

# Ground Beetles



John Walters



Buckfastleigh, TQ11, UK



Wool Carder Bees  
*Anthidium manicatum*  
mainly cloudy but  
warm pm  
garden 47  
Oaklands Park  
Buckfastleigh  
6 August 2016



♂ hovers then  
lands on ♀ mating  
lasts 20-30 seconds  
♀ often with tongue still extended and wings crumpled

♂ chases off  
any other insects  
that come to  
the purple  
toadflax patch  
including variable  
bee  
and even this  
tiny *Lasius*  
bee



Field Sparrows for the first time!  
 singing in chorus of 200  
 thrush, blue and chaffinch  
 singing in woods 3 Red Deer in meadow  
 Hill Country 4 and 200 gully wood



the first  
 in meadow  
 & egg laying  
 April 2014  
 first wood  
 first flight



Rufous Grasshopper  
 Gomphocerus sibiricus  
 2 common purple variety of 4  
 Branscombe  
 2 October 2015  
 sunny warm calm  
 PM



the first  
 Branscombe  
 22 October 2014  
 sunny warm calm  
 PM

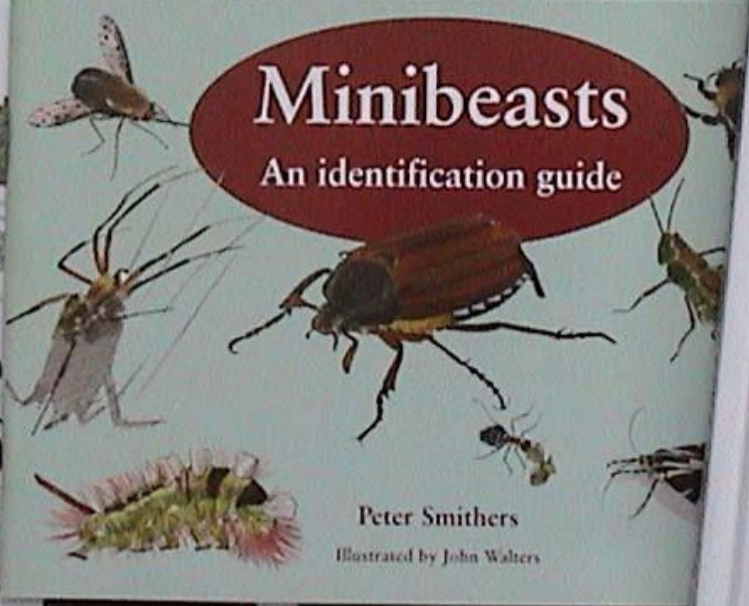
# The Rockpool Guide

A guide to some of the plants and animals to be found on the seashores of Britain.



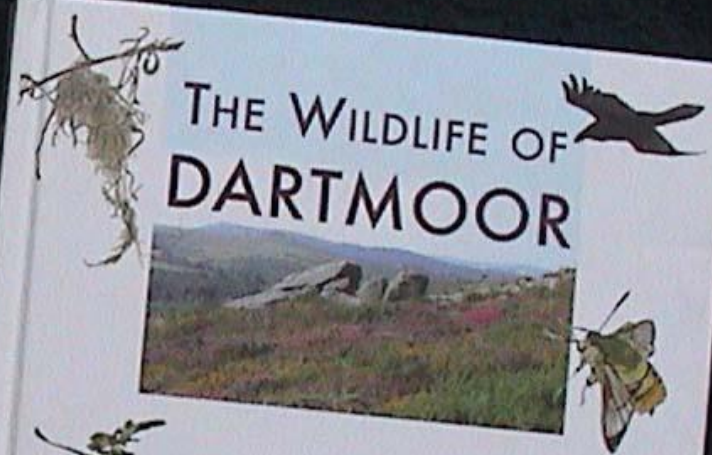
# Minibeasts

An identification guide



Peter Smithers  
Illustrated by John Walters

# THE WILDLIFE OF DARTMOOR



Norman Baldock  
John Walters







the  
**one**  
show

**Dancing Grasshoppers**  
Wednesday 4th November, BBC One, 7pm  
The One Show

**BBC**  
**one**

Naturalist John Walters takes Mike Dilger deep into the Devon countryside to show him the exotic mating dance of the rufous grasshopper.



**Director:** Jo Avery  
**Executive Producer:** Julian Hector  
**Series Producer:** Dan Rees  
**Researcher:** Sophia Luzac

**Camera Operator:** Ralph Bower  
**Macro Camera Operator:** Rod Clarke  
**Sound Recordist:** Andrew Hawley

**Production Manager:** Janelle Backes  
**Production Coordinator:** Zoë Beresford  
**Post Production:** Big Bang  
**Editor:** Tom Wright





The doe Roe Deer of this pair is much shyer than the buck - both

Hembury Woods  
28 February 2011  
moved off out of sight  
into woodland 4pm















actual size



Scarlet  
caterpillar' fungus  
*Cordyceps militaris*  
emerged from the body of a  
full grown noctuid moth larva  
just below soil amongst moss in  
middle of steep north-facing field  
Deerpark Farm, Trusham 25 November 2015



♂ has been out  
a while - body  
expanded



newly emerged  
♀ abdomen  
shorter than  
elytra



Bolberry Down  
13 April 2016  
hazy sun warm  
at times

Short-necked Oil Beetles  
*Meloe brevicollis*  
2 in grass tussocks at base of  
low gorse.

*Osmia bicolor* ♀

about 2pm  
after hatching  
feeding grass  
in base of  
ceposts about 8 metres  
away 4 or 5 other  
around - one seen  
snail shell  
other up slope  
in cloud at first  
in warm sunny  
near Abbots  
Giant  
May 2015

lots of  
sioglossum  
returning to  
sites  
amblypus  
discolor 1

finished  
5.45pm



hovering flight over nest



# Beetles Coleoptera

- 4000 species in UK
- 1000 Rove Beetles
- 43 Ladybirds
- 69 Click Beetles
- 200 Water Beetles
  
- About 370 Ground Beetles
- About half of these are widespread and common



























Handbooks for the Identification of British Insects  
Vol. 4 Part 2 (2nd Ed.)



