

## Introduction to beetle families

In the UK, there are 4,000 species of beetle. They are classified by entomologists into 103 different families. This guide is an introduction to 23 of these beetle families and includes an example of a species or genus to look for in each.

To help with family identification the number of tarsal segments per pair of legs is indicated on each heading as follows: front pair-middle pair-rear pair. For example 5-5-5.

Many of the species of beetle found in Scotland need careful examination with a microscope to identify them. This guide is designed to introduce the main families you may find and gives some key identification features for each.

### Ladybirds (Family Coccinellidae)

3-3-3

26 species in 2 genera

Beetles that are rather rounded, often colourful with spots on the elytra. Typical body length in this family ranges from 1-9mm. The second tarsi is heart-shaped.

#### Species to look out for:

7-spot ladybird (*Coccinella septempunctata*)

A distinctive species with 7 spots on its elytra, mostly red with a black and white thorax. This species can be found on herbaceous plants during the summer and is often found in hollowed plant stems and crevices in winter. It is predatory and can be found feeding on aphids.



© Claire Pumfrey

### Ground beetles (Family Carabidae)

5-5-5

374 species in 87 genera

One of the largest families of beetles. Typical body length in the family ranges from 2-30mm. Ground beetles are a highly variable predatory family. Most are black, brown, or metallic, with long antennae and legs although there are more colourful species to be found such as the Green tiger beetle.

#### Species to look out for:

Green tiger beetle (*Cicindela campestris*)

Wonderfully colourful beetle often found in areas with bare ground or sparse vegetation such as gravelly and sandy hillsides as well as sandy heathland.



© Claire Pumfrey

## Leaf beetles (Family Chrysomelidae)

4-4-4

286 species in 61 genera

A colourful, often metallic coloured family, the type of plant they are found on often helps to identify the species. The third tarsi is heart shaped. Species in this family are 1-18mm long. The beetles in this family are usually oval or elongated oval shaped.

### Species to look out for:

Dead-nettle leaf beetle (*Chrysolina fastuosa*)

This species is found on Dead-nettle plants and is iridescent green in colour with hues of red, gold and blue. The species is common and widespread across Britain.



© Suzanne Burgess

## Click beetles (Family Elateridae)

5-5-5

73 species in 38 genera

The beetles in this family make a clicking noise by violently launching backwards with their bodies as a possible defence mechanism. It also serves to turn them the right way up when upside down. They have elongate oval bodies and are often found during the day feeding on flowers.

### Species to look out for:

Click beetle *Ctenicera cuprea*

There are several forms of this species with combinations of purple and straw colour as well as uniform colours like the one pictured.



© Melissa Shaw

## Carrion beetles (Family Silphidae)

5-5-5

21 species in 7 genera

This is a family of large, often orange and black striped or plain black and brown beetles, with clubbed antennae. They are often found feeding on carrion, although some species are known to predate snails and caterpillars. Species in this family are 9-30 mm.

### Species to look out for:

Common sexton beetle (*Nicrophorus vespilloides*)

The only sexton beetle with black clubbed antennae. Very distinctive combination of orange



© Roger Key



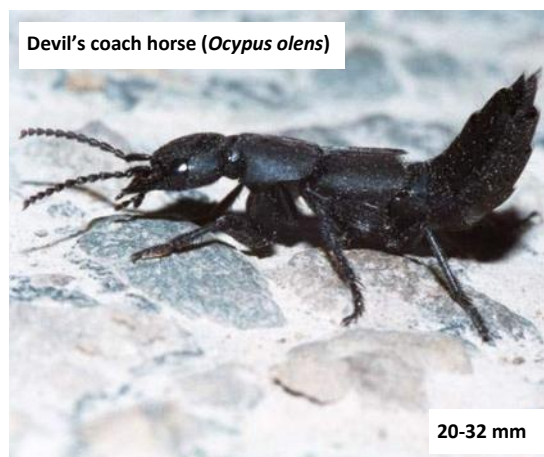
## Rove beetles (Family Staphylinidae) 5-5-5/3-3-3 1,130 species in 276 genera

Long, thin beetles with exposed abdomens and very short wing cases, although they are still capable of flight. Generally a very fast moving family when running across the ground.

### Species to look out for:

Devil's coach horse (*Ocypus olens*)

A black, yet distinctive rove beetle often found crossing country paths, it rears its tail up in defence when threatened.



