Guides to British Beetles

16. *Pterostichus*, *Stomis* and *Abax* Ground Beetles (Coleoptera: Carabidae)

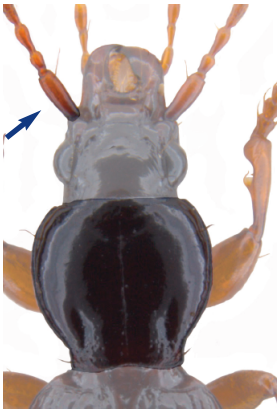
These genera of beetles form the carabid tribe Pterostichini, along with *Poecilus* (covered by Guide 10). They include some of the most commonly encountered ground beetles and provide an excellent starting point for beginners to ground beetle identification.

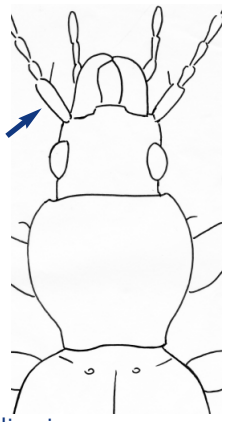
This guide will enable identification of the 19 *Pterostichus*, single *Stomis* and single *Abax* species found in Britain and Ireland.

Guide to genera

Stomis

Key features: long protruding jaws are diagnostic, **long 1st antennal segment**, **heart-shaped pronotum** and **red legs**.





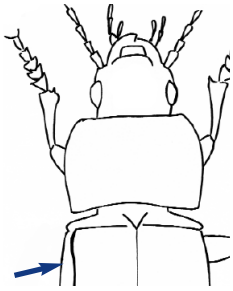
Head showing long protuding jaws.
Heart-shaped pronotum.
Long 1st antennal segment. Single basal fovea on each side of pronotum.

Pterostichus

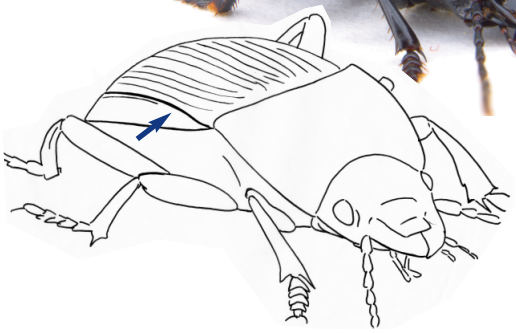
Key features: all-black bodies with **stout legs** and **antennae**, **heavy fore tibiae** which are **strongly widened apically**, all with dorsal elytral punctures, all but one with crossed epipleura. Two setiferous punctures beside the inner margin of the eye. Rather ordinary, generalised carabids with no one diagnostic character that defines the genus.

Abax

Key features: sharp raised ridge from shoulder of elytra is diagnostic, very broad pronotum, large (17 - 22 mm).

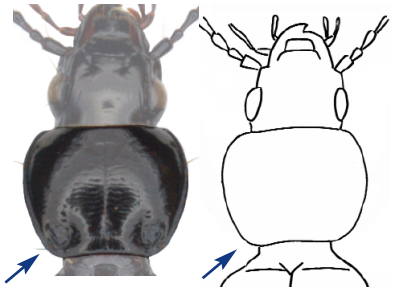


Broad pronotum and ridge at shoulder of elytra.