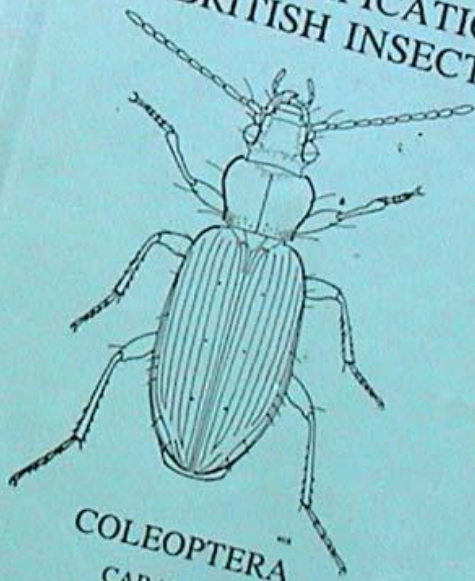
# The Carabidae (ground beetles) of Britain and Ireland

Martin L. Luff

ROYAL ENTOMOLOGICAL  
SOCIETY OF LONDON

Vol. IV. Part 2

# HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS



COLEOPTERA  
AND  
CARABIDAE

by  
CARL H. LINDROTH

LONDON  
Published by the Society  
and Sold at its Rooms  
41, Queen's Gate, S.W.7

August 1974

rather long but with heavy tibiae (notably the anterior pair); claws simple. Mandibles long and sharp (fig. 62a). Pronotum with a single or double latero-basal fovea. Elytral epipleura "crossed" (as in fig. 61a), except in *crispatus*; third interval with at least one dorsal puncture. The status of the hind wings is very variable in this genus. Male with 3 segments of pro-tarsi strongly dilated and sometimes with other characters.

Most species occur in open, not too dry country. Those with metallic coloration are diurnal.

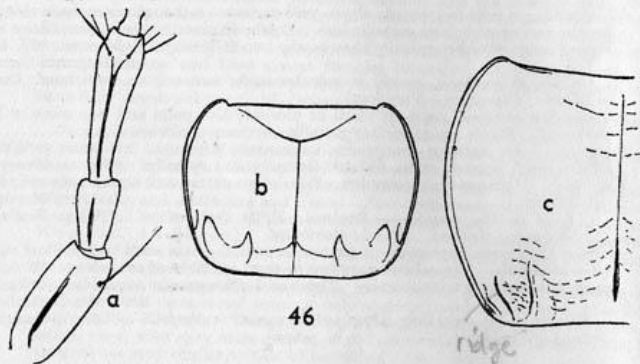


FIG. 46.—*Pterostichus*. (a) Antennal base in subgen. *Poecilus*. Pronotum of (b) *aterrimus*; (c) *madidus*.

#### KEY TO SPECIES

- 1 The 3 basal segments of antennae with longitudinal keel above (fig. 46a). Entire body almost constantly with brilliant metallic reflection (Subg. *Poecilus* Bonelli) 2
- Basal antennal segments not keeled. Body black to piceous, sometimes with faint metallic hue ..... 5
- 2 Antennae entirely black. (Upper surface unicolorous but extremely variable: from coppery, green or bluish to virtually black; elytra of female dull. Pronotum (fig. 47a) not depressed at hind-angles, basal foveae parallel, narrow and very deep, the outer delimited externally by a strong convexity. Elytral striae almost impunctate. Wings usually quite reduced. 11-15 mm.)

*Poecilus lepidus* Leske  
On open, dry, usually sandy soil, e.g. on moraine or in sandy heath.—England, N. to Cumberland. S. Wales. Scotland. Ireland. Local.

- Antennae with the two basal segments brown or rufous, at least underneath ..... 3
- 3 Pronotum with sides not explanate behind. The two basal antennal segments brown, usually darker above. (Similar to *lepidus* but usually bicoloured, with coppery forebody and green elytra, very rarely entirely black. Pronotum similar but with basal foveae shallower. Elytral striae evidently punctate, intervals flatter apically. Wings full. 12-14 mm.)

*Poecilus kugelanni* Panzer  
(*dimidiatus* Olivier nec Rossi)  
On sandy or gravelly heaths, also on the coast.—England: Devon to Norfolk. Wales: Glamorgan. Rare.

- Sides of pronotum broadly explanate behind middle (figs. 47b, c). Two basal segments of antennae brightly rufous ..... 4

- 4 Head evidently punctate. Deepest part of external pronotal fovea situated closer to side-margin than to inner fovea (fig. 47b). (Shorter than the two preceding, with broader elytra. Upper surface with somewhat dull metallic lustre, rarely black. Femora sometimes rufous ("*affinis* Sturm"). Pronotum not wider than elytra over shoulders. 11-13.4 mm.) ..... *Poecilus cupreus* Linnaeus  
In open, not too dry meadows and fields, sometimes near water.—England. Wales. Scotland. Ireland. Common, but local.
- Head almost impunctate. External pronotal fovea situated half-way between side-margin and inner fovea (fig. 47c). (Shorter than *cupreus*, with pronotum wider than elytra over shoulders. More shiny and more variable in metallic lustre, from bluish to golden, often mottled. Spines along inside of metathibiae stronger. 9-12.2 mm.) ..... (*coeruleus* auctt. nec Linnaeus) *versicolor* Sturm  
More xerophilous than *cupreus*, in all kinds of open fields.—England. Wales. Scotland. Ireland. Common but possibly becoming rarer.

*Poecilus*

*Poecilus*

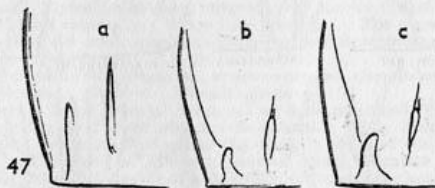


FIG. 47.—*Pterostichus*. Hind-angle of pronotum in (a) *lepidus*; (b) *cupreus*; (c) *versicolor*.

