlflower meadow, beside the canal and just a five minute from Stroud town centre.

Roesel's Bush Cricket. Found in the grasses and scrub that line certain sections of the canal.

Insect Connect

Not to demote the importance of conserving the world's great apes, pandas or rhinos, but it's taken rather longer to promote the critical importance of invertebrates to the planetary ecosystems that support all life on earth, including our own and begin to get this message over to people.

Many however, still do not make that connection. These pages are the first in a series that looks at issues and topics that might help us forge a stronger relationship with the insects that share our world.

Female Banded Demoiselle. 2024 seems to have been a good year for this species. Present in good numbers along the canal/river corridor.

Click on the Buglife logo to find out about B-lines

buglife

INSECT NATION

Admiral:

Red Admiral

Mason and potter
Assassin and Robber
Admiral and footman
Skipper and boatman
Digger and miner
Nomad and Rover
Horse and soldier
Cutter and forester
Hebrew and quaker
Damsel and dragon
Emperor and Cardinal
Mountain and chalk-hill
Meadow and wood
Marsh and heath
Copper and brass
Malachite and marble
Ermine and lace

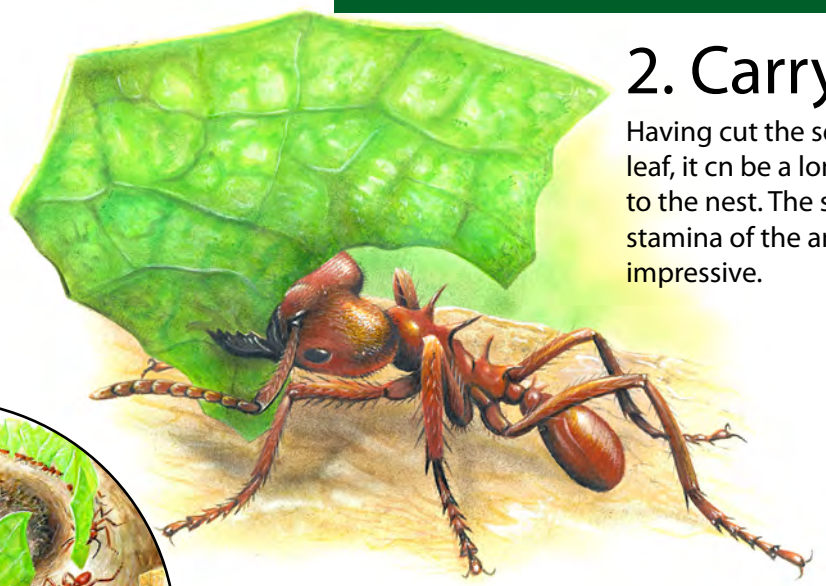
Each has a place
In the insect nation

Leaf-cutter Ant

Cutter

1. 2. Cut-

Smaller ants are carried on the leaves. Their job. To ward off parasitic flies that will inject the leaf carrying ants below



2. Carrying

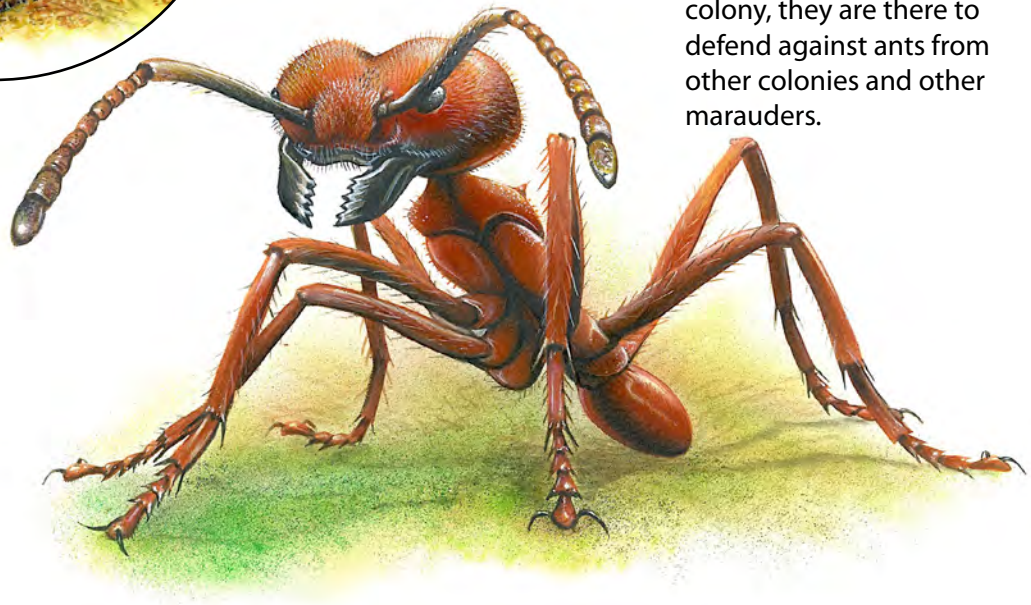
Having cut the section of the leaf, it cn be a long walk back to the nest. The strength and stamina of the ants is impressive.

