Beetles collected in vane traps from King's Beeches, Berkshire

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Introduction and Methods

The saproxylic insect fauna of King's Beeches in Berkshire (VC 22; SU934669) was investigated using vane traps. The site is approximately 3.5km from the nearest edge of Windsor Forest and is a mix of native and non-native woodland. Oak and beech predominate in the native woodland, with some impressive veteran examples of the latter, mostly in open situations. There are also areas of nutrient poor acid grassland.

The vane traps (Fig. 1) were based on a design kindly supplied by Adrian Dutton. The vanes are 450mm high, 250mm wide and made from 3mm clear acrylic, supplied and cut to the design by sheetplastics.co.uk. Commercial antifreeze (50ml per collecting bottle) was used as a preservative.

Fig. 1 Vane trap design used in this study.

RP installed ten of these traps on or very near beech trees *Fagus sylvatica*. Living trees with rot features, standing and fallen dead trees and cut logs were all targeted (Fig. 2). The traps were installed in the middle of May and checked and emptied once a month until the middle of August 2019.

Fig. 2 Trap in situ attached to standing dead beech. This particular trap was extremely productive. The second trap visible in the photograph was positioned at ground level above cut beech logs.

Results and Discussion

The Saproxylic Quality Score (SQS) (Fowles *et al.,* 1999) for the site is 718, which gives a Saproxylic Quality Index (SQI) (Fowles *et al.,* 1999) of 704. The Index of Ecological Continuity (IEC) (Harding & Alexander, 1994; Alexander, 2004) is 60. These data indicate that this is an exceptional site, especially when the short period of

sampling is considered. Indeed, the SQI of 704 would be seventh highest on the SQI rankings (https://khepri.uk/rankings/). A significant proportion of the saproxylic beetle species recorded from this site are probably associated with the dead and moribund beech trees.

The value of these vane traps as a tool for recording beetles cannot be overstated. They can be left for long periods and can capture species that are otherwise extremely difficult to detect. Using these traps more widely in a network across the UK would provide us with more accurate data on the populations of saproxylic beetles and would perhaps demonstrate that many of them are not as rare as assumed. There are already a number of species recorded by us in this study, and by others, which would have been regarded as very rare until recent use of similar traps. These include *Aulonothroscus brevicollis, Eucnemis capucina, Elateroides dermestoides, Lymexylon navale* and *Teredus cylindricus.*

The most interesting species

HISTERIDAE

Paromalus parallelepipedus (Herbst). One specimen in the June-July sample is the first record for Berkshire. Lane (2016) discussed the status of this species in Britain and included records from 2009 and 2016 in West Suffolk. The last record before this had been a single example from East Kent in 1971 and there are earlier records from the New Forest, South Hampshire. Lane & Lee (2016) added historic records from south Wales and records from another site in West Suffolk in 2016.

STAPHYLINIDAE

Planeustomus flavicollis Fauvel. One in the May-June sample. The only previous British records are a single specimen from Caterham, Surrey in 1875, another from the New Forest, South Hampshire, in 1912, and 31 from the New Forest more recently. The latter were from leaf litter with one in April 2003, 15 in April 2004 and 15 in May 2004 (Giusti, 2007).

Trichonyx sulcicollis (Reichenbach). Two specimens in the June-July sample and one specimen in the July-August sample. This species is known from a number of counties in southern England. Hyman (1994) does not include Berkshire and the only other Berkshire records we can find are from Windsor Forest or Great Park in 1993 (Drewitt & Webb, 2017) and Silwood Park SU9468 in 1998 (R.G. Booth, pers. comm.).

LAEMOPHLOEIDAE

Laemophloeus monilis (Fabricius). One specimen in the June-July sample. This was captured in the trap shown in Fig 2. It was attached to a large, standing dead beech, the top of which had broken off during the winter of 2018/2019. This rare species is associated with the bark beetle *Taphrorychus bicolo*r (Herbst) (Curculionidae) which was also found in the vane traps. Harrison (2010) listed records from Wimpole Park, Cambridgeshire, Streatley, Berkshire and Arundel, West Sussex. He then described how he rediscovered it after 100 years at Streatley in 2004, how his son found one in the New Forest, South Hampshire in 2005 and finding another in

Windsor Forest, Berkshire in 2006. There are four records from Cowdray Park, West Sussex in 2011 (M.G. Telfer, pers. comm. to AJA).

