21 SEP 2024

Diving into Diversity

Water Beetles

Presented by:
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www.riverwoodecology.co.uk

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Why?

Why care about water beetles?

13,000*	344*	14*
globally	in the UK	Families + 19 species in dung

“First to arrive, last to leave”

Why?


Wetlands
Subterranean
Unvegetated
Saltwater
Running Water

Why?


Subterranean
Wetlands
Unvegetated
Running Water
Saltwater

Why?


Wetlands
Unvegetated
Running Water
Saltwater
Subterranean

Why?

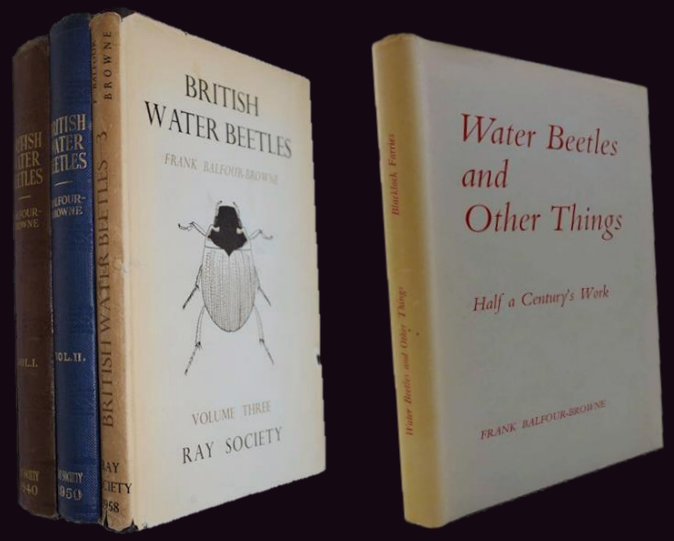

Unvegetated
Running Water
Saltwater
Subterranean
Wetlands

Why?


Subterranean
Saltwater
Wetlands
Running Water
Unvegetated

History

The Father of Aquatic Coleoptera Recording



Frank Balfour-Browne (1874 – 1967)

Born in London, raised in Dumfries, died in Edinburgh.

First invertebrate recording scheme in the UK

Started with Odonata.

Balfour-Browne Collection

Available to view at The National Museums Collection Centre, Granton, Edinburgh.

Collection

Netting

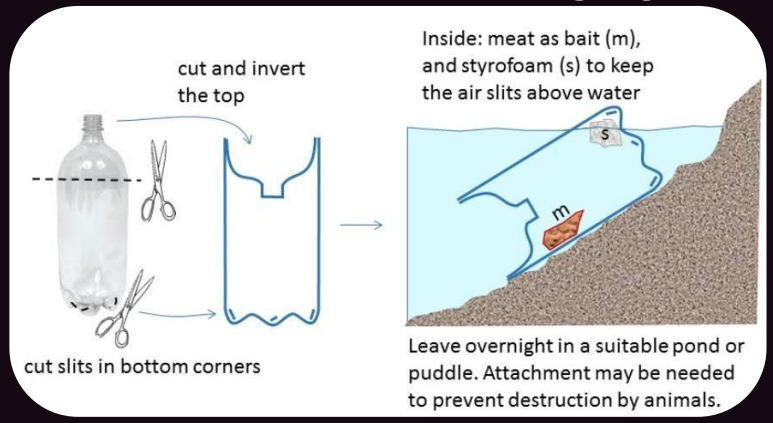
D-frame dip net.

1 mm mesh.

Large white tray.

Tea strainers and sieves are great too!

Bottle Trapping



Cut the top and invert.

Attach with staples.

Use string to prevent loss.

Bait with cat food, cheaper the better!