3. Defending

Smaller ants hitch-hike on the leaves. These are the 'minims. Their job. To ward off parasitic flies that can inject their eggs into the leaf carrying ants below.

4. Guarding

Stationed along the edges of the column are the guards. Larger than the others in the colony, they are there to defend against ants from other colonies and other marauders.



Black Soldier Fly

Hermetia illucens

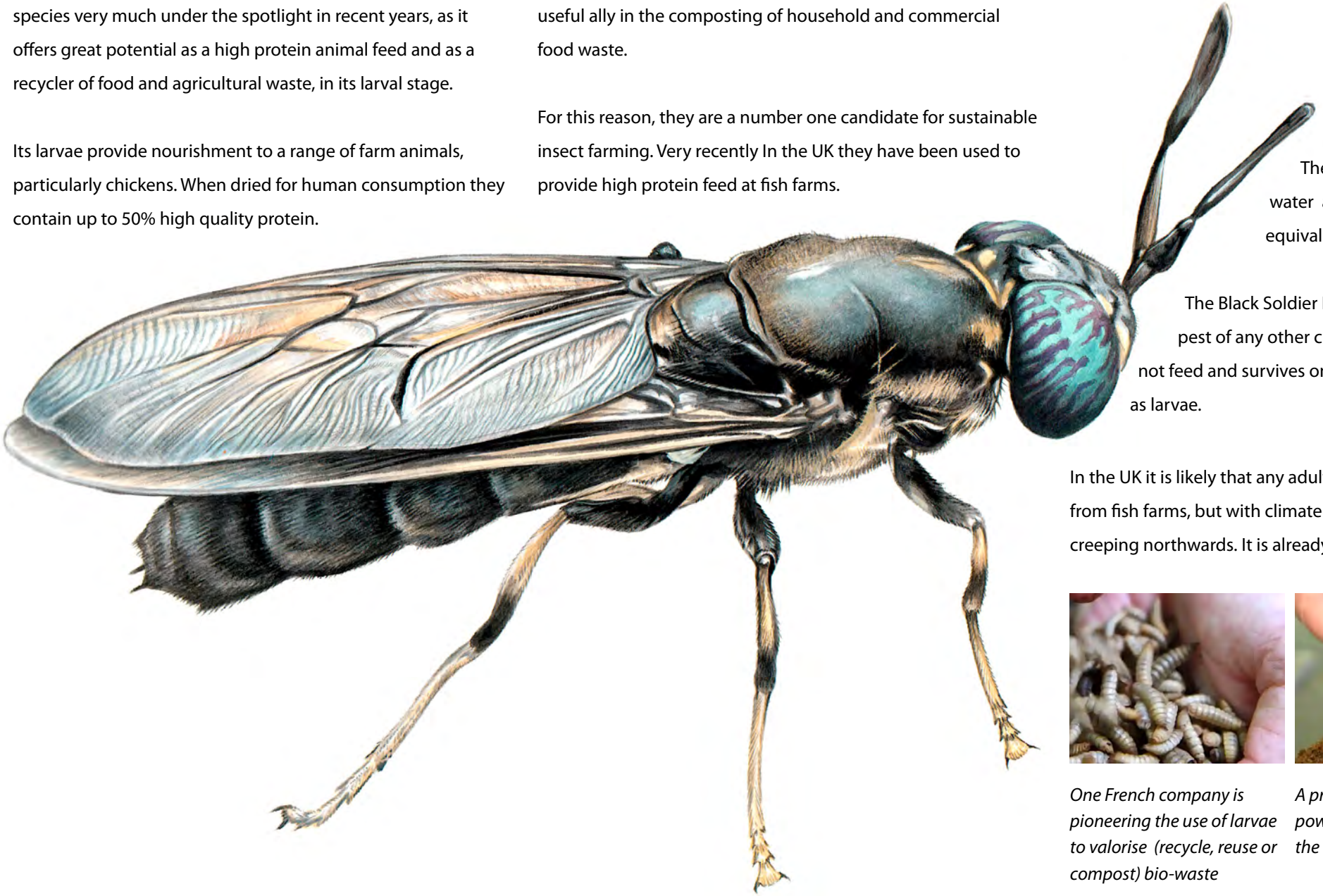
Recycler

The Black Soldier Fly originates from South America. It is a species very much under the spotlight in recent years, as it offers great potential as a high protein animal feed and as a recycler of food and agricultural waste, in its larval stage.