© Ben Hamers

## Dor beetles (Family Geotrupidae)

5-5-5

8 species in 5 genera

Also known as dung beetles, these beetles have a shiny metallic or black body, and clubbed antennae. Quite often they can be found upside down on paths. (11-26mm)

### Species to look out for:

Woodland dor beetle (*Anoplotrupes stercorosus*)

A short-oval and very convex species, the dorsal surface is black with a distinct metallic blue reflection and the ventral surface is bright metallic blue. There are fourteen lines weakly impressed into the elytra, equally balanced in number on each side of the suture.



© Steven Falk

## Soldier beetles (Family Cantharidae)

5-5-5

42 species in 7 genera

A family of generally elongate rectangular beetles with long antennae. The elytra are softer than most beetles as they contain less chitin. They get their name from the colour of soldiers' uniforms. (2-15 mm)

### Species to look out for:

Common red soldier beetle (*Rhagonycha fulva*)

An almost entirely red soldier beetle with black only on the antennae, tips of the wing cases and legs. The only similar soldier beetle, *Rhagonycha lutea* has a black head.



© Melissa Shaw

## Weevils (Family Curculionidae)

4-4-4

280 species in 123 genera

A large family of beetles with a distinctive long snout. Generally rounded and spherical in shape, species in this family can be very difficult to identify.

### Species to look out for:

Weevil *Strophosoma melanogrammum*

Black body with gold hairs over the top and a short snout—look out for it in woodlands, hedgerows and gardens.



© Roger Key

## Longhorn beetles (Family Cerambycidae)

4-4-4

69 species in 50 genera

Variable sized beetles (2-30mm), with an elongated appearance, broad elytral shoulders tapering backwards, and antennae usually at least as long as the body.

### Species to look out for:

Two-banded longhorn beetle (*Rhagium bifasciatum*)

A large and distinctly patterned longhorn beetle with two bands on each elytra, a mainly black body with red often marking the sides and legs.



© Dr David Chesmore

## Flower beetles (Family Oedemeridae)

5-5-4

10 species in 4 genera

Often found feeding on flowers, these beetles are small and elongated with parallel sides. The males often have swollen femurs, the presence or size can help identify the species.

### Species to look out for:

Swollen-thighed false blister beetle (*Oedemura virescens*)

Sage green in colour. The male of this distinctive species has large swollen femurs on his hind legs. Look for them on dandelions and buttercups from April through the summer months.



© Suzanne Burgess



## Oil beetles (Family Meloidae)

5-5-4

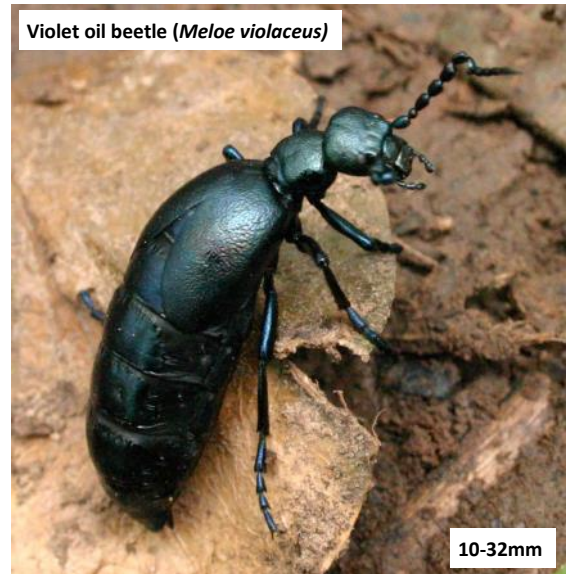
3 species in 1 genus

Oil beetles are relatively unusual with their large extended abdomen and short wing cases that do not meet along the middle. Their small larvae are called triungulins and can often be found climbing plants to catch a lift from an unwary bee. Adults of this family can emit a foul smelling oil as a defence mechanism.

### Species to look out for:

Violet oil beetle (*Meloe violaceus*)

These beetles are similar to the Black oil beetle with their square-shaped thorax, shiny blueish black body and kinked antennae. The Violet oil beetle has fine punctures on its thorax whereas in the Black oil beetle they are coarse. Active from March to June.



© Steven Falk

## Pollen beetles (Family Nitidulidae)

4-4-4

5 species in 2 genera

The vast majority of pollen beetles are small (1-8mm), black, rounded beetles. They can be found feeding on the pollen of all sorts of flowers from dandelions to foxgloves.

### Species to look out for:

Common pollen beetle (*Brassicogethes aeneus*)

Pollen beetles are tricky to identify by eye so often it is only possible to record them to family.



