

Diving into Diversity *Water Beetles*

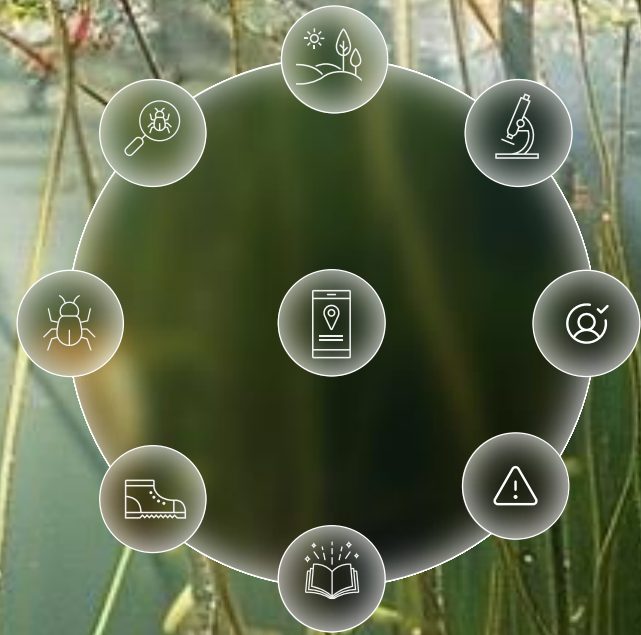


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Presented by:
Rachel Mackay-Austin

