

In pursuit of rare saproxylic invertebrates

**BACK
FROM THE
BRINK**

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LOTTERY FUNDED

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What are saproxylic invertebrates?

- *sapros* = decayed; *xylon* = wood (in Greek).
- “species dependent upon **dead or decaying wood** at some stage of their lifecycle, or upon **wood-inhabiting fungi** or **other saproxylics**”
- Also includes bark-associated species.
- **Around 2,000 invertebrate species in the UK** are dependent upon dead or decaying wood in one form or another.
- This includes some of our **rarest and most threatened invertebrates**.



Tanner Beetle (*Prionus coriarius*) in New Forest © Steven Falk

Ancients of the Future: 12 target invertebrate species

Scientific Name

Ampedus nigerrimus

Ampedus rufipennis

Brachygonus ruficeps

Gnophomyia elsneri

Gnorimus variabilis

Hypebaeus flavipes

Lacon querceus

Limoniscus violaceus

Megapenthes lugens

Melandrya barbata

Myolepta potens

Erotides cosnardi

Common Name

Black Click Beetle

Red-horned Cardinal Click
Beetle

Golden-hair Click Beetle

Royal Splinter Crane-fly

Variable Chafer

Moccas Beetle

Oak Click Beetle

Violet Click Beetle

Queens Executioner

Bearded False Darkling Beetle

Western Wood-vase Hoverfly

Cosnard's Net-winged Beetle



Survey challenges

- Elusive (not many records) and known from few UK sites.
- Very precise ecological requirements.
- Technical surveys that require leading experts.
- Regular monitoring is not possible unlike some of the species work of other Back from the Brink projects.
- Our work has focused more on habitat condition assessments, habitat continuity assessments, baseline invertebrate surveys and general saproxylic invertebrate surveys.



Royal Splinter Cranefly © Steven Falk

Moccas Beetle

(*Hypebaeus flavipes*)

- Endangered (RDB1) species; legally protected under W&C Act (1981).
- In the UK, it is only known from Moccas Park, Herefordshire – an ancient deer park home to several rare saproxylic species.
- Little to nothing is known about their larval stages, likewise the ecology of the adults has not been studied in detail.
- Believed to inhabit the red-rotten interior of ancient oak trees, probably inhabiting burrows and galleries made by other saproxylic invertebrates and feeding on small invertebrates such as mites, collembola etc.



Moccas Beetle Surveys (2018 to 2020)

- Aim to establish the species' distribution and to obtain basic data about the trees on which the beetle is found.
- Adults usually found by beating the foliage of thin branches and twigs growing near to rot-holes or cavities.
- Surveys in 2018 and 2019 by Jon Cooter, together with his previous survey work, **confirmed the presence of adult *Hypebaeus flavipes* on a total of 16 veteran oak trees** in Moccas Park.
- Survey in 2020 (just 2 days) used an hydraulic platform (or cherry picker) to investigate higher up in the canopy of 'known' trees; **26 females found** (including 19 on a single tree!).



Western Wood-vase Hoverfly (*Myolepta potens*)

- Critically Endangered species.
- Just two locations in Britain support modern records – Moccas Park (Herefordshire) and the Forest of Dean.
- Develops in water-filled rot holes of ancient beech and other broad-leaved trees (e.g. Horse Chestnut).
- **Survey in 2019 by Andy Godfrey found just 4 females:** 3 from a horse-chestnut (two from an emergence trap, one from a water trap) and 1 reared.
- Other rare and scarce saproxylics found.



Emergence trap © Andy Godfrey

Petworth Deer Park, West Sussex – Saproxylic Invertebrate Survey

- Undertaken in 2020 by Mark Telfer with a focus on beetles as the key indicator group for saproxylic habitats.
- Many saproxylic invertebrates are rather hard to find and are best surveyed by an experienced entomologist deploying a wide range of techniques.
- As well as using a wide range of more standard sampling methods (sieving, sweep netting, beating and direct observation), Mark also deployed several more specialised techniques.



© Mark Telfer

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Sampling Methodology



Petworth Deer Park, West Sussex – Saproxylic Invertebrate Survey

- **366 species** of invertebrate, 234 species of which were beetles.
- **56 species** (15.3% of the 366) are regarded as 'Key Species' (i.e., with rare, scarce, threatened or near threatened conservation status).
- The Saproxylic Quality Index (SQI) for Petworth Deer Park based on all surveys and other collated records to date is 569.2, the 27th highest British SQI and the 3rd highest Sussex SQI.
- The Index of Ecological Continuity (IEC) is 87, the 17th highest British IEC and the highest of any Sussex site. This indicates a continuity of high quality deadwood habitats from ancient times to the present, and suggests a site of international importance.



False click-beetle *Hylis cariniceps* © Mark Telfer –
previously known from only 4 British individuals

Batrisodes delaporti (Coleoptera: Staphylinidae)

A pselaphine rove-beetle

- Endangered (RDB1).
- Previously known only from
- Lives within the decaying wood associated with nests of *Formica* (*brunneus*).
- Found in a subterranean stump.
- First record for Sussex (on Jan 2021) and the first record for the Thames region.



Notolaemus unifasciatus (Coleoptera: Laemophloeidae)

A lined flat bark beetle

- Nationally Scarce.
- Occurs in southern England, northwards to Herefordshire, Worcestershire, Leicestershire and Derbyshire. This appears to be a very rarely encountered beetle.
- A flattened, saproxylic beetle, typically found under the bark of Beech trees but also with records from oaks (including Turkey Oak) and Hornbeam.
- Found in an aerial interception trap on the fallen Oak stump.



© Mark Telfer

Management recommendations



- Existing trees and shrubs to receive minimal management.
- Bring about the cessation of timber and firewood removal.
- Tree planting.
- Designation as a SSSI.



Thanks for listening!

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