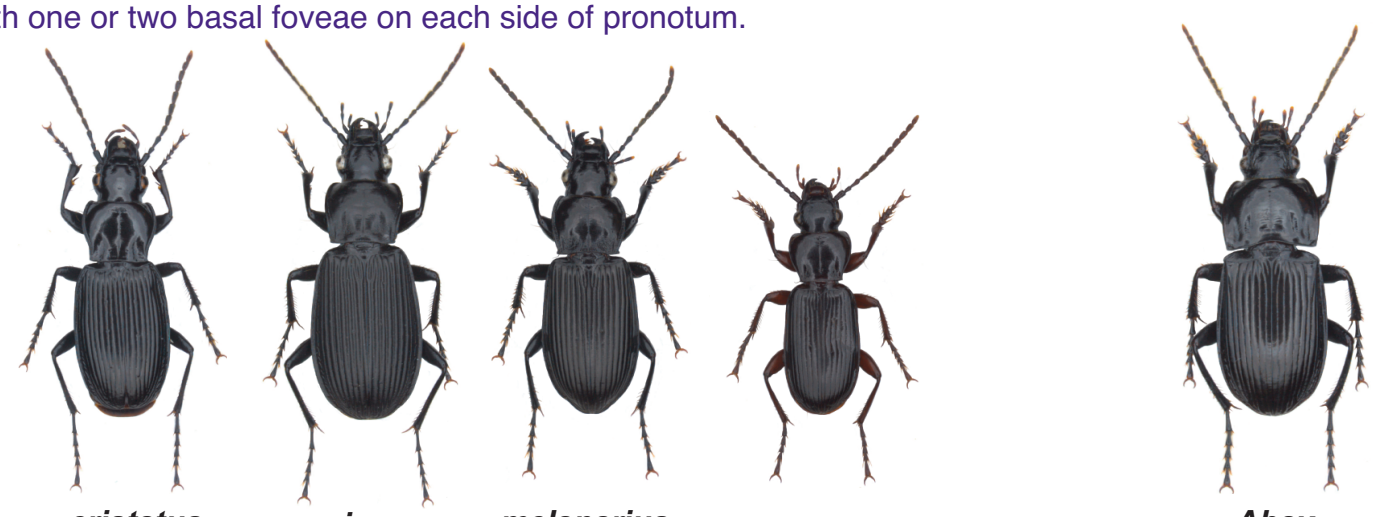
Pterostichus are split here into the following five groups.

Three species with completely **rounded hind-angles to the pronotum**. All other species have distinct, **cornered hind-angles**.



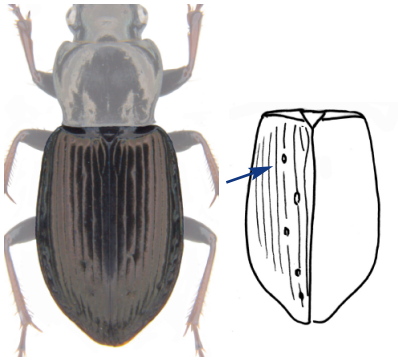
madidus *aethiops* *aterrimus*

Four **large** species **over 11 mm** long (10.5 - 21 mm).
With one or two basal foveae on each side of pronotum.



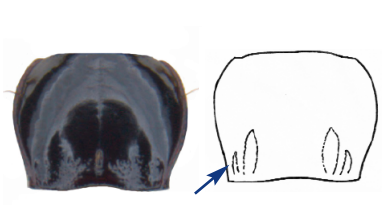
cristatus *niger* *melanarius* *macer* *Abax*

Three species with **deep punctures on the elytra** (only otherwise shown by *aterrimus*).
Medium-sized: 9.5 - 13 mm long.



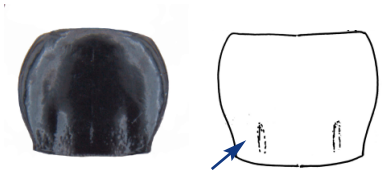
quadrifoveolatus *oblongopunctatus* *adstrictus*

Five **medium to small** species **6.8 - 13 mm** long. With **two basal foveae on each side of pronotum.**



anthracinus *gracilis* *nigrita* *rhaeticus* *minor* *Stomis*

Four **small** species **5 - 7.5 mm** long. With **one basal fovea** on each side of pronotum.

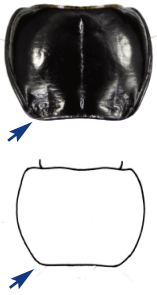


longicollis *vernalis* *strenuus* *diligens*

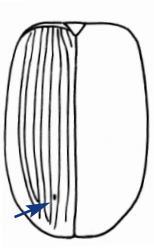
All about x 2 actual size

Three species with completely **rounded hind-angles to the pronotum**. All other species have distinct, **cornered hind-angles.**

Pterostichus madidus Common Blackclock



Rounded hind-angles of pronotum.



Elytra are almost parallel sided with one dorsal puncture on the 3rd interval (arrowed).

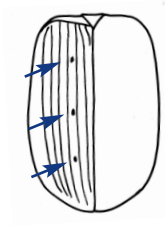
13 - 18 mm

Red-legged and black-legged forms occur. Similar to *aethiops*. Black-legged individuals can be distinguished by having **one dorsal puncture on the 3rd elytral interval** (towards the apex), its **larger size** and the **shape of the elytra**. Hind-wings rudimentary.