www.riverwoodecology.co.uk

Introduction



UK Wide

Identification



Engagement



Sampling



Analysis



ColSoc
Coleopterists Society
of Britain and Ireland



Sampling





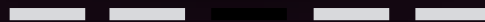
Analysis

Sampling

Identification

Engagement

UK Wide





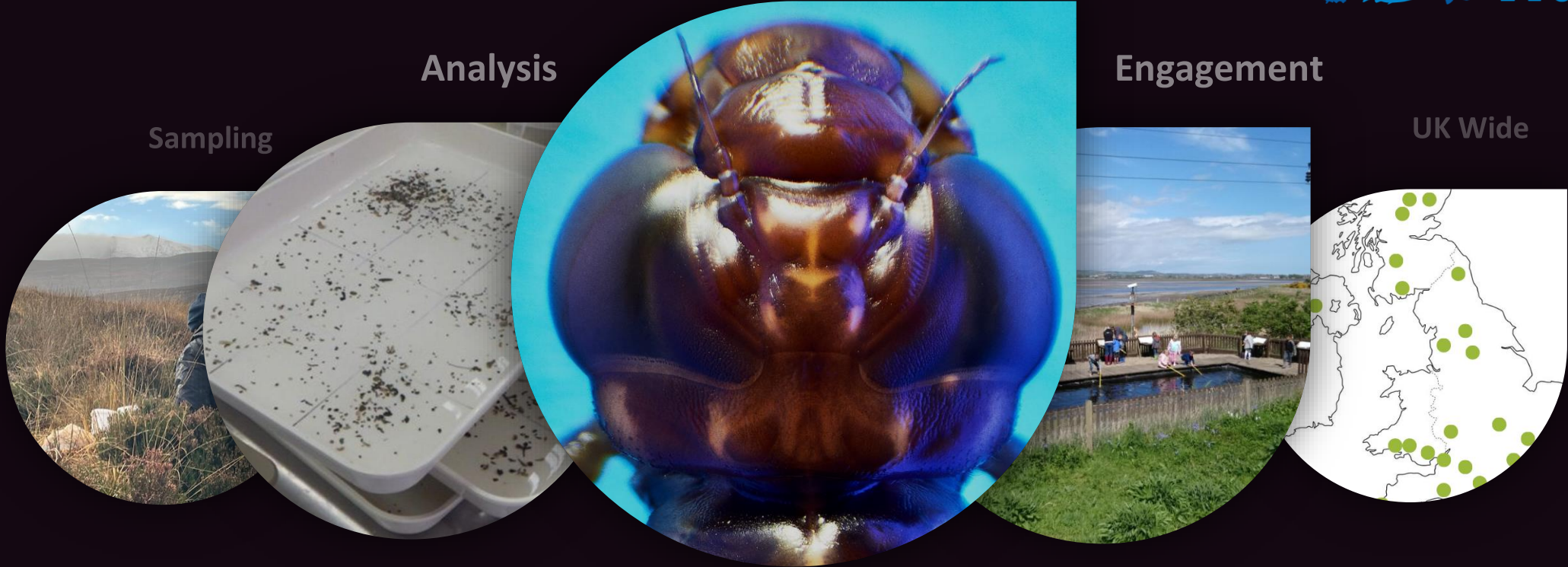
Identification

Analysis

Engagement

Sampling

UK Wide





Engagement

Identification

UK Wide

Analysis

Sampling



Why?



Why care about water beetles?

13,000*

globally

344*

in the UK

14*

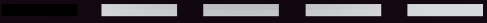
Families + 19 species in
dung

“First to arrive, last to leave”

Why?



Wetlands



Why?



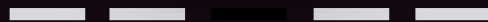
Unvegetated



Why?



Running Water



Why?



Saltwater



Why?



Subterranean



History



The Father of Aquatic Coleoptera Recording

Frank Balfour-Browne (1874 – 1967)

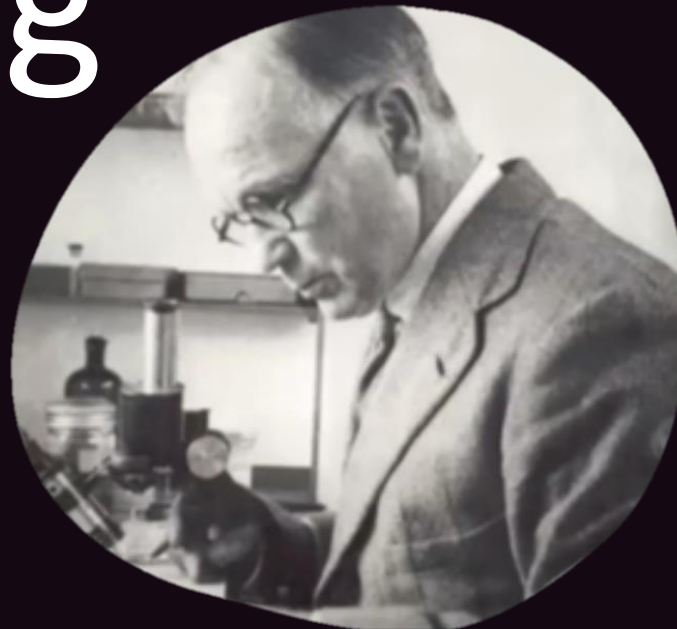
Born in London, raised in Dumfries, died in Edinburgh.

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.

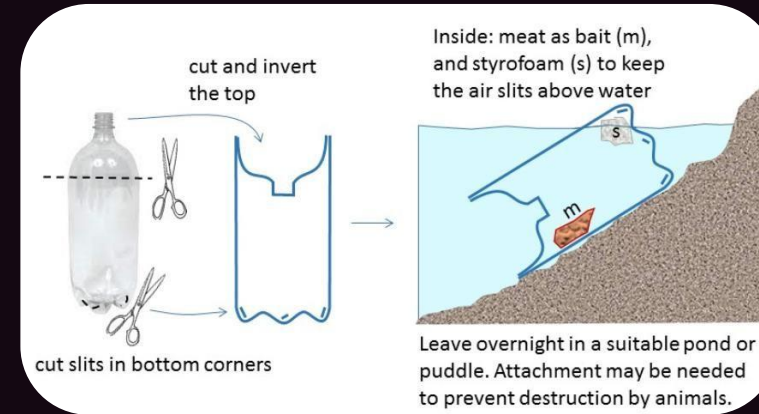
1 mm mesh.