© Roger Key

## Glow worms (Family Lampyridae)

5-5-5

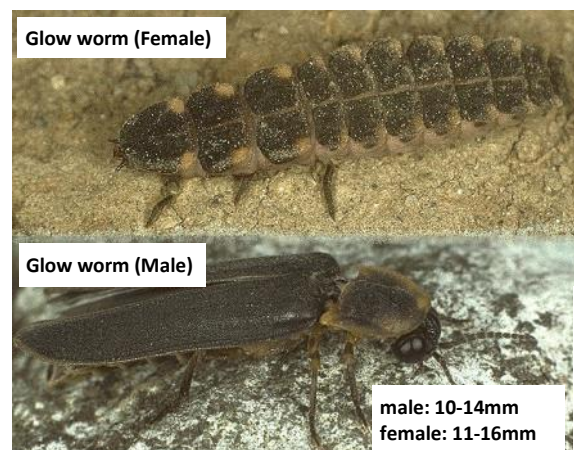
1 species in 1 genus

Often thought of as worms due to their name, these beetles can most easily be found glowing at night as the females cause a yellow green glow in their abdomen to attract males to them.

### Species to look out for:

Common glow worm (*Lampyris noctiluca*)

The only species found in Scotland. Their larvae eat snails. Males and females are different with the male having wings and the female being wingless. Female larvae emit light and males dimly glow when they are flying.



© Roger Key

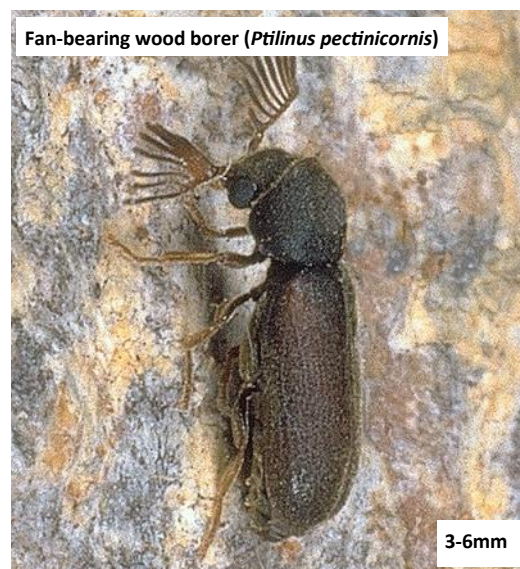
## Wood borer and spider beetles (Ptinidae) 5-5-5 57 species in 28 genera

A family with a variety of body shapes and sizes, easily split into two types. The spider beetles tend to have spider-like bodies to mimic their prey whereas the adult wood borers are elongated and brown, and their larvae bore into wood.

### Species to look out for:

Fan-bearing wood borer (*Ptilinus pectinicornis*)

A small elongated beetle with large feather-like antennae, often found indoors. This beetle mates in spring with the female laying her eggs by boring into dry hardwood, where she stays to protect her young until they have grown larger. Rarer in Scotland but common south of the border.



## Pill beetles (Family Byrrhidae) 4-4-4/5-5-5 13 species in 8 genera

Small oval (ladybird-shaped) beetles that have the ability to completely tuck their legs in and play dead when disturbed. Often hairy, they can be found feeding on liverworts, mosses and roots.

### Species to look out for:

Pill beetle *Byrrhus pilula*

One of the commonest beetles to be seen in this family. It is distinguished from the other beetles in its genus by its larger size, drawn out oval shape and convex elytra. Randomly hairy across the body, although this wears off in later life. Can be seen year round however may be more active during sunny days in spring. Feeds on mosses.

Pill beetle *Byrrhus pilula*



## Scarab beetles (Family Scarabidae) 5-5-5 84 species in 2 genera

This family includes both the chafers, which are herbivorous, and the dung beetles, which feed on dung. Dung beetles can often be found by carefully searching dung piles, especially in fields that are regularly grazed by animals. Beetles in this family are characterized by the last few segments of antennae expanding into flaps or fans.

### Species to look out for:

Bee beetle (*Trichius fasciatus*)

Only found in Wales and northern Scotland, this distinctive beetle mimics bees and is often found on bramble and wild thyme flowers.





## Introduction to Scottish water beetles

There are a variety of beetle families that almost exclusively spend their time in and around water and aquatic habitats. The following two pages features six of these families.