One of Britains's commonest ground beetles found in a variety of habitats including gardens and woodlands. The red-legged form is more frequently found in western areas.

Pterostichus madidus **Common Blackclock**

Pterostichus aethiops Ebony Blackclock



Elytra are shorter and widen towards the apex. Three dorsal punctures on the 3rd interval (arrowed). The punctures are most visible when lit from the side (see photo).

11.5 - 14 mm

Similar to the black-legged form of *madidus*. Distinguished by its **smaller size**, **the three dorsal punctures on the 3rd elytral interval** and the **shape of the elytra**. Hind-wings rudimentary.

A scarce species usually found in upland areas. Occurs in woodland bordering moorland but can be found in open situations. Occurs widely in Scotland, northern England and Wales and also in south-west England on Dartmoor and Exmoor.

Pterostichus aethiops **Ebony Blackclock**

madidus

aethiops

Pterostichus aterrimus Varnished Blackclock

13 - 15 mm

Completely rounded hind-angles of pronotum. Separated from previous two species by its very shiny appearance and the **3 or 4 deep punctures on each elytron** (arrowed in right hand photo). Hind-wings well-developed.

Rare. Probably extinct in England where it was known from the East Anglian fens and broads until 1910 and from the New Forest, Hampshire, until 1973. It still occurs at several sites in Ireland.

Pterostichus aterrimus **Varnished Blackclock**

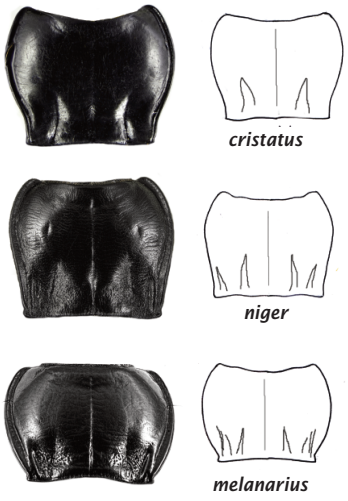
Four **large** species **over 11 mm** long (10.5 - 21 mm). With one or two basal foveae on each side of pronotum.

Pterostichus cristatus Northumberland Blackclock

13 - 17 mm

Similar to *niger* and *melanarius* but separated by the more **heart-shaped pronotum** with more deeply **sinuate sides** and a **single basal fovea** on each side. **Deep elytral striae with convex intervals**; **3rd interval with 3 - 4 punctures**. **Elytra iridescent** (with rainbow reflections), at least when viewed in sunlight. Overall slimmer and more shiny appearance than *niger*. **Claw-bearing tarsal segment has 2 - 4 pairs of bristles on the underside** as in *melanarius*. The only British *Pterostichus* **without crossed elytral epipleura**. Hind-wings rudimentary.

Common in woodlands and gardens in northeast England. An introduced species which is spreading into north-west England and Scotland.



Showing differences in pronotum.

Pterostichus cristatus **Northumberland Blackclock**

Pterostichus niger Great Blackclock

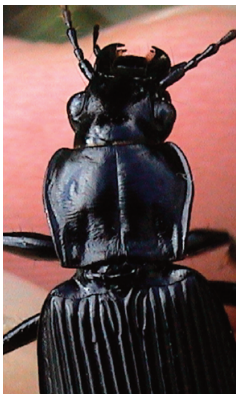
15 - 21 mm

Similar to *cristatus* and *melanarius* but separated by the **shape of the pronotum** which has **shallowly sinuate sides** with **two basal foveae** on each side. **Deep elytral striae with convex intervals**; **3rd interval with (2 or) 3 punctures**. Elytra not iridescent. **Claw-bearing tarsal segment has no bristles on the underside**. Overall broader with matt appearance compared to *cristatus*. The biggest *Pterostichus*, of similar size to *Abax*. Hind-wings well-developed.

smooth underside of claw bearing tarsal segment.

Widespread and common in woodlands, grasslands and moorland throughout Britain.