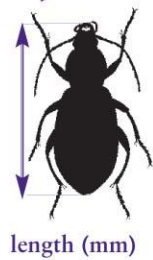
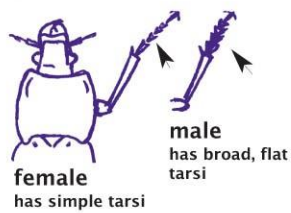
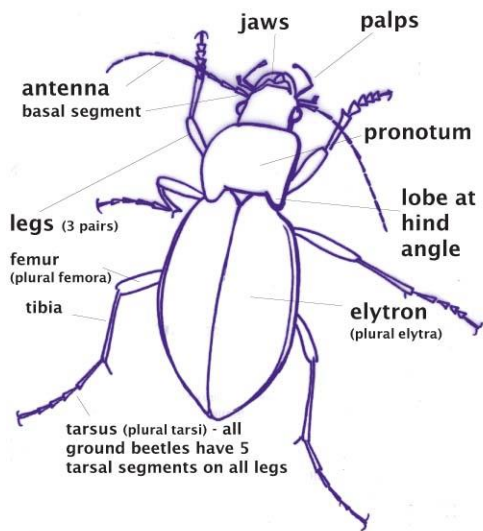
- 5 Hind-angles of pronotum completely rounded (figs. 46b, c) ..... 6
- Hind-angles of pronotum evident, at least represented by a small denticle (figs. 48, 49) ..... 8
- 6 Third elytral interval with 3 or 4 strongly foveate dorsal punctures. Outer striae obsolete anteriorly. (Subg. *Omaeus* Stephens) (Coal black, very shiny, appearing varnished. Anterior transverse impression of pronotum deep, basal fovea single, large (fig. 46b). Wings full. 13-15 mm.) ..... *aterrimus* Herbst  
Very hydrophilous. At the border of ponds and lakes, on soft muddy or peaty soil.—England: Hampshire, Huntingdon, Cambridge, Norfolk. Ireland. Very rare.
- Elytra with 1 to 3 fine, not foveate dorsal punctures. All striae well impressed. Wings strongly rudimentary. (Subg. *Steropus* Stephens) ..... 7
- 7 Third elytral interval with 3 dorsal punctures. Basal fovea of pronotum obscurely delimited externally. (Black, appendages piceous. Elytral intervals convex, striae impunctate. Basal segments of meta-tarsi with deep external furrow. Penultimate abdominal sternite of male with transverse carina. 12-14 mm.)

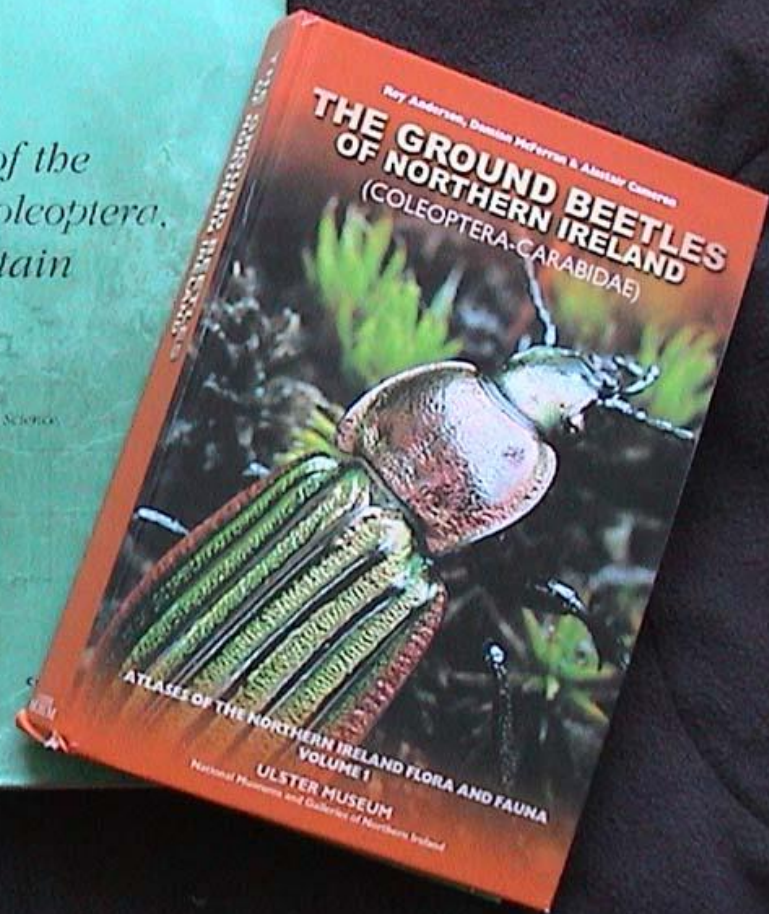
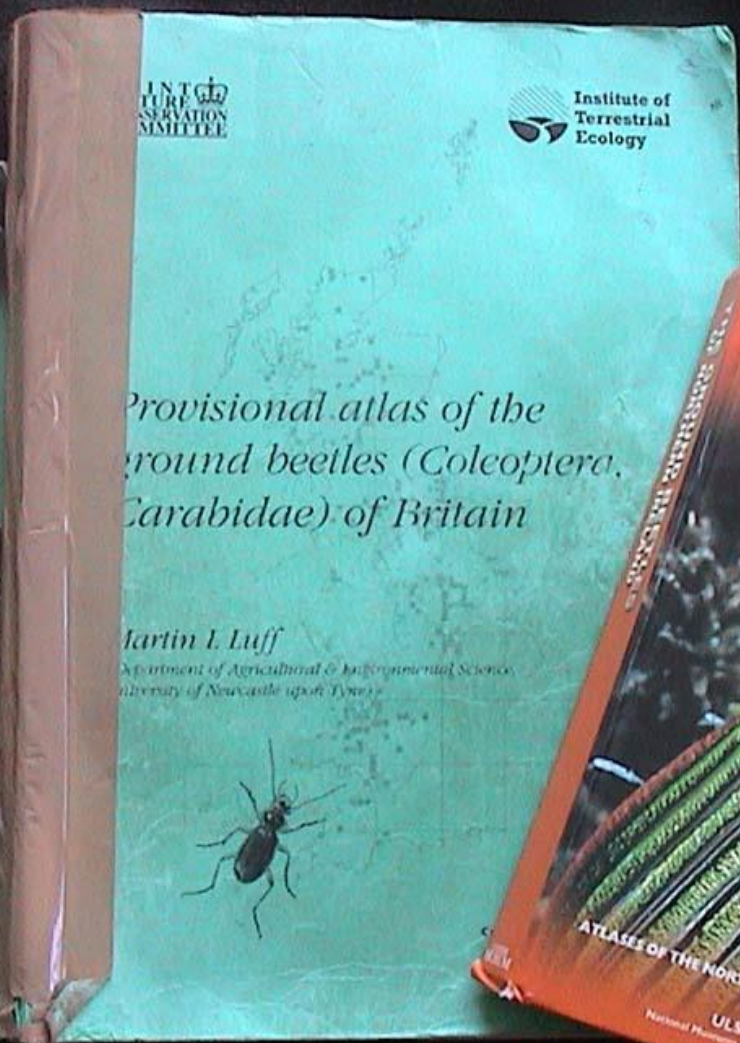
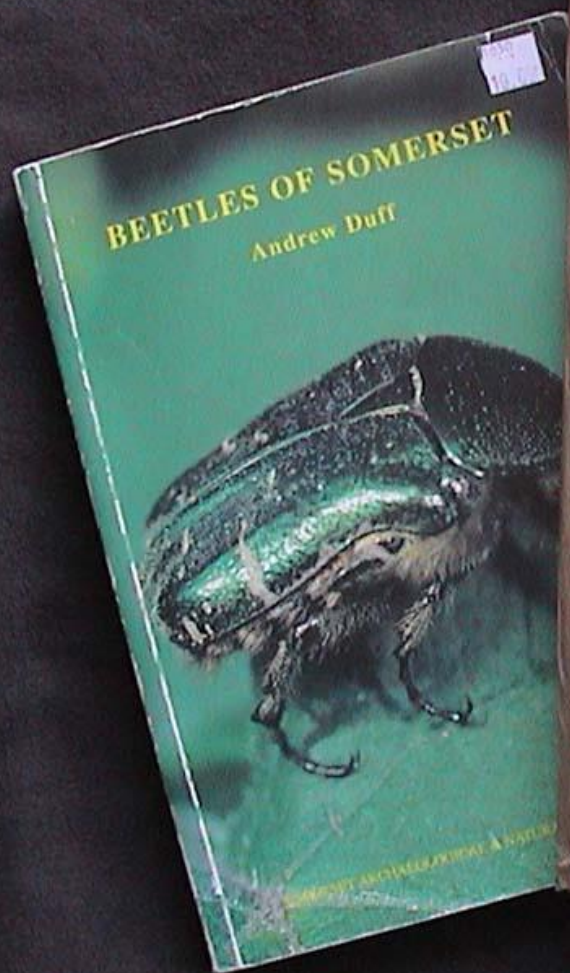
*aethiops* Panzer  
On hills and mountains under stones.—England: Cornwall to Somerset; Lancashire to Cumberland. Wales. Scotland.