### Whirligig beetles (Family Gyrinidae)

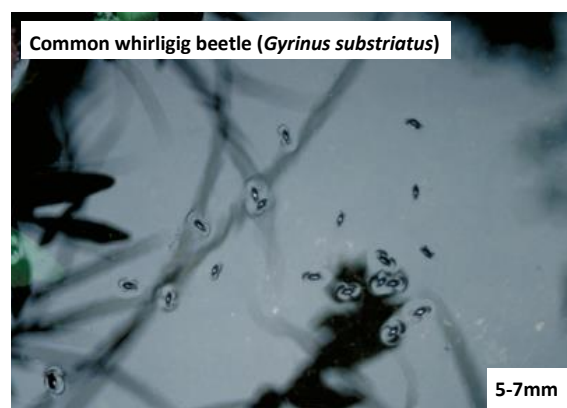
Strange

12 species in 2 genera

Whirligig beetles are small (3.5-8mm) oval shaped beetles found spinning around on the surface of water in large groups. They have one pair of eyes above the surface water and one pair below.

#### Species to look out for:

Common whirligig beetle (*Gyrinus substriatus*)  
Difficult to identify by eye, detailed examination is needed to differentiate it from other similar species.



© Chris Gibson

### Crawling water beetles (Family Haliplidae)

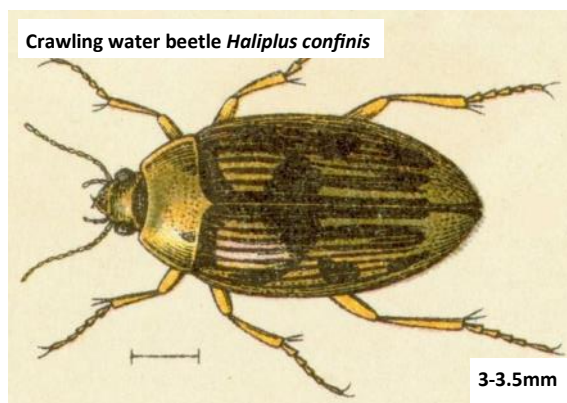
5-5-5

19 species in 3 genera

Small beetles (2.5-5mm) that swim by crawling with alternate legs. These beetles can be either herbivorous (feeding on algae) or carnivorous.

#### Species to look out for:

Crawling water beetle *Haliplus confinis*  
A well patterned small beetle that can be found throughout the UK.



© Edmund Reitter CC BY 2.0 UK

### Water scavenger beetles (Family Hydrophilidae) 4-4-4/5-5-5 70 species in 2 genera

This family can be split into two groups with either terrestrial (Sphaeridiinae) or aquatic (Hydrophilinae) species. The aquatic beetles are often found awkwardly moving around in the mud.

#### Species to look out for:

Water scavenger beetle (*Helophorus grandis*)  
One of the larger species in this family this beetle can be distinguished from *H. aequalis* by its larger size and stronger markings.



© Siga CC BY 2.0 UK

## Burrowing water beetles (Family Noteridae) 5-5-5 2 species in 1 genera

These beetles with short antennae can be recognised by the presence of a 'noterid platform', a plate between the second and third pairs of legs, and are larger in the front than the back.

They are found mostly in stagnant water, particularly in association with floating rafts of vegetation, burrowing through mud at the bottom of ponds.

### Species to look out for:

Large noterus (*Noterus clavicornis*)

One of only two UK species, this beetle is densely punctured on the wing elytra in a random pattern.

Large noterus (*Noterus clavicornis*)



© Udo Schmidt

## Long-toed water beetles (Family Dryopidae) 5-5-5 6 species in 1 genus

Although these beetles are classed as water beetles, only one species is fully aquatic. They are small, elongated, or oval in shape and darkly coloured. They have prominent claws and short pectinate clubbed antennae. Beetles in this family are generally 3-4mm.

### Species to look out for:

Long-toed water beetle *Dryops lurida*

The most common member of this family, it is found throughout the UK, including records from mainland Scotland and Shetland.