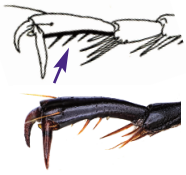
Pterostichus niger **Great Blackclock**



Pterostichus melanarius Rain-beetle

13 - 18 mm

Similar to *cristatus* and *niger* but separated by the **shape of the pronotum** which has **rounded sides with a protruding tooth at the hind-angles** (similar to *nigrita* and *rhaeticus*), and with **two basal foveae** on each side. **Deep elytral striae with convex intervals**; 3rd interval with 2 (or 3) punctures. Elytra not iridescent. **Claw-bearing tarsal segment has 2 - 4 pairs of bristles on the underside**. Hind-wings rudimentary.



has short bristles on underside of claw bearing tarsal segment.

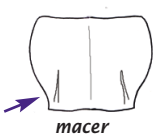
Widespread and common in a variety of habitats including farmland, gardens and grasslands throughout Britain.

Pterostichus melanarius **Rain-beetle**

Pterostichus macer Flat Blackclock

10.5-15 mm

Easily separated by the **very flat appearance, red legs and antennae**. **Pronotum heart-shaped** with a **single basal fovea** on each side. **Shallow elytral striae with flat intervals**; 3rd interval with 3 punctures. Elytra not iridescent. Claw-bearing tarsal segment has no bristles on the underside. Hind-wings well-developed.



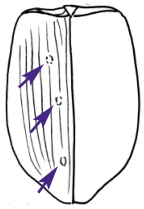
A scarce species found in grasslands and marshes on clay soils mainly in the south and east of England with scattered records from western England and Wales. It often hides in cracks in the clay.

Pterostichus macer **Flat Blackclock**

Three similar **medium-sized** species **about 10 mm long** with **deep punctures on the elytra**. Females of all three species have slightly less shiny elytra.

Pterostichus quadrifoveolatus **Phoenix Blackclock**

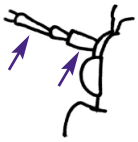
Basal margin of pronotum **strongly angled forwards at sides. 1st antennal segment shorter than 3rd. 3rd elytral interval with 3 or 4 deep punctures. Tibiae and tarsi black or dark blackish-brown.** Upperparts black, sometimes with a faint bronze reflection. Hind-wings well-developed.



3rd elytral interval with 3 deep pits.

Base of pronotum angled at sides.

9.5 - 11.5 mm



1st antennal segment shorter than 3rd.

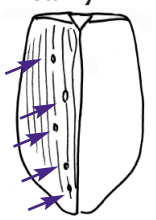
Preferring areas that have been recently burnt. Widespread but local on heathlands and in coniferous woodlands throughout Britain.

Pterostichus quadrifoveolatus **Phoenix Blackclock**

Pterostichus oblongopunctatus **Bronzed Blackclock**

Basal margin of pronotum weakly angled forwards at sides.

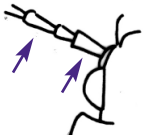
1st antennal segment about the same length as 3rd. 3rd elytral interval with (4 -) 5 - 6 (- 7) deep punctures. Tibiae and tarsi reddish, contrasting with black femora. Upperparts black with a **stronger bronze sheen than in *adstrictus***. Pronotum less transverse than in *adstrictus*, with more sinuate sides. Hind-wings well-developed.



Elytra with 4 - 7 deep pits.

Base of pronotum slightly angled at sides. Side margin sinuate before hind angles.

9.5 - 12.5 mm



1st antennal segment same length as 3rd.

A scarce woodland specialist, widespread but scattered throughout Britain.

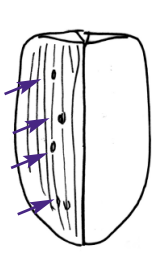
Pterostichus oblongopunctatus **Bronzed Blackclock**

Pterostichus adstrictus **Upland Blackclock**

Basal margin of pronotum weakly angled forwards at sides.

1st antennal segment about the same length as 3rd.

3rd elytral interval with 4 - 6 (- 8) deep punctures. Tibiae and tarsi black or dark blackish-brown. Upperparts black, often with a weak bronze sheen, weaker than in *oblongopunctatus*. Pronotum more transverse than in *oblongopunctatus*, with straighter sides. Hind-wings well-developed.



Elytra with 4 - 6 deep pits and base of pronotum weakly angled at sides.

10 - 13 mm

Common on upland heathland and moorland in northern England, Wales and Scotland. Occasionally found in lowland areas.