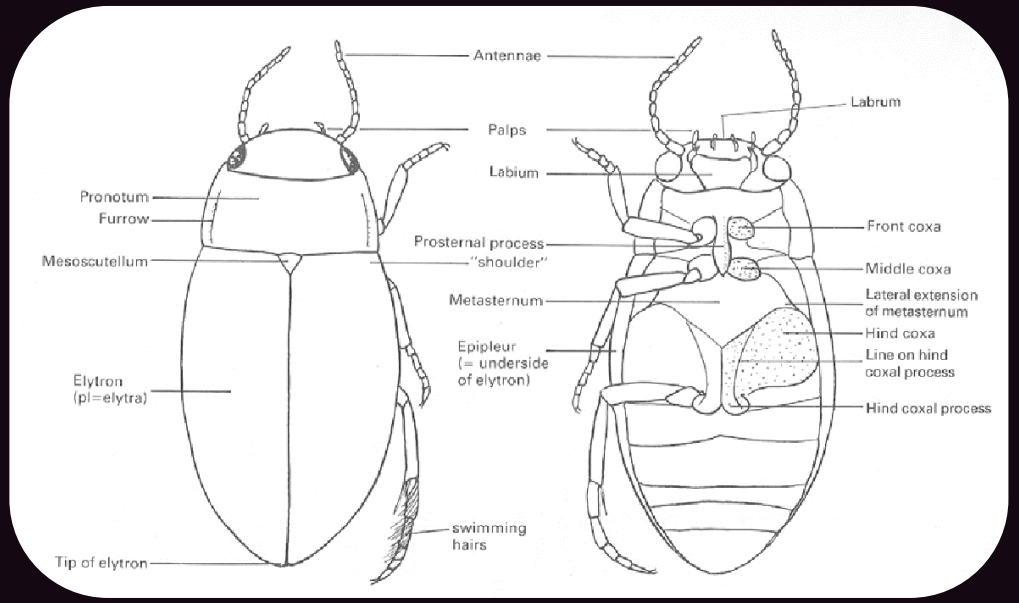
Must check every 24 hours.

Best for *Dytiscids*.

Identification Techniques

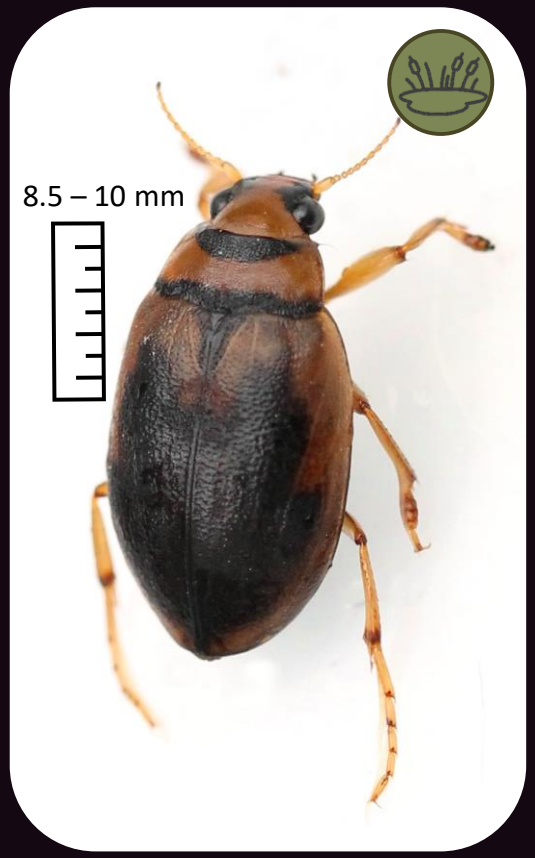
In the field

In the lab



Easy Wins

Easy Wins



Hygrobia hermanni
The Squeak Beetle

Colymbetes fuscus
The Large Grooved
Diving Beetle

Platambus maculatus
Spotted
Fast Swimmer

Ilybius fuliginosus
Sooty Mud Dweller

Digging Deeper

The Dytiscus

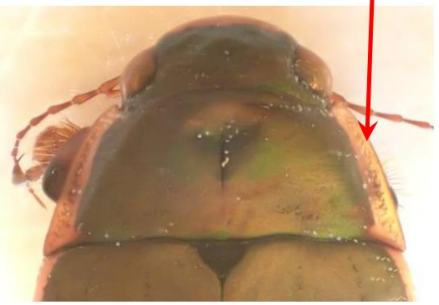
The Black-bellied Great Diving Beetle
Dytiscus semisulcatus

Small
22 to 30
mm long

Underside
black

Metacoxal
plates rounded

Broad yellow
sides to pronotum
No border front
or back



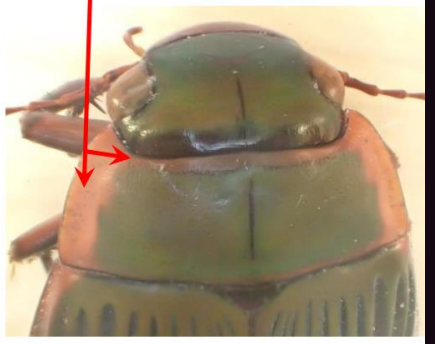
The largest Great Diving Beetle
Dytiscus dimidiatus