Large white tray.

Tea strainers and sieves are great too!



Bottle Trapping



Cut the top and invert.

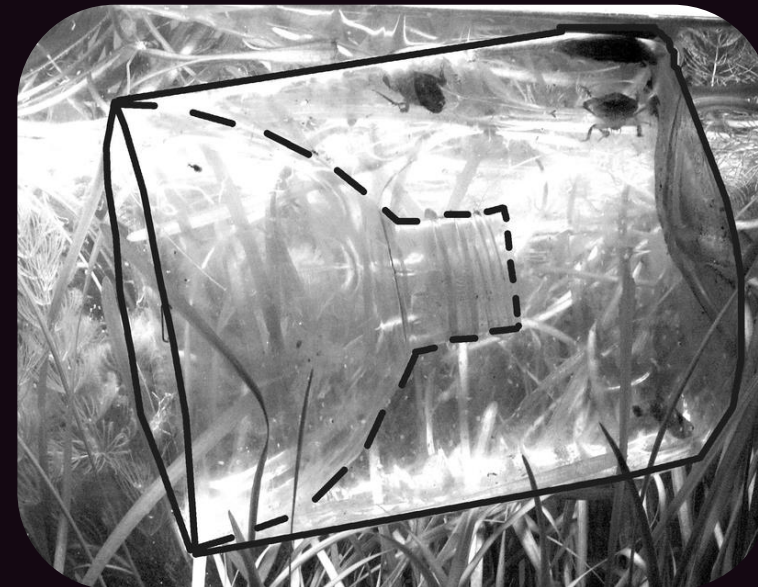
Attach with staples.

Use string to prevent loss.

Bait with cat food, cheaper the better!

Must check every 24 hours.

Best for *Dytiscids*.