- Third elytral interval normally with a single dorsal puncture (rarely 2, exceptionally 3). Basal fovea of pronotum delimited externally by a blunt carina (fig. 46c). (Black, legs either dark or, usually, with rufous femora ("*concinus* Sturm"). Elytral intervals almost flat, striae punctulate. Tarsal furrow obsolete. Last abdominal sternite of male with transverse carina. 13-17 mm.)

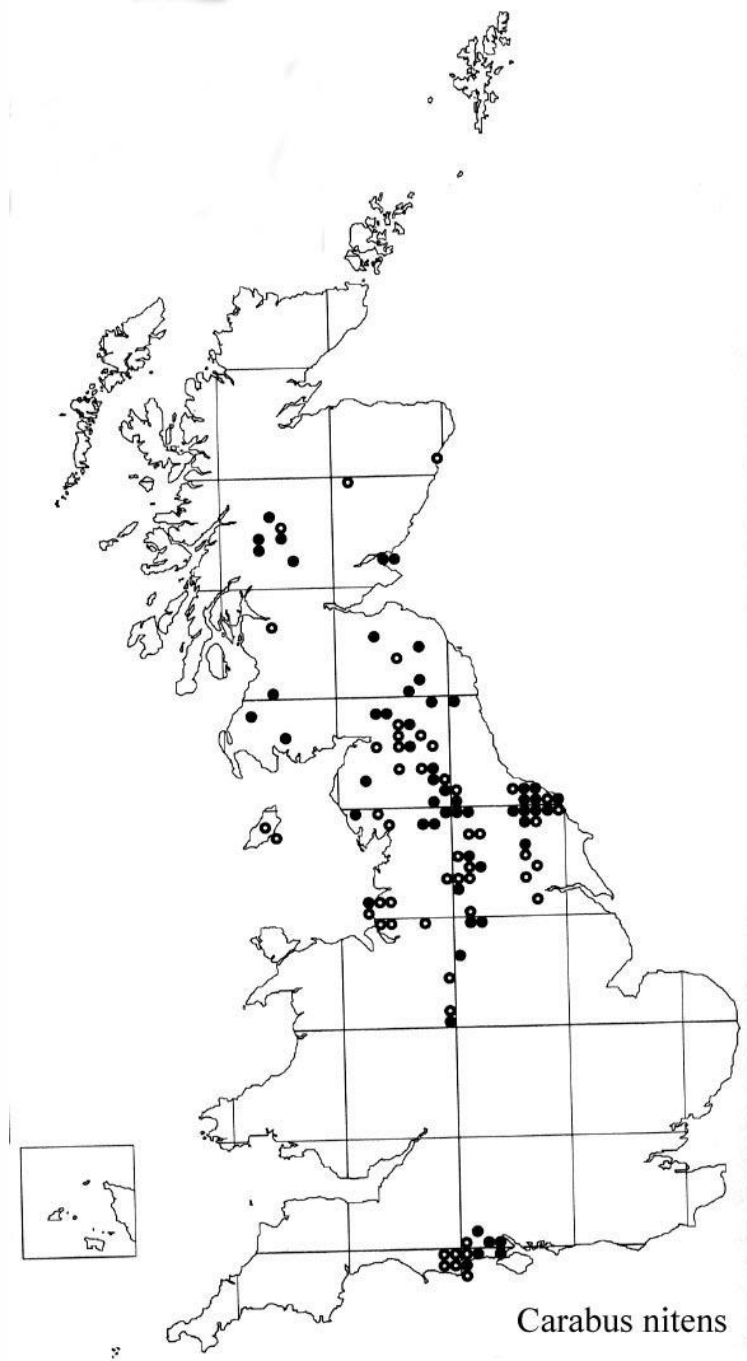
*madidus* Fabricius  
In open country, often on cultivated soil, in gardens, etc.—England. Wales. Scotland. Ireland. Very common.