Large
32 to 38
mm long

Underside
red brown

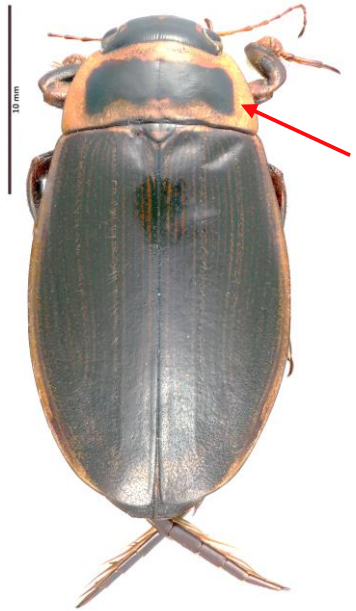
Metacoxal
plates rounded

Broad yellow sides
to pronotum
Front narrowly
yellow



Highland Great Diving Beetle
Dytiscus lapponicus

Wide yellow pronotal bands all the way round



Less than 30 mm long

The Great Diving Beetle
Dytiscus marginalis
Bluntly pointed metacoxae
26 to 32 mm

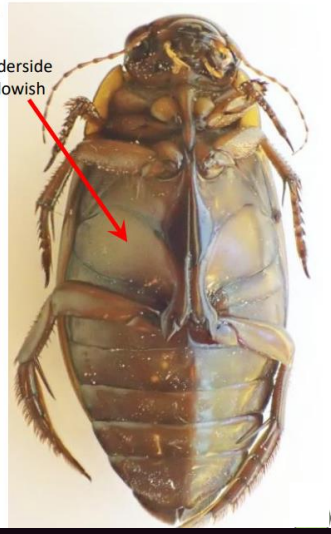
The Wasp Great Diving Beetle
Dytiscus circumflexus
Sharp pointed metacoxae
26 to 32 mm

A Great Diving Beetle
Dytiscus circumcinctus
Sharp pointed metacoxae
27 to 32 mm

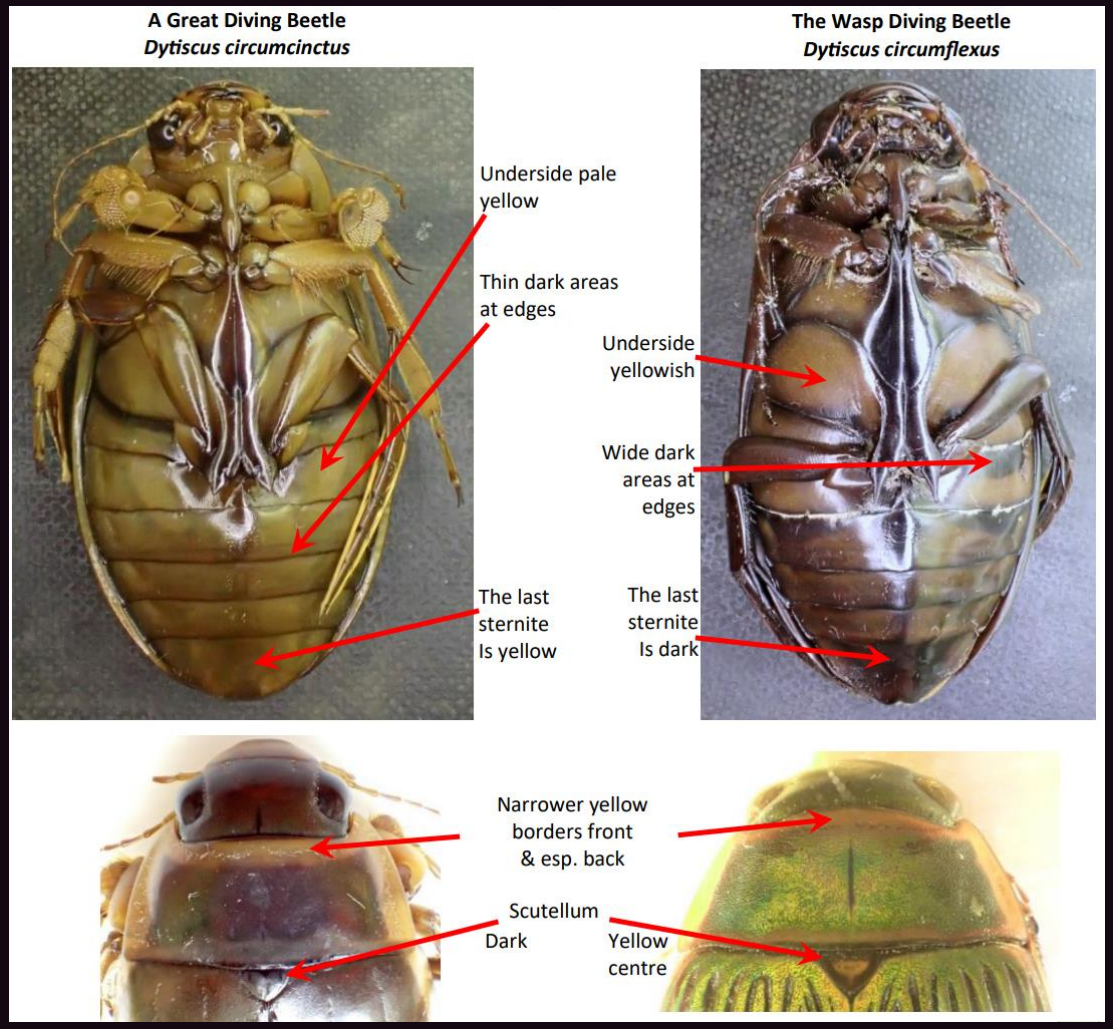
The Great Diving Beetle
Dytiscus marginalis