Its larvae provide nourishment to a range of farm animals, particularly chickens. When dried for human consumption they contain up to 50% high quality protein.

They will also eat any kind of organic matter, making them a useful ally in the composting of household and commercial food waste.

For this reason, they are a number one candidate for sustainable insect farming. Very recently In the UK they have been used to provide high protein feed at fish farms.



They require minimal land, water and energy to create an equivalent amount of soy feed.

The Black Soldier Fly is not invasive nor a pest of any other crops. As an adult it does not feed and survives on the nutrients digested as larvae.

In the UK it is likely that any adults you see, are escapees from fish farms, but with climate change, the species is creeping northwards. It is already common in France.

One French company is pioneering the use of larvae to valorise (recycle, reuse or compost) bio-waste

A protein rich compact powder can be derived from the larvae for use as feed.

Bloody-nosed Beetle

Timarcha tenebricosa

So named because it will exume a droplet of red blood from its mouthparts when alarmed, frightening would be predators, particularly birds.

It is in fact a member of the leaf beetle family covered ewarlier in this issue, one of the largest members.
It has a very round, domed appearance that aids identification.

Blood

Like the click beetle, ladybirds will also protect themselves is by playing dead. But while layin on their backs, they can also reflux bleed where, releasing a small amount of blood from their legs.

The alkaloids in their blood produce an odor that is repellent to predators. Combined with clear warning colors and reflux bleeding, predators would be wise to steer clear of them or face a rather unpleasant surprise.

Flesh-fly *(saccophoga)*

There are a number of similar looking species of flesh fly in the UK.
They are members of the family Calliphoridae, which also includes the Bluebottle and the Greenbottle.
They are charactersied by black/grey bodies with chequered and striped patterns.
They are hairy with large feet.
The other distinguishing feature - the red eyes.
The name comes from the habit of some species that lay their live larvae (maggots) on to animal flesh or meat, ie carrion.

Flesh

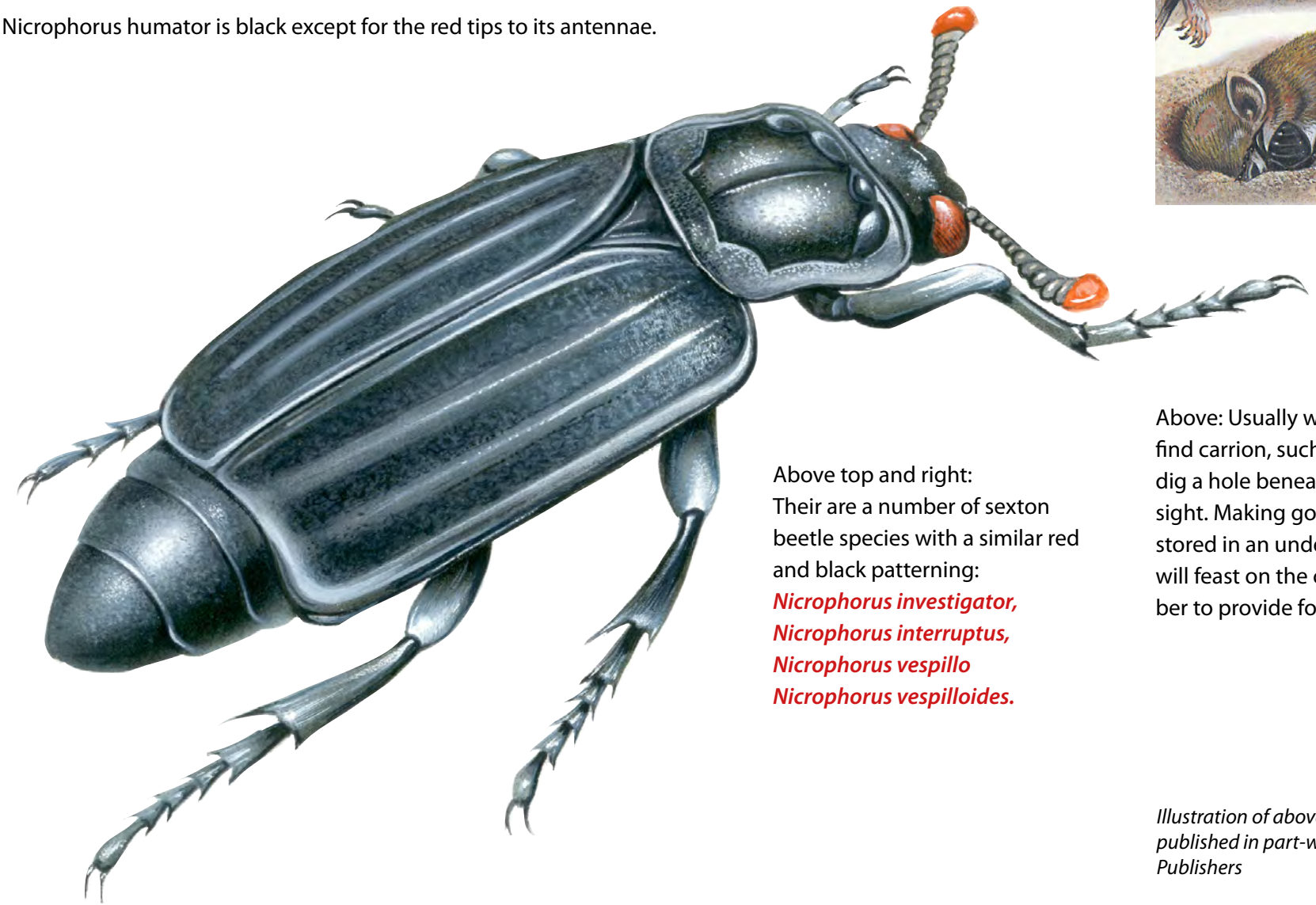
A flesh-fly silhouetted against the window. The pads on its feet act like suckers enabling it to cling to smooth surfaces. The hairs on the body and legs are also clearly visible.