rounded hind angles





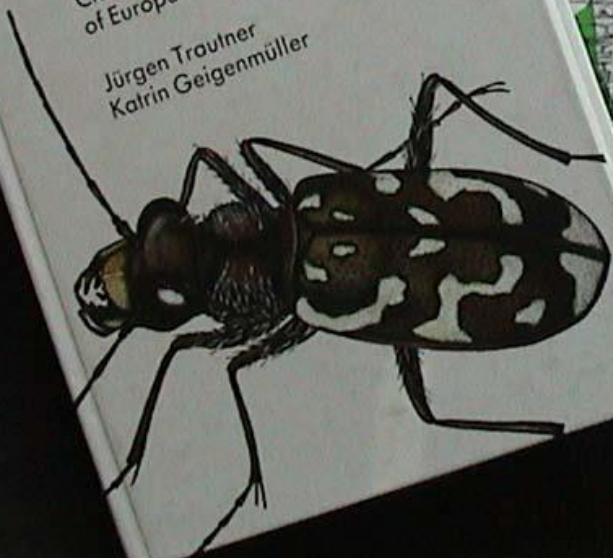




# TIGER BEETLES GROUND BEETLES

Illustrated Key to the  
Cicindelidae and Carabidae  
of Europe

Jürgen Trautner  
Katrin Geigenmüller



FAUNA ENTOMOLOGICA SCANDINAVICA

Volume 27

1993

## The Carabidae (Coleoptera) larvae of Fennoscandia and Denmark



by  
Martin L. Luff

E. J. Brill  
New York Koto

J. Forel / J. Leplat  
Faune des carabiques  
de France - I



Z. Kugyák  
1961

Magellanes

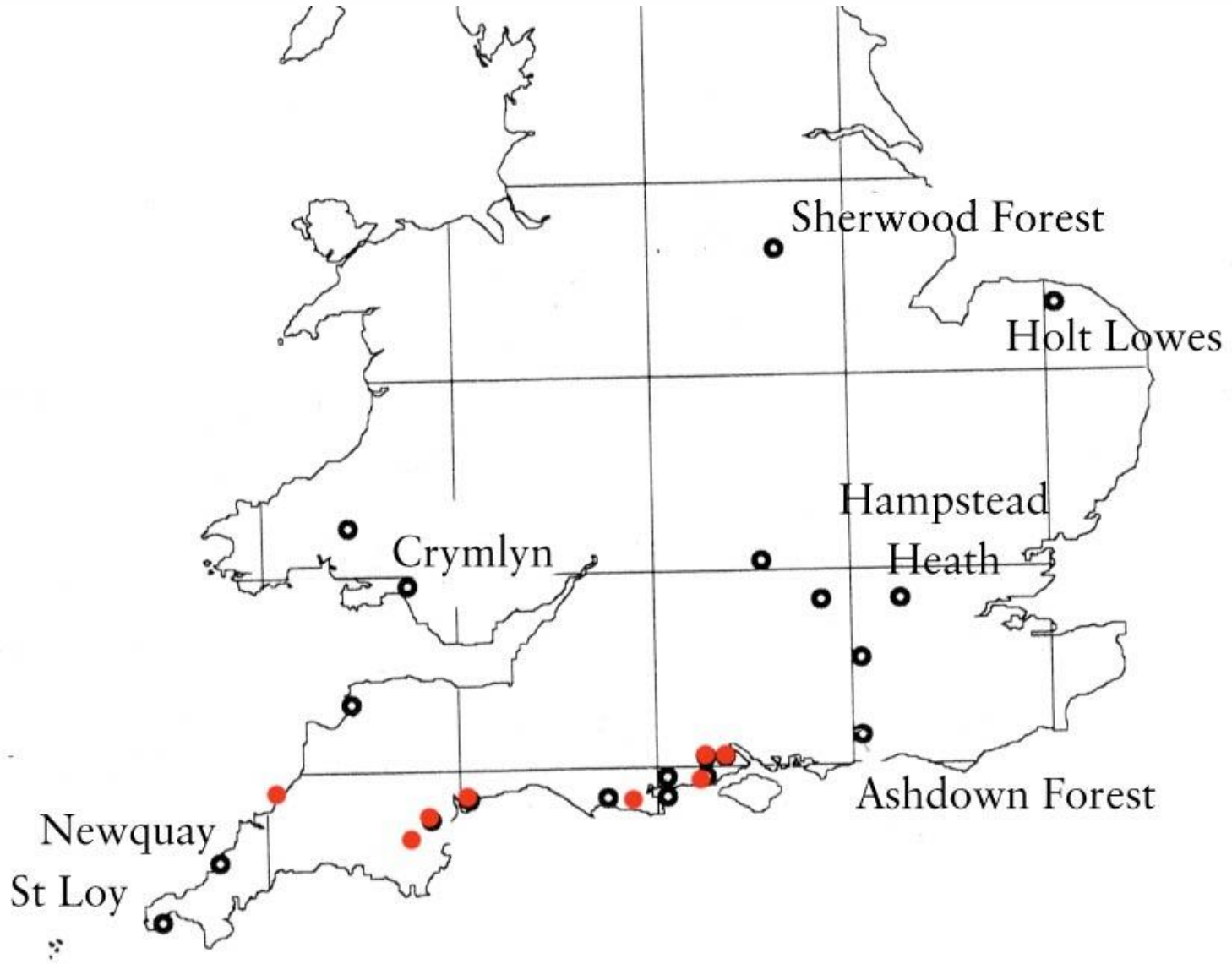






**Kugelanns Ground Beetle**

*Poecilus kugelanni*



















emerged 8am  
elytra still as  
buds on back



elytra expanded when  
not looked at



wriggling to  
free pupal skin



finally left  
pupa skin behind



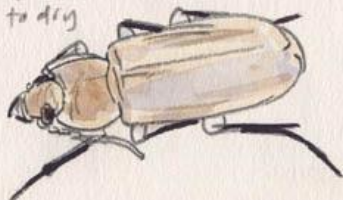
hind wings expanded -  
fully extended to dry



a dull version of adult  
by 1030pm



gradually 'coloured up'  
during the late afternoon



bright adult  
by following  
morning



Kugelann's Ground Beetle *Pterostichus Kugelanni*  
emerging from pupa 16 August 2000  
from larva found at Aish Ter, Newbridge, DARTMOR 17 July 2000