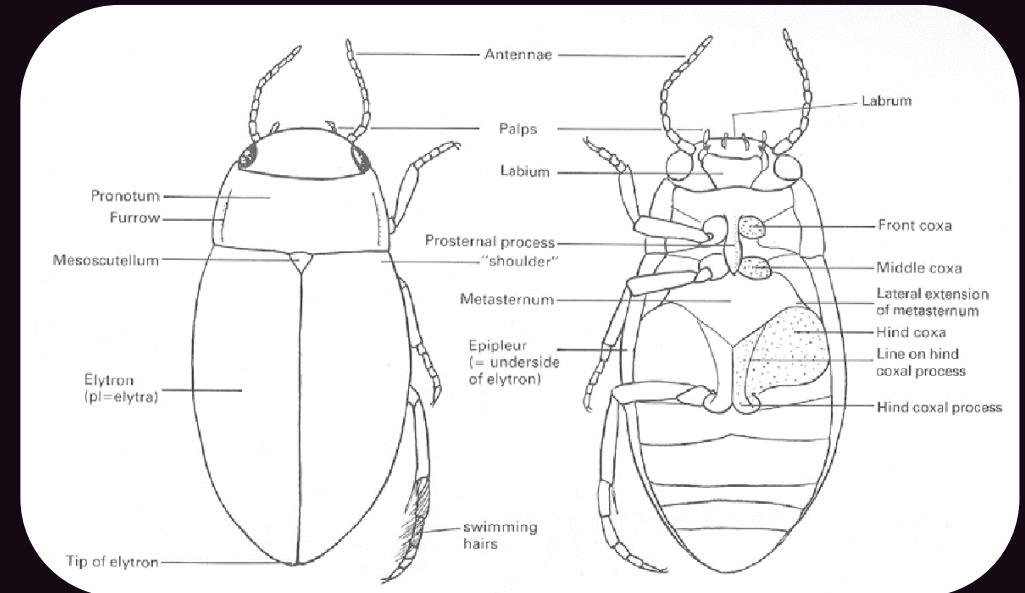


Identification Techniques

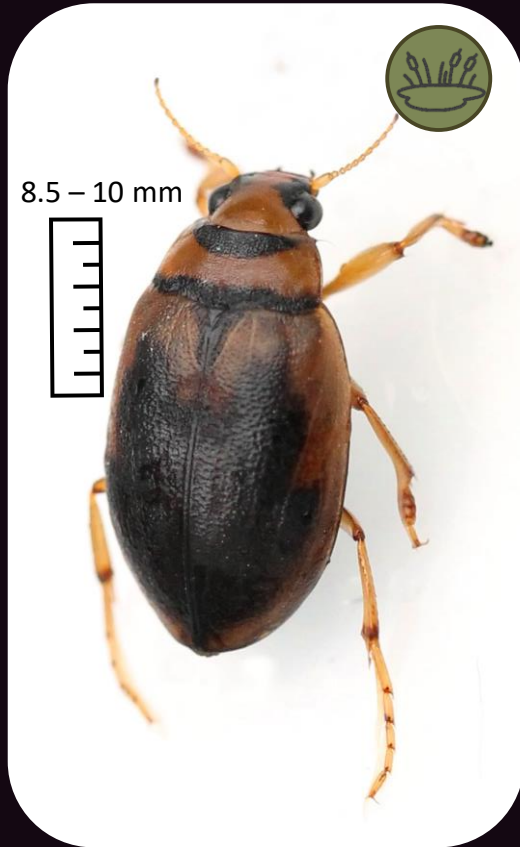


In the field

In the lab



Easy
Wins



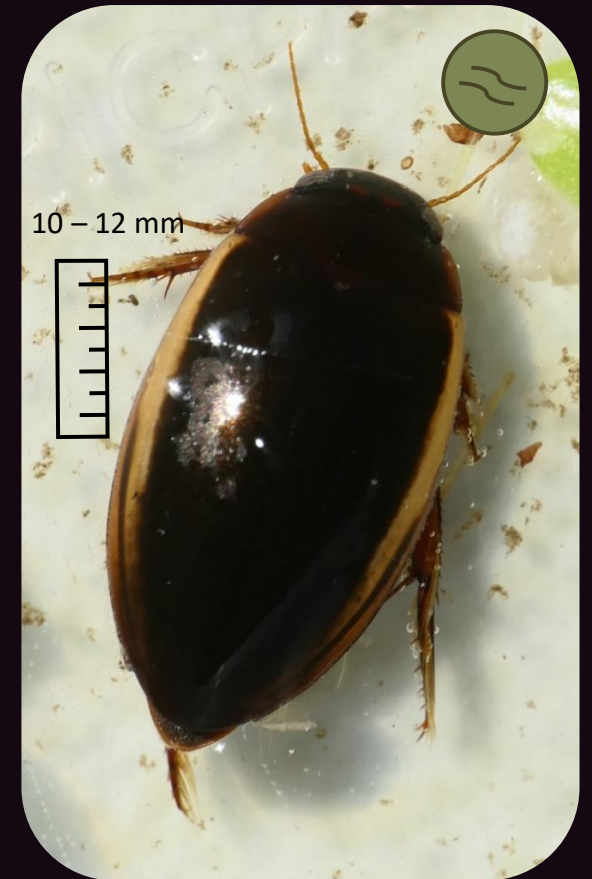
Hygrobia hermanni
The Squeak Beetle



Colymbetes fuscus
The Large Grooved
Diving Beetle



Platambus maculatus
Spotted