Pterostichus adstrictus **Upland Blackclock** male

Five **medium to small** species **6.8 - 13 mm** long. With **two basal foveae on each side of pronotum.**

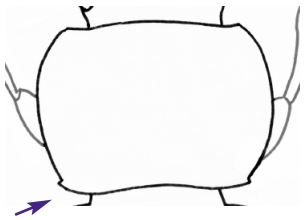
Pterostichus nigrita **Mitten Blackclock**

9 - 12 mm

This and the next species are separated from other similar-sized *Pterostichus* by the **shape of the pronotum** which has **rounded sides with a protruding tooth at the hind-angles** (*melanarius* has a pronotum shaped like this but is much larger). The **foveae of the pronotum are deep and punctured**. Usually all black but the variety *rufifemoratus* has yellow-brown femora (found only in Ireland).
Best separated from *rhaeticus* on the more **mitten-shaped 8th sternite of the female**. Males are more difficult to identify, requiring examination of the inflated endophallus of the aedeagus (not illustrated). Hind-wings well-developed.

Widespread and common in a wide range of wetland habitats throughout Britain.

Pterostichus nigrita **Mitten Blackclock**



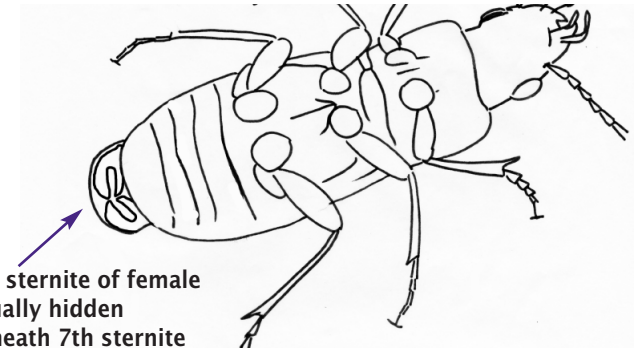
Pronotum has rounded sides with small protruding tooth at hind-angle

8th sternite of female

nigrita

8th sternite of female

rhaeticus



8th sternite of female usually hidden beneath 7th sternite

Pterostichus rhaeticus **Pincer Blackclock**

9 - 11.5 mm

Very similar to *nigrita* though usually slightly smaller. Best separated from *nigrita* on the more **pincer-shaped 8th sternite of the female**. Males are more difficult to identify, requiring examination of the inflated endophallus of the aedeagus (not illustrated).

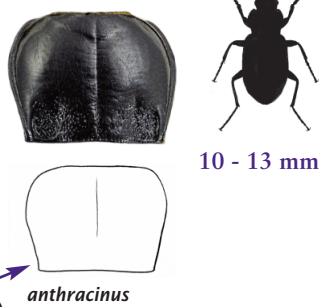
Widespread and common in damp habitats throughout Britain but with a more northern, western and upland distribution than *nigrita*. The two species can be found together.

Pterostichus rhaeticus **Pincer Blackclock**

Pterostichus anthracinus Parent Blackclock

Similar to *nigrita* and *rhaeticus* but separated by the **shape of the sides of the pronotum** which are **sinuate in front of the hind-angles**. Similar pronotum shape to *gracilis* but separated by **larger size** and other features (see *gracilis*). **Abdominal segments on underside distinctly punctured on outer parts. Male** has a **large dimple in the middle of the last segment of the abdomen** (underneath) and **female** has a **small sutural tooth at the apex of the elytra.** Hind-wings rudimentary or well-developed.

A local species found in well-vegetated wetland habitats mainly in England and south Wales. Female guards eggs and newly emerged larvae though this behaviour is very rarely observed.



Pterostichus anthracinus
Parent Blackclock

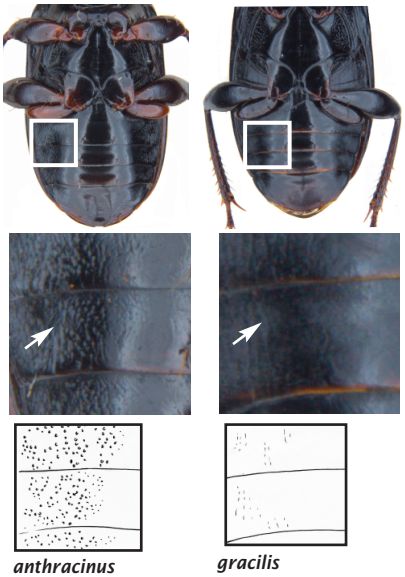
Sutural tooth at apex of elytra on female.

Dimple on last segment of male abdomen underneath.