CURCULIONIDAE

Cyclorhipidion bodoanum (Reitter). This was added to the British list by Lee *et al.* (2019) with further records in Telfer (2019). We had four in the May-June sample which is the first record for Berkshire.

Table 1 Saproxylic beetles from King's Beeches, Berkshire in checklist order following Duff (2018).

SPECIES	STATUS	SQS	IEC
HISTERIDAE			
Plegaderus dissectus Erichson		8	2
Acritus nigricornis (Hoffman)		0	
Dendrophilus punctatus (Herbst)		0	
Paromalus flavicornis (Herbst)		2	
Paromalus parallelepipedus (Herbst)	VU; NR	32	
LEIODIDAE			
Anisotoma humeralis (Fabricius)		2	
STAPHYLINIDAE			
Trichonyx sulcicollis (Reichenbach)	RDB2	32	
Euplectus kirbii Denny	N	8	3
Sepedophilus lusitanicus Hammond	LC; NS	2	
Haploglossa villosula (Stephens)		0	
Thamiaraea cinnamomea (Gravenhorst)		2	
Scaphisoma agaricinum (Linnaeus)		2	
Planeustomus flavicollis Fauvel	RDBi		
Stenichnus godarti (Latreille)	RDB3	24	2
Scydmaenus rufus Müller, P.W.J. & Kunze	RDB2	24	1
Atrecus affinis (Paykull)		1	
Hypnogyra angularis (Ganglbauer)	NA	16	2
LUCANIDAE			
Dorcus parallelipipedus (Linnaeus)		2	
EUCNEMIDAE			
Microrhagus pygmaeus (Fabricius)	RDB3	8	1
Epiphanis cornutus Eschscholtz		8	
Melasis buprestoides (Linnaeus)	NB	4	1
Eucnemis capucina Ahrens	RDB1	32	3
THROSCIDAE			
Aulonothroscus brevicollis (de Bonvouloir)	RDB3	24	3
ELATERIDAE			
Ampedus rufipennis (Stephens)	RDB2	24	3
Melanotus castanipes (Paykull)		1	
Stenagostus rhombeus (Olivier)		4	1

SPECIES	STATUS	SQS	IEC
CANTHARIDAE			
Malthinus flaveolus (Herbst)		1	
DERMESTIDAE			
Megatoma undata (Linnaeus)	LC; NS	8	
PTINIDAE			
Ptilinus pectinicornis (Linnaeus)		1	
LYMEXYLIDAE			
Elateroides dermestoides (Linnaeus)		4	
Lymexylon navale (Linnaeus)	LC; NS	32	2
CLERIDAE			
Tillus elongatus (Linnaeus)	LC; NS	8	1
Thanasimus formicarius (Linnaeus)		4	1
MELYRIDAE			
Dasytes aeratus Stephens		2	
Dasytes niger (Linnaeus)	LC: NR	16	
Malachius bipustulatus (Linnaeus)		1	
SPHINDIDAE			
Sphindus dubius (Gyllenhal)		8	
BIPHYLLIDAE			
Diplocoelus fagi (Chevrolat in Guérin-Méneville)	NB	8	2
EROTYLIDAE			
Dacne bipustulata (Thunberg)		2	
Triplax aenea (Schaller)		2	
Triplax russica (Linnaeus)		4	1
MONOTOMIDAE			
Rhizophagus bipustulatus (Fabricius)		1	
Rhizophagus cribratus Gyllenhal		2	
Rhizophagus ferrugineus (Paykull)		2	
Rhizophagus perforatus Erichson		2	
CRYPTOPHAGIDAE			
Cryptophagus scanicus (Linnaeus)			
Atomaria lohsei Johnson & Strand		16	
SILVANIDAE			
Uleiota planatus (Linnaeus)		0	
CUCUJIDAE			
Pediacus dermestoides (Fabricius)		4	1
LAEMOPHLOEIDAE			
Laemophloeus monilis (Fabricius)	RDB1	32	
NITIDULIDAE			
Glischrochilus quadriguttatus (Fabricius)		2	
BOTHRIDERIDAE			
Teredus cylindricus (Olivier)	RDB1	32	1