Fast Swimmer



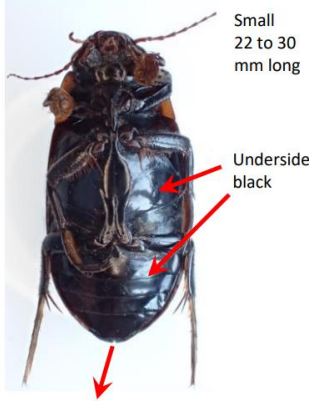
Ilybius fuliginosus
Sooty Mud Dweller

Digging
Deeper

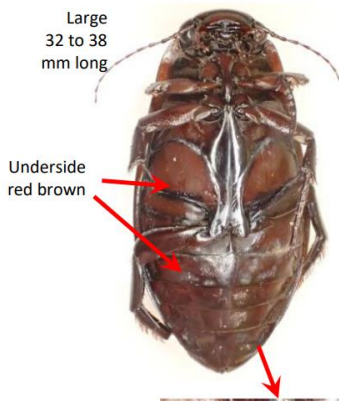


The Dytiscus

The Black-bellied Great Diving Beetle
Dytiscus semisulcatus

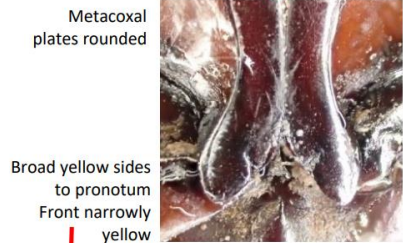
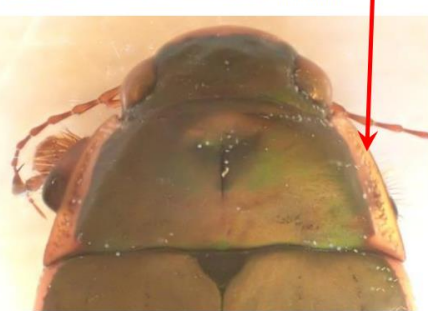