Burying Beetle

Nicrophorus humator

One of several burying beetles in the UK.
These beetles are also known as sexton beetles.
They bury the dead bodies of small animals to provide food for themselves and their larvae

Nicrophorus humator is black except for the red tips to its antennae.



Above top and right:
Their are a number of sexton beetle species with a similar red and black patterning:
Nicrophorus investigator,
Nicrophorus interruptus,
Nicrophorus vespillo
Nicrophorus vespilloides.

Bones

Above: Usually working in pairs, when sexton beetles find carrion, such as this dead mouse, they begin to dig a hole beneath the body. The mouse sinks out of sight. Making good the soil at the surface, the body is stored in an underground chamber. The adult beetles will feast on the carcass and lay their eggs in the chamber to provide food for their larvae.

*Illustration of above sequence by Steve Roberts and originally published in part-works **'Tiny Terrors'** by International Master Publishers*

Somewhere in the world

A new series of pages that looks at insect species outside of the UK.

Domino Beetle
UAE

The Domino Beetle is so named because of the pattern of white spots on its body.

It is one of the larger members of the tiger beetle family and like all tiger beetles, one of the fastest moving predators in the insect world.

This individual however, did not catch the gecko on which it is feeding, but happened upon its already dead body.

Joel Roberts

Grasshopper:
Oedipola caerulescens
Italy

Rescued early morning from the swimming pool of an Italian villa on the Cinque Terra. Saved from death by drowning, I put it on the ground in a place where its cryptic camoufalge was more effective and kept a passing eye on it while it dried out.

Steve Roberts

Kissing Bug
Central and South America

This is the species of kissing (triatomine) bug associated with chagas disease. The disease is passed on in the faeces of the bug after it has bitten and ingested blood from its host. The faeces contains a tiny parasite Trypanosoma cruzi.

The host is often a person and the act takes place on the face, hence the term 'kissing' bug.

It is estimated that 8 million people in Mexico, Central and South America, most of whom do not know they are infected.
It is present in the USA:
https://www.medicalnewstoday.com/articles/327250

Joel Roberts

In a new light

Images of some of the night-time visitors to our gardens.

Brimstone Moth

In a new light

Swallowtailed Moth

In a new light

Plume Moth

About

Do you have the bug was conceived and is written and illustrated by Steve Roberts on behalf of Stroud Nature CIC. Unless stated otherwise, all photography is original to the magazine.

All illustrations are original by Steve. Most are produced specifically for this magazine. There are others which have previously been published.

Shoud you wish to use any of the new illustrations, please get in touch.

Stroud Nature CIC are organisers of the annual Stroud Festival of Nature and coordinate the Stroud Great Green Partnership, a network of local and regional wildlife and conservation organisations. We come together to plan the festival and look at collaborative projects in the Stroud District.

We are members of the Gloucestershire Local Nature Partnership and delivery partners for the Cotswold Canals Connected project restoring the Cotswold Canals.

Stroud Nature also produces its own printed and online resources and engages audiences in wildlife related activities.

All the issues of the magazine are available at:

www.stroud-nature.org

Here you will also find a number of other things of interest about insects.

Should you wish to contact Stroud Nature directly:

07811 471106

Caddis Fly