Pterostichus gracilis Iridescent Blackclock

Similar to *anthracinus* but **smaller**. **Male** has a **barely perceptible longitudinal keel in the middle of the last abdominal segment** (with no large dimple), and **female** has **unmodified elytral apex** with no tooth. **Abdominal segments on underside with faint wrinkles and punctures on outer parts.** Elytra weakly iridescent in sunshine but often not apparent under artificial light (both *anthracinus* and *minor* can show very weakly iridescent elytra). Hind-wings well-developed.

A scarce species found in well-vegetated wetland habitats in England and Wales.



The sternites on the underside (arrowed) are slightly wrinkled in *gracilis* and are clearly punctured in *anthracinus*.

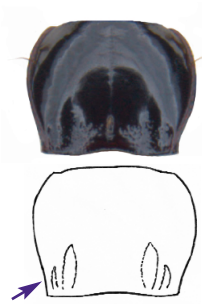
Smooth last segment of male abdomen underneath.

Pterostichus gracilis **Iridescent Blackclock**

Pterostichus minor Lesser Blackclock

Very similar to *gracilis* but **smaller**: 6.8 - 7.9 mm. Reportedly occurring at up to 8.7 mm so overlapping with *gracilis*, though we have not seen such large specimens. **Male** has a distinct **small keel on last abdominal segment** (underneath), and **female** has **unmodified elytral apex with no tooth**. **Reddish-brown tarsi and 1st antennal segment** (partly or wholly black in *gracilis*). Two basal foveae on each side of pronotum, the **inner fovea extending further forwards** than in *gracilis*, relative to the outer fovea. Hind-wings rudimentary or well-developed.

Common in well-vegetated damp habitats near water throughout Britain - except northern Scotland.



Two fovea on each side of pronotum. Outer fovea obviously shorter than inner fovea

Male has a fine keel on last abdominal segment.

Pterostichus minor **Lesser Blackclock**

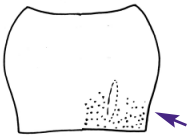
Four **small** species **5 - 7.5 mm** long. With **one basal fovea** on each side of pronotum.

Pterostichus longicollis Clay Blackclock

This and the much commoner *vernalis* are the only two *Pterostichus* that **lack a scutellar stria**. Easily told from *vernalis* by the **sinuate sides to the pronotum**, and the **single puncture on 3rd elytral interval near apex**. The rather **flattened body** is often **reddish-brown** even in mature individuals, a colour variation shared with *macer* (an even flatter species). **Legs and antennae reddish-brown**. **Antennae very long in proportion to body**. **Base of pronotum punctured**. **Elytral striae distinctly punctured**. Hind-wings rudimentary.

Widely distributed but scarce in wooded and open habitats throughout Britain, usually on clay soils. Probably lives in cracks in the soil to some extent.

5 - 6 mm



Scutellar stria absent

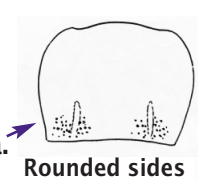
Sinuate sides to pronotum which is pitted across entire base.

Pterostichus longicollis **Clay Blackclock**

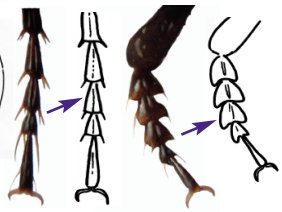
Pterostichus vernalis Spring Blackclock

Similar to the much rarer *longicollis*, the only other *Pterostichus* which **lacks a scutellar stria**. Easily told from *longicollis* by the **sides of the pronotum** which are **evenly rounded** to a denticulate hind-angle. **Three punctures on 3rd elytral interval**. Body black except in teneral individuals. **Tarsi furrowed along the midline above** (this is easiest to see on expanded front tarsi of male). Legs and antennae black or dark brown. **Base of pronotum pitted around fovea. Elytral striae shallowly punctured**. Hind-wings rudimentary or well-developed. The large, broad pronotum with evenly rounded sides is reminiscent of a *Harpalus* and this species is often found in drier habitats with *Harpalus*.

6 - 7.5 mm



Rounded sides to pronotum which is pitted around fovea.



All tarsal segments with furrow on upper surface.