The largest Great Diving Beetle
Dytiscus dimidiatus

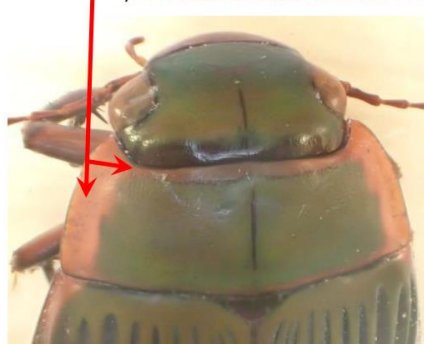


Metacoxal plates rounded

Broad yellow sides to pronotum
No border front or back

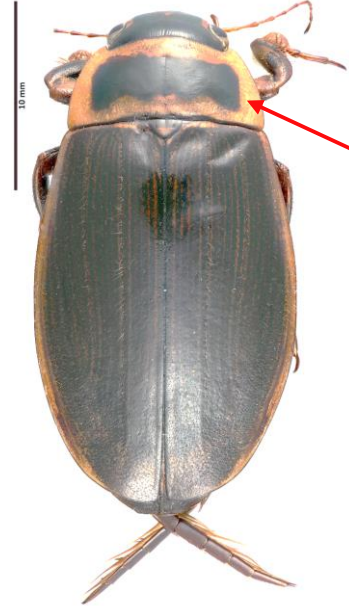


Broad yellow sides to pronotum
Front narrowly yellow



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

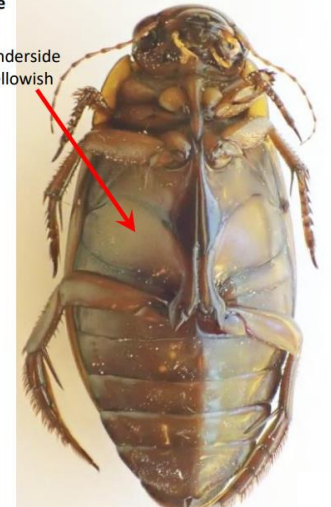


The Great Diving Beetle
Dytiscus marginalis

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



Underside yellowish





The Dytiscus

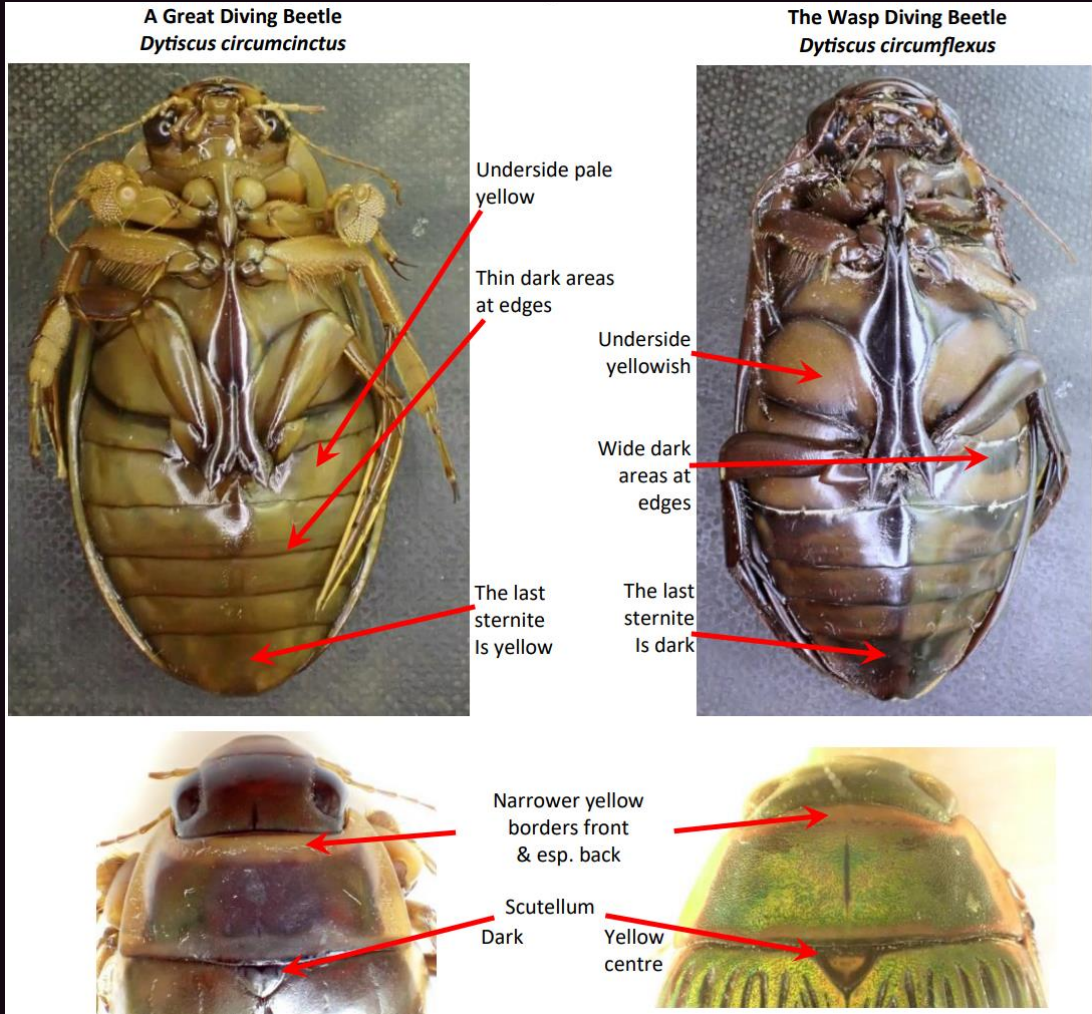
Male or Female?

<p>A Great Diving Beetle <i>Dytiscus circumcinctus</i></p>	<p>The Wasp Diving Beetle <i>Dytiscus circumflexus</i></p>
<p>Underside pale yellow</p>	<p>Thin dark areas at edges</p>
<p>The last sternite is yellow</p>	<p>Underside yellowish</p>
	<p>Wide dark areas at edges</p>
	<p>The last sternite is dark</p>
<p>Narrower yellow borders front & esp. back</p>	<p>Scutellum Dark</p>
	<p>Yellow centre</p>





The Dytiscus



Male or Female?