# Harpalus

calceatus - tarsi hairy above

affinis (aeneus) - outer intervals punctate/hairy

vernalis no dorsal puncture small

melancholicus short row punctures  
8<sup>th</sup> or 7<sup>th</sup> interval

dimidiatus

rubripes

honestus

rufitarsis

cupreus

smaragdinus

quadripunctatus = laevipes

latus

tenebrosus

attenuatus

froelichii

neglectus

tardus

servus

serripes

anxius



Scybalicus



11-13 mm

oblongiusculus

Harpalus tarsi hairy above

calceatus 10.5-14 mm

no dorsal puncture

reddishbrown-black

base pronotum extensive punctures

- dense pale hairs

affinis (aeneus) 8.5-12 mm

outer intervals hairy

outer intervals clearly punctate

deep apical in ♀

sinuata



vernalis 5-6 mm

no dorsal puncture

no dorsal puncture

short winged

hind angles rounded fovea

v. small

sand/gravel



Short row punctures 7 or 8<sup>th</sup> interval

melancholicus 10-11 mm

8<sup>th</sup> interval with apical punctures

black/reddish (dark) dunes

ant./tarsi dark rufous

ant-segs. 2-4 infuscated

narrower than tardus

base pronotum more punctate

dimidiatus 12-14 mm

4<sup>th</sup> & 5<sup>th</sup> abd. segs with several extra hair punctures



large - broad sides of pronotum

rounded hind angles rounded

5<sup>th</sup> elytral interval with punctures

4<sup>th</sup>/5<sup>th</sup> abd. sternite several hair punctures at sides

all base pronotum irregular confluent punctures

rubripes 8.5-12 mm

antennae all pale

legs pale

base pronotum densely punctate

♀ black dull

♂ metallic blue green

sides pronotum straight

hind angles about right

little rounded at tip



# Notiophilus

4

~~Notiophilus~~ First check width of 2nd elytral interval  
2 wider than 3+4+5 → A  
2 not wider than 3+4+5 → B

♂ 1st basal segment slightly expanded  
terminal joint of palpi slightly expanded

base antennae cell pale brown

1A rufipes curtis 5.5-6.5mm



ventral ends in leaf litter | 1 dorsal puncture asymmetrical  
wide 2nd interval, dark tip to elytra



legs red  
femora darkened slightly and apex of basal segment



2 broader than 3+4+5



outer intervals brilliant

substriatus Waterhouse 4.5-5.5mm



wide 2nd interval  
pale tip to elytra  
frosted outer intervals flat  
finer punctation compared with biguttatus



1 dorsal puncture  
frosted outer intervals  
Antic tip to elytra



3 3/4 wider than 5/6

open dry habitats

# Equadripunctatus Dejean

5-5.5mm

8

7-10 fine ridges



straight side to pronotum



2 deep dorsal punctures on each elytra

pale apex to elytra

wide 2nd interval  
- pale tip to elytra  
- 2 deep dorsal punctures on each elytra

3 or 1

sandy / open habitats



4th interval broader than adjacent

biguttatus Fabricius 5-6mm

4th interval not broader than adjacent



6 coarse ridges  
usually 1 dorsal puncture (occasionally 2 but only on one elytra)  
less foveate

pale apex



wide range of habitats - a common species found in leaf litter

irregularly punctate

open dry habitats







# Guides to British Beetles

## 10. *Poecilus* Greenclocks Ground Beetles (Coleoptera; Carabidae)



*Poecilus* is a genus of 4 medium-sized (9 - 15 mm) diurnal ground beetles with metallic upperparts. Until the 1990s, *Poecilus* was treated by British coleopterists as a subgenus of *Pterostichus* but has now been raised to generic rank.

They differ from *Pterostichus* by their metallic upperparts and by having keels on top of the three basal antennal segments. *Pterostichus* are never metallic (though a few species are iridescent) and don't have keels on their antennae. Colour is very variable in *Poecilus* and it is possible to find unmetallic individuals; the antennal keels help to separate these from *Pterostichus*. This guide will enable identification of the 4 *Poecilus* species found in Britain.



*Poecilus* - keel on three basal segments of antennae.

Quick guide to identification - check colour of antennae:

basal two segments of antennae clear red-brown = *cupreus* and *versicolor*

basal two segments of antennae dark brown above, clear red-brown below = *kugelanni*

all segments of antennae black = *lepidus*

### *Poecilus kugelanni* Kugelann's Greenclock

Similar to *cupreus* and *versicolor* but two basal segments of antennae dark-brown above and clear red-brown below. Variable in colour, typical individuals are bi-coloured with metallic green elytra and copper coloured pronotum. Uniform brown and black individuals occur. Larger than *cupreus* and *versicolor* with foveae on pronotum more deeply impressed. The elytral striae are finely but evidently punctate. Hind-wings fully developed.



12 - 14 mm



*Poecilus kugelanni* Kugelann's Greenclock

Rare, found on a few warm heathlands in Cornwall, Devon, Dorset, Hampshire and Norfolk. There are old records from Surrey, East Sussex, West Sussex, Middlesex and Nottinghamshire.



Basal segments of antennae are dark brown above and clear red-brown below.

### *Poecilus lepidus* Heath Greenclock

Separated from all other *Poecilus* by the completely black antennae. Variable in colour from metallic green to pink-brown. Black individuals occur. Larger than *cupreus* and *versicolor* with foveae on pronotum more deeply impressed. More elongate in appearance than *kugelanni*. The elytral striae impunctate or almost so. Hind-wings usually quite reduced.



11 - 15 mm



*Poecilus lepidus* Heath Greenclock

Scarce, occurs on heathlands and most frequently found on the heaths of Hampshire (The New Forest), Dorset and the North York Moors.



Basal segments of antennae are all black.

# Guides to British Beetles

## Ground Beetles (Coleoptera; Carabidae)

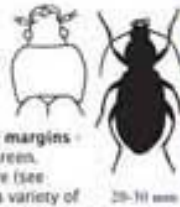
### 1. Carabus, Calosoma and Cychrus



These are medium to large ground beetles. They are large attractive insects often with metallic markings. This guide should enable identification of the 10 native (and 3 introduced) Carabus both Calosoma and the single Cychrus species which occur in Britain.

#### *Carabus violaceus* Violet Ground Beetle

Similar to *problematicus* but has dull almost smooth elytra with fine granules on the surface which form indistinct lines. Pronotum with violet colour along sides only. The flaps at the base of the pronotum are further apart than in *problematicus* (see diagram). The elytra have violet markings confined to the side margins - occasionally this colour can look blue or green. All black individuals can occur but are rare (see *Carabus glabratus*). Common, found in a variety of habitats including woodlands, grasslands and gardens.