Pterostichus vernalis
Spring Blackclock

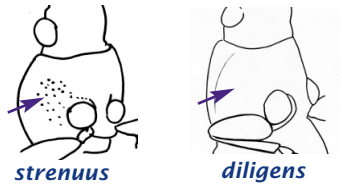
Widely distributed and common in damp grasslands throughout Britain except northern Scotland. Most frequent in spring, as the name *vernalis* implies, but may be found year-round.

Pterostichus strenuus Rough-chested Blackclock

Very similar to *diligens*. **Legs and base of antennae reddish-brown**. **Prosternum with punctures**. **Sides of pronotum with a longer sinuation** in front of hind-angles. Averages **larger** than *diligens*. Three small punctures on 3rd elytral interval. Inner elytral striae punctate. Hind-wings rudimentary or well-developed. Often plays dead when caught.

Widely distributed and common in dry habitats such as arable farmland, grasslands and woodlands as well as wetlands throughout Britain, except northern Scotland.

6 - 7 mm



strenuus *diligens*

Prosternum- showing distinct puntures in *strenuus*.

Pterostichus strenuus **Rough-chested Blackclock**

Pterostichus diligens Smooth-chested Blackclock

Very similar to *strenuus*. **Legs and base of antennae black or dark brown. Prosternum smooth, without punctures**. **Sides of pronotum with a short sinuation** in front of hind-angles. Averages **smaller** than *strenuus*. Three small punctures on 3rd elytral interval. Inner elytral striae hardly punctate. Hind-wings usually rudimentary.

Widely distributed and common in wetlands, damp grasslands, moorlands and marshes throughout Britain.

5 - 7 mm

diligens *strenuus*

Pronotum showing sinuous sides in *strenuus*.

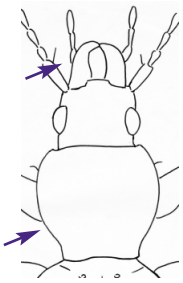
Pterostichus diligens **Smooth-chested Blackclock**

Stomis

Stomis pumicatus Longjaw Ground-beetle

Similar to small *Pterostichus* such as *minor* and *strenuus*. The **jaws are long, protruding with straight sides**. The **first segment of the antennae** is much **longer than other segments**. Reddish-black upperparts with **reddish legs and antennae**. **Single basal fovea on each side of pronotum**. Heart-shaped pronotum. Striae pitted. Scutellar stria absent. No punctures on 3rd elytral interval. Hind-wings rudimentary.

Locally common in damp habitats such as woodlands, grasslands and in vegetated banks of ponds and rivers throughout Britain, commonest in south-east England.



Stomis - showing long jaws and heart-shaped pronotum.

6.5 - 8.5 mm

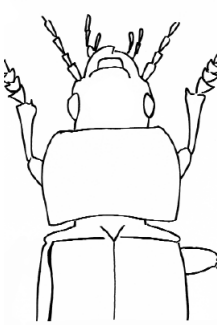
Stomis pumicatus
Longjaw Ground-beetle

Abax

Abax parallelepipedus Common Shoulderblade

Similar to large *Pterostichus* such as *niger* and *cristatus*. The **pronotum is almost as broad as elytra**. The **7th elytral interval is raised in a keel at the shoulder**. **Deep foveae** on pronotum. All black upperparts. No dorsal punctures on 3rd elytral interval. Female has duller upperparts than male. Hind-wings rudimentary.

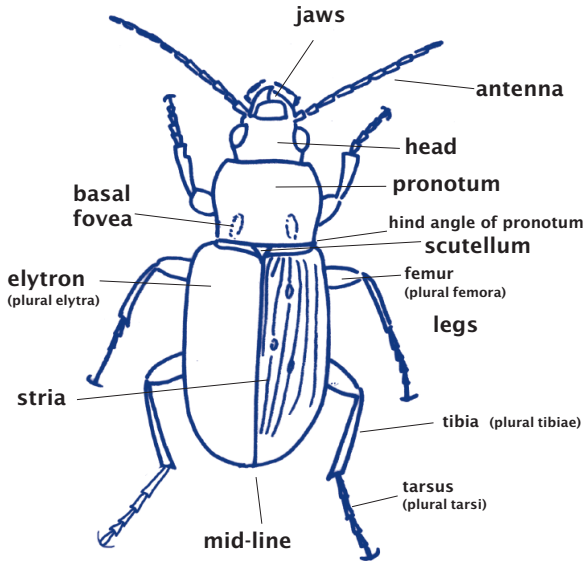
Common in woodlands and moorlands throughout Britain, except the extreme north of Scotland.