Long-toed water beetle *Dryops lurida*



© Udo Schmidt

## Diving beetles (Family Dystiscidae) 5-5-5 120 species in 28 genera

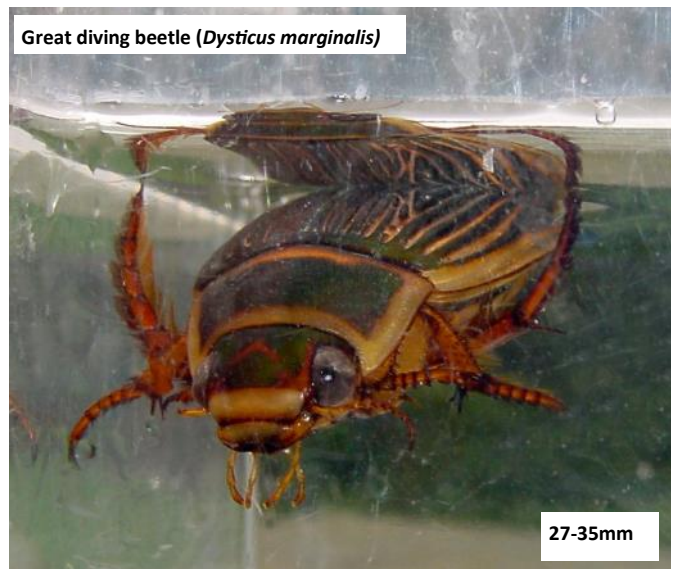
A variably sized family, these beautiful water beetles are highly adapted to aquatic life with their fast streamlined bodies they can easily speed through water. Their tapering long oval bodies, long back legs and long antennae are characteristic of this family. There are both predatory and herbivorous diving beetles in this family. They are able to breathe underwater by trapping air under their wings.

### Species to look out for:

Great diving beetle (*Dysticus marginalis*)

One of our largest beetles in the UK. The larvae spend their time in ponds, predating tadpoles. They have a distinctive greenish-black appearance that is shared between 6 similar species, they can be separated by looking at the shape of the coxa.

Great diving beetle (*Dysticus marginalis*)



© Steven Falk



## Beetle larvae

- Beetle larvae can take many forms and live in varied habitats.
- You can often find them when digging up soil in your garden, feeding on plants or in ponds, eating other invertebrates or tadpoles.
- The larvae have six long jointed legs with biting or piercing mouthparts.
- Most larvae are specially adapted to the habitat they inhabit.



Beetle larvae © Roger Key

## Mines and cases

- Many beetle larvae do not spend their time in the open; instead you can find them in cases built by either their parents or, in the case of the pot beetles, themselves.
- Alternatively you may be able to find them mining leaves.



Leaf mine © Shi Annan

## Beetle facts

- Bees, hoverflies and other insects are thought of as the main pollinators of plants, with the significance of beetles often being overlooked, despite them being instrumental in the pollination of some plants.
- There are more species of beetle (around 300,000) on earth than any other order of animals!
- Most, but not all beetles can fly despite their wings being hidden under their protective elytra.
- Beetles are found in almost every habitat!



Flower Beetle © Suzanne Burgess

## Resources

- **Field Studies Council** produces a series of fold out guides and more in depth AIDGAP keys to several beetle families. [www.field-studies-council.org](http://www.field-studies-council.org)
- Pelagic Publishing - **Leaf Beetles, Naturalists handbooks 34**, by David Hubble (2017)
- Richmond Publishing - **Ground beetles, Naturalists Handbooks 8**, by TG Forsythe and S Allington (1987)
- Pelagic Publishing - **Ladybirds, Naturalists Handbooks 10**, by Helen E. Roy *et. al* (2013)
- Pisces Publications - **Atlas of the Seed and Leaf Beetles of Britain and Ireland**, by M.L. Cox (2007)
- Bloomsbury Wildlife Guides - **Field Guide to the Ladybirds of Great Britain and Ireland**, by Helen Roy and Peter Brown (2018)
- A.G. Duff Publishing - **Beetles of Britain and Ireland vol. 1-4**, by Andrew G. Duff (2016)
- H. F. & G. Witherby - **A Practical Handbook of British Beetles**, by Norman H. Joy (1932)
- **UK Beetles** [www.ukbeetles.co.uk](http://www.ukbeetles.co.uk)
- **UK Beetle Recording** [www.coleoptera.org.uk](http://www.coleoptera.org.uk)
- **iSpot** for help with identification: [www.ispotnature.org/](http://www.ispotnature.org/)
- **iRecord** to upload wildlife records: [www.brc.ac.uk/irecord/](http://www.brc.ac.uk/irecord/)
- **Mark Telfer blog on Beetles** [www.markgtelfer.co.uk/beetles](http://www.markgtelfer.co.uk/beetles)
- [Checklist of Beetles of the British Isles](#)
- [Bark and wood boring beetles of the World](#)
- [The Coleopterist](#)
- **Royal Entomological Society** [Handbooks for the Identification of British Insects series](#)
- **Buglife** [www.buglife.org.uk](http://www.buglife.org.uk)