Pronotum with yellow bands all round with the front & especially the back border nearly as wide as the sides.

Underside
yellowish

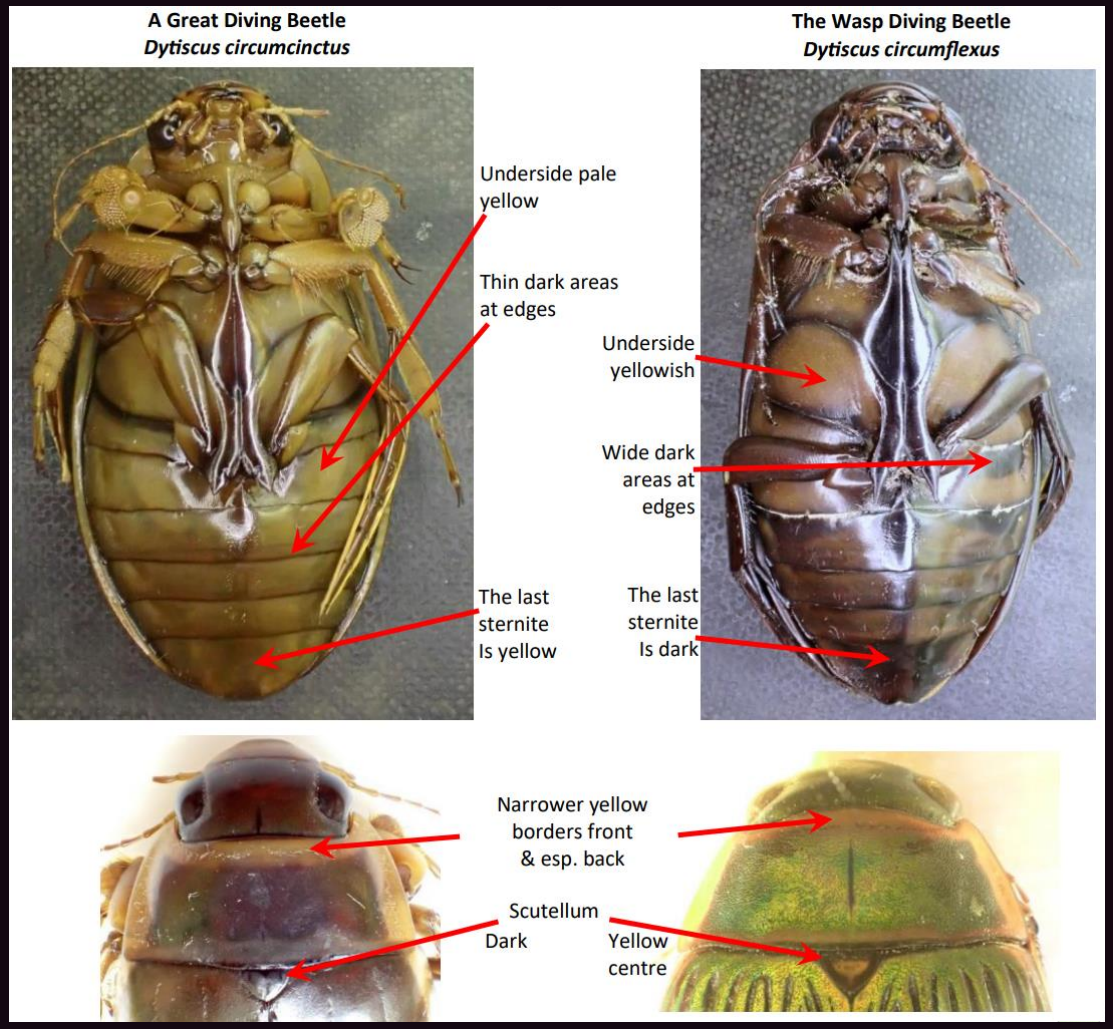


The Dytiscus



Male or Female?