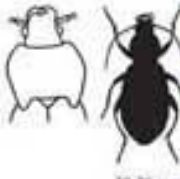
20-31 mm



*Carabus violaceus*: Violet Ground Beetle

#### *Carabus problematicus* Ridged Violet Ground Beetle

Has shiny elytra with distinct ridges. Pronotum with extensive violet areas. The pronotum is narrower at the base than in *violaceus* (see diagram). The elytra have violet markings which spread up from side margins. Common, found in a variety of habitats including woodlands, grasslands and heathland. Rarely found in gardens.



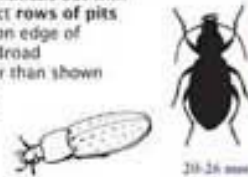
20-28 mm



*Carabus problematicus*

#### *Carabus nemoralis* Bronze Dimpled Ground Beetle

Similar to *violaceus* and *problematicus* but with bronze elytra with three distinct rows of pits on each side. Violet markings on edge of pronotum and sides of elytra. Broad pronotum. Colour can be duller than shown here but can still be identified by the pitted elytra. Common, found in a variety of habitats including woodlands, grasslands and gardens.



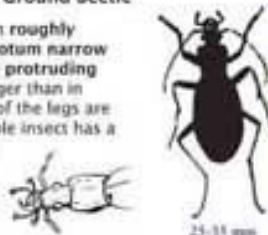
20-26 mm



*Carabus nemoralis*

#### *Carabus intricatus* Blue Ground Beetle

Distinct blue-violet colour on roughly sculptured upperside. Pronotum narrow and square. Head with large protruding jaws. Antennae and legs longer than in other *Carabus*. The femora of the legs are particularly long and the whole insect has a flattened appearance. Very rare and confined to a few ancient woodlands in Devon and Cornwall. Lives mainly on trees and hunts slugs.



25-31 mm



*Carabus intricatus*

# 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 ID 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 protruding jaws. Heart-shaped pronotum. Long 1st antennal segment. Single basal fovea on each side of pronotum.

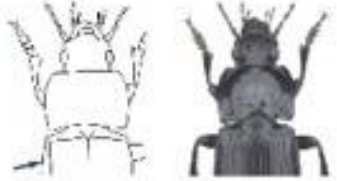
#### *Pterostichus*

Key features all black bodies with stout legs and antennae, heavy fore tibiae which are strongly widened apically, all with dorsal punctures, all but one with crossed epipleura.



#### *Abax*

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

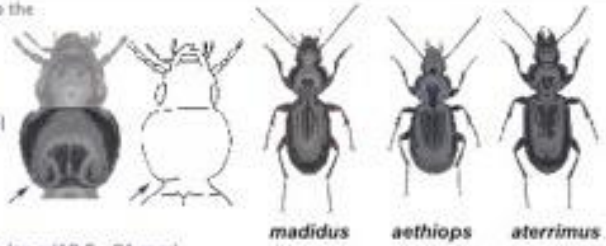


Broad pronotum and ridge at shoulder of elytra.

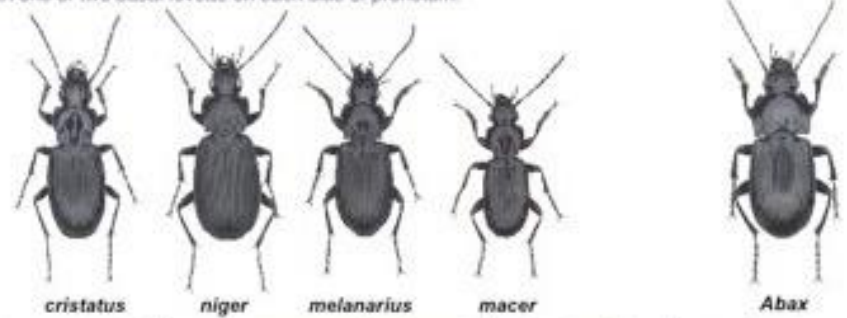


*Pterostichus* are split here into the following five groups.

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



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



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



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

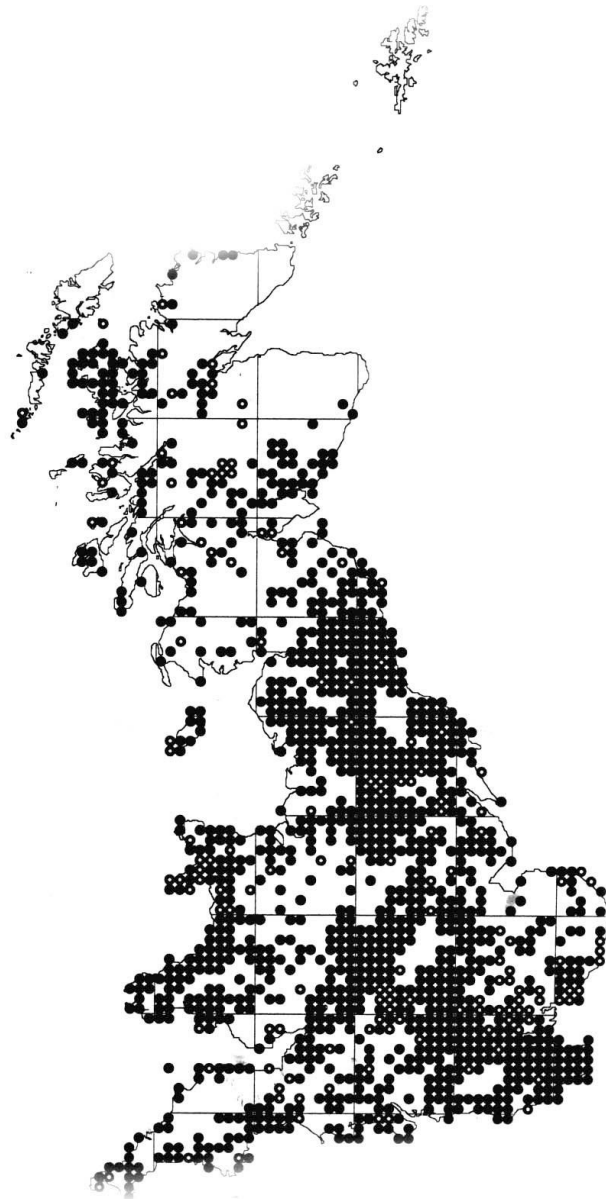


Four small species 5 - 7.5 mm long. With one basal fovea on each side of pronotum.