Male

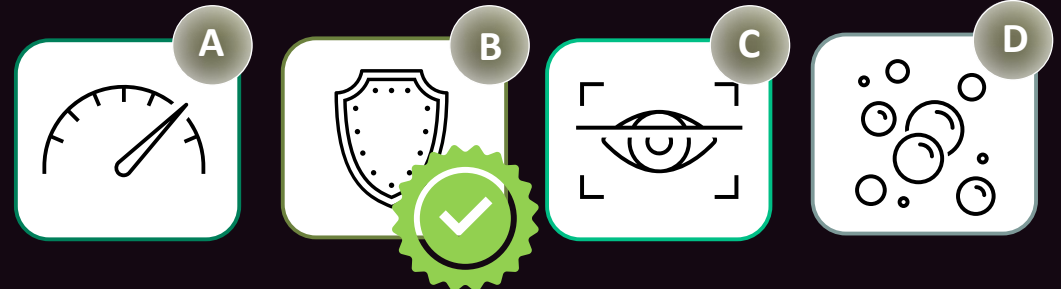


Enlarged foreclaws & suckers.
Smooth elytra.

Female



Normal claws & no suckers.
Rigged elytra.



Angus &
Tayside



Hydroporus scalesianus at Balgavies Loch



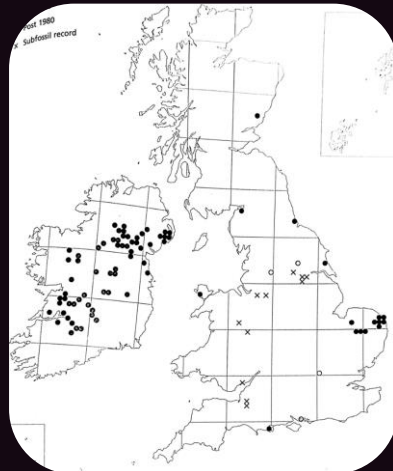
Found at Fonah Bog, by Garth Foster in 2004.

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*.

Dytiscus dimidiatus new for Scotland, closest record Durham.

Stage mounted by a Vespa... Nowadays you can barely see it among the objects accumulated during its travels, ranging from Australia to a scallop shell symbol commemorating our stay on the Camino del Santiago de Compostela in 2015, and a swivelling picture of Lublin from Poland in 2016. Kevin added a frog in 2017 and so on. It is awarded for one year only so please add your own *kitteh* send it back in time for the next chance to meet! Wanfei's was the most recent contribution, a combination of Chinese and Finnish elements.

2008	Fernando Pederzani in Corniglio, Italy
2009	Franck Damsel in Bratislava, Slovakia
2010	Anders Nilsson in the Burren, Ireland when with <i>Ochthebius nigriventris</i>
2011	Johannes Bergsten in Jylland, Sweden
2012	Josefina Castro and J Luis Felipe Valladares in Gipuzkoa
2013	Helena S. in Belarus but present in 2014
2014	Pierre Quency in Charité-sur-Loire
2015	Andrés Millán in Villafranca del Bierzo
2016	Pawel Buczyński and Edyta Buczyńska via Marek Przewoźny
2017	Kevin Schears in Belgium
2018	Will Watson in Ireland for his performance with <i>Taktika Jabalya</i> in Morocco
2019	Joja Geijer for fiddling in the Arctic
2021	Wanfei Liao for completing her PhD in Helsinki
2022	Rachel Mackay-Austin for finding a beetle new to Scotland and letting it go.

Recording



Free App



ObsIdentify



Good for identifying:



Birds



Moths & Butterflies



Insects



Mammals



Plants & Trees



Flowers



Mammals



Plants & Trees



Flowers



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

CHECK

Check your equipment and clothing for live organisms - particularly in areas that are damp or hard to inspect.

CLEAN

Clean and wash all equipment, footwear and clothing thoroughly. If you do come across any organisms, leave them at the water body where you found them.

DRY

Dry all equipment and clothing - some species can live for many days in moist conditions. Make sure you don't transfer water elsewhere.

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