The Dytiscus



Male or Female?

Male

Enlarged foreclaws & suckers.

Smooth elytra.

Female

Normal claws & no suckers.

Rigged elytra.

A

B

C

D

Angus & Tayside

Hydroporus scalesianus at Balgavies Loch

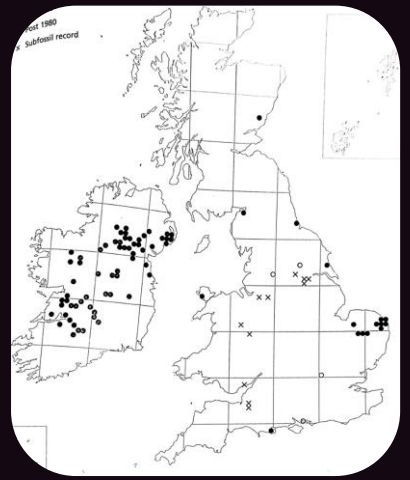
Found at Fonah Bog, by Garth Foster in 2004.

Only site in Scotland.

Relict fen species.

Only 2 mm.

eDNA work in 2022/23.



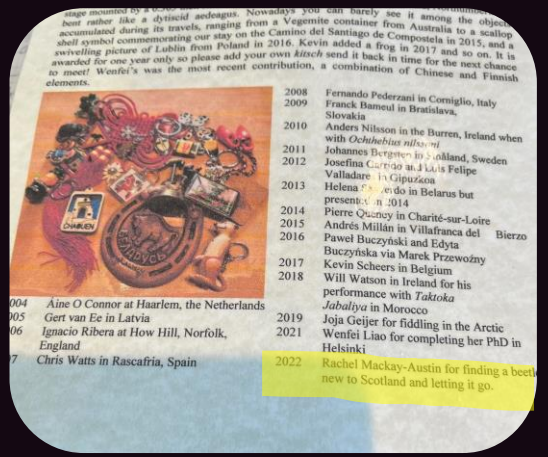
Dytiscus dimidiatus & *Enochrus melanocephalus* at Bonnyton Den Pond

Dampond not within Rossie Muir SSSI.

36 species in 2022.

Most northerly for *Enochrus melanocephalus*.

Dytsicus dimidatus new for Scotland, closest record Durham.



Recording

Recording

Free App

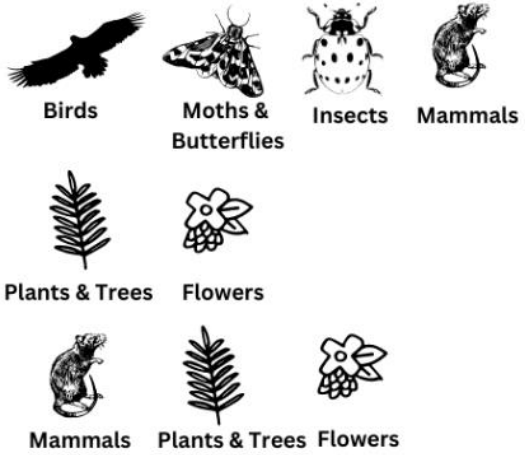
ObsIdentify

FLORA incognita

iNaturalistUK

iRecord

Good for identifying:



The iRecord app compiles species data across the UK for research and decision-making, making you a citizen scientist. You can upload records without images, but photos help with expert verification. The app maps your recordings, and the website lets you view other records and join activities. iRecord also integrates research-grade observations from iNaturalist.

Identification – rachel@riverwoodecology.co.uk

Location - at least a 6-figure grid reference

Date

Photo - at least one photo, different angles, £1 for scale, even better graph paper!

Notes

References

Balfour-Browne Club, Latissimus, Adrian Chalkley, T. Goodfellow, Suffolk Naturalists Society, Biobiz.cz, Flickr, Unsplash, Wikimedia Commons, NBN.org, Non-native Species Secretariat, iNaturalist, Naturespot