All about x 2 actual size





*Pterostichus madidus*







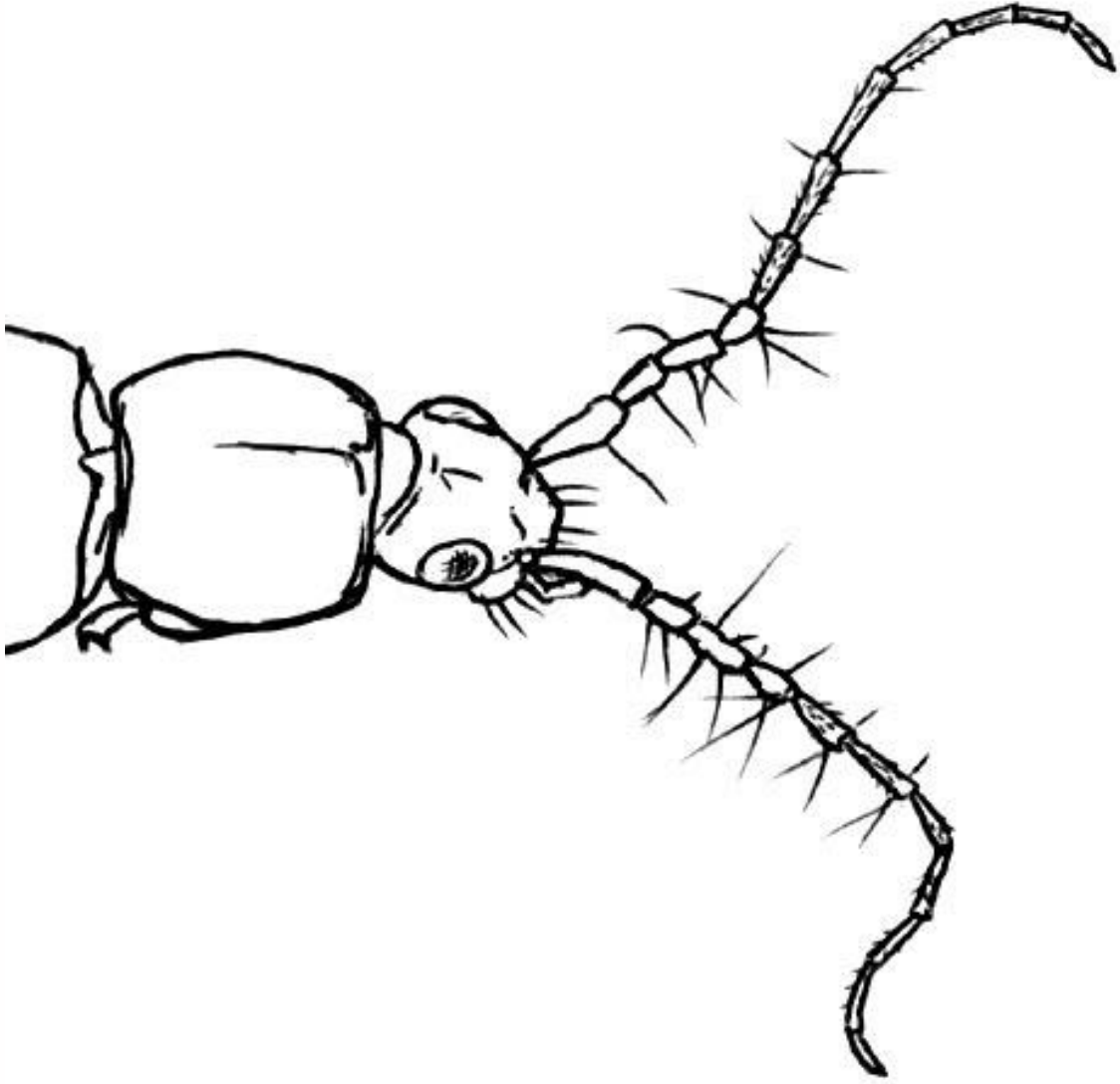






























































No Parking

Flood



































































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Beetles, birds, general natural history. Britain, Ireland and abroad.

  
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[Missing carabids: \*Agonum chalconotum\*](#)

[The 'immaculate' collection](#)

## Carabidae – ground beetles

The classic 'starter family' of beetles. They are a good group to begin with as they are a nice size (about 370 species) and occur in all terrestrial and freshwater habitats from the inter-tidal zone to the highest mountain tops. More or less wherever you look, there will always be a carabid to be found. They are mostly of a size that allows identification with a hand lens or a low-power microscope. They're not all easy though: the Carabidae includes some identification challenges to test any coleopterist!

### Identification

For identification of carabids you'll need a copy of [Martin Luff's \(2007\) RES Handbook](#). This is up-to-date and complete (excluding only 13 species which are occasional introductions, long extinct, or both). Amongst the improvements over the preceding RES Handbook (Lindroth, 1974) are all the line illustrations in the margins of the key, 'similar species' text highlighting diagnostic differences where appropriate, and 147 whole-beetle colour photographs at the back of the book.

However, if you are new to carabids, or perhaps working on carabids without access to a [reference collection](#), you may not always find that Luff's keys get you swiftly and easily to an identification that you can be confident of. So this page aims to help.

### 1. The field guide approach

Keys such as those in the RES Handbooks series are



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## Wildlife Research

I have conducted ecological research into several rare ground beetle species, including the Kugelann's Ground Beetle and the Blue Ground Beetle.

Recent publications include identification guides to British Beetles including Carabus and Tiger-beetles – see [Publications](#) for more information.

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### Blue Ground Beetle

I have studied the ecology of the Blue Ground Beetle *Carabus intricatus*. A rare Red Data Book species confined to a few sites around Dartmoor and Bodmin Moor in the UK.

More information at the [Blue Ground Beetle](#) page.



### Kugelann's Ground Beetle

A rare Red Data Book ground beetle found on heathlands in southern England.

For information visit the [Kugelann's Ground Beetle](#) page

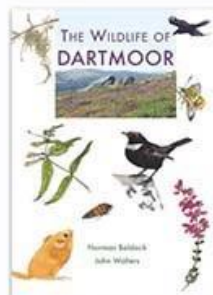


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## Publications

The following books and guides are available.



## Guides to British Beetles

These guides, produced with Mark Telfer, are aimed at field naturalists who would like to learn more about identifying British beetles. We are currently working on guides to all the ground beetles. They are available to download for free as PDFs.