SPECIES	STATUS	SQS	IEC
CERYLONIDAE			
Cerylon ferrugineum Stephens		2	
Cerylon histeroides (Fabricius)		4	
ENDOMYCHIDAE			
Endomychus coccineus (Linnaeus)		2	
LATRIDIIDAE			
Enicmus brevicornis (Mannerheim)	N	8	3
Enicmus rugosus (Herbst)	N	8	2
MYCETOPHAGIDAE			
Mycetophagus atomarius (Fabricius)		2	1
Mycetophagus piceus (Fabricius)		4	2
Mycetophagus quadripustulatus (Linnaeus)		2	
Mycetophagus multipunctatus Fabricius		2	
Eulagius filicornis (Reitter)	Nat	0	
CIIDAE			
Cis bidentatus (Olivier)		2	
Cis bilamellatus Wood		0	
Cis boleti (Scopoli)		1	
Cis micans (Fabricius)		4	
MELANDRYIDAE			
Phloiotrya vaudoueri Mulsant	LC; NS	8	2
Orchesia undulata Kraatz		4	1
Osphya bipunctata (Fabricius)	LC; NS	16	
MORDELLIDAE			
Tomoxia bucephala Costa, A.	LC; NS	16	1
Mordellistena neuwaldeggiana (Panzer)	LC; NS	16	3
Mordellistena variegata (Fabricius)	LC; NS	8	
Mordellochroa abdominalis (Fabricius)		4	
ZOPHERIDAE			
Pycnomerus fuliginosus Erichson	Nat	0	
Colydium elongatum (Fabricius)	LC; NS	16	
Synchita variegata Hellwig	LC; NS	8	2
Bitoma crenata (Fabricius)		4	1
TENEBRIONIDAE			
Nalassus laevioctostriatus (Goeze)		0	
Diaperis boleti (Linnaeus)	LC; NS	24	
PYROCHROIDAE			
Pyrochroa coccinea (Linnaeus)		4	1
Lissodema denticollis (Gyllenhal)	LC; NS	8	
Salpingus planirostris (Fabricius)		1	
Salpingus ruficollis (Linnaeus)		1	
SCRAPTIIDAE			
Anaspis frontalis (Linnaeus)		1	

SPECIES	STATUS	SQS	IEC
SCRAPTIIDAE *contd.*			
Anaspis lurida Stephens		2	
Anaspis maculata (Geoffroy in Fourcroy)		0	
CERAMBYCIDAE			
Grammoptera ruficornis (Fabricius)		1	
Grammoptera ustulata (Schaller)	LC; NR	24	3
Stictoleptura scutellata (Fabricius)	LC; NS	16	3
Phymatodes testaceus (Linnaeus)		4	1
Clytus arietis (Linnaeus)		1	
Anaglyptus mysticus (Linnaeus)		4	
CURCULIONIDAE			
Euophryum confine (Broun)	Nat	0	
Platypus cylindrus (Fabricius)	NB	8	1
Dryocoetes villosus (Fabricius)		2	
Taphrorychus bicolor (Herbst)	NA	8	
Scolytus intricatus (Ratzeburg)		2	
Xyleborus dryographus (Ratzeburg)		8	3
Xyleborus monographus (Fabricius)	Nat	0	
Cyclorhipidion bodoanum (Reitter)	Nat	0	
Xylosandrus germanus (Blandford)	Nat	0	
Trypodendron domesticum (Linnaeus)		2	1

Threat and conservation statuses follow Alexander (2014, 2017, 2019), Alexander, Dodd & Denton (2014) and Lane (2017, 2019); the status in reviews from 2014 to 2019 is also summarised in Lane, Drewitt & Allen (2019): LC = least concern; NR = nationally rare; NS = nationally scarce; VU = vulnerable; EN = endangered.

Where a recent review is not available the status follows Hyman (1992, 1994): Na = Nationally Scarce A (30 or fewer hectads); Nb = Nationally Scarce B (31-100 hectads); N = Nationally Notable (16-100 hectads); RDB1 = Red Data Book category 1 = Endangered; RDB2 = Vulnerable; RDB3 = Rare; RDBi = Indeterminate.

SQS = Saproxlic Quality Score. IEC = Index of Ecological Continuity.

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