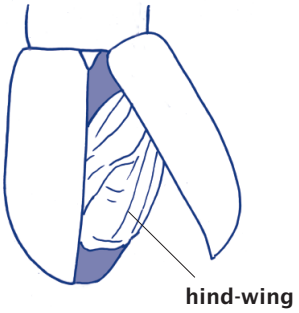


Abax - broad pronotum and ridge at shoulder of elytra.

17 - 22 mm

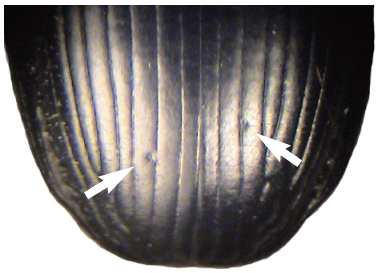
Abax parallelepipedus
Common Shoulderblade





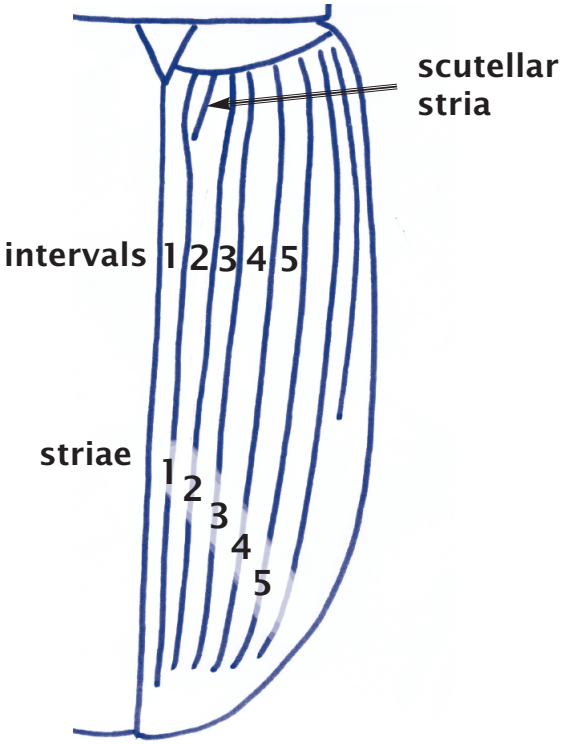
Elytron lifted to reveal folded hind-wing.

Tarsal segments are counted from base. All carabids have 5 tarsal segments on each leg.

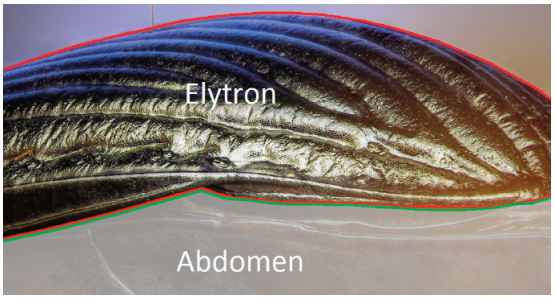


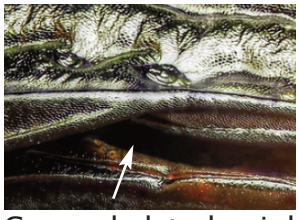
This shows the single dorsal puncture in *Pterostichus madidus*.

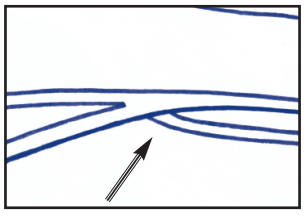
All *Pterostichus* have at least one dorsal puncture on 3rd interval of the elytra. These can be small dimples as above (*aethiops*) or deeper more prominent depressions. They are sometimes joined to the striae.



The striae and intervals are counted from the mid-line out. The scutellar stria lies at the base of the elytra in interval 2.



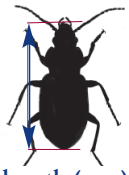




Crossed elytral epipleura

female
all tarsal segments the same width

male
first 3 segments of tarsi wider than 4th and 5th



Photos by Jerry Lee, Iain Lawrie, John Walters and Mark G. Telfer. With thanks to the Hope Entomological Collections, Oxford University Museum of Natural History for use of their digital montage equipment.