

COSNARD'S NET-WINGED BEETLE
EROTIDES COSNARDI



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The author on survey in 2015. Photograph by Clare Heardman, with thanks.

Cover photograph:

Cosnard's Net-winged Beetle *Erotides cosnardi*: this specimen was the third to be found in Britain, and the first in Sussex. Photographed by the finder, Jon Cooter, with thanks.

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1 Summary

Cosnard's Net-winged Beetle *Erotides cosnardi* is an extremely rare species in Britain.

This project, commissioned by the Species Recovery Trust in 2015, reviewed available information on Cosnard's Net-winged Beetle, surveyed known and potential sites in the Wye Valley, and held a training course on surveying for the beetle.

The survey found a single adult Cosnard's Net-winged Beetle, at Little Doward, confirming the species' continued presence in the Wye Valley.

Cosnard's Net-winged Beetle is now known from 11 reliably-identified British individuals, from six localities in two areas: the West Sussex Downs, and the Wye Valley of Monmouthshire, Herefordshire and West Gloucestershire. There are also some possible or probable records which, if true, would mean the beetle was known from 15 individuals from nine localities and the known range would be extended to include localities in Berkshire and North Somerset.

A recently-discovered museum specimen from Northumberland in 1894 is extraordinary and perhaps relates to an accidentally imported individual.

The current conservation status of Cosnard's Net-winged Beetle in Britain is Endangered and Nationally Rare (EN and NR).

Cosnard's Net-winged Beetle is a saproxylic species, breeding in the white-rotten heartwood of Beech trunks, probably preferring larger-girth trunks in parkland, wood-pasture and sunny, open-structured woodland types.

Cosnard's Net-winged Beetle has a short adult season, with reliable records from between 6th May and 16th June and possibly as late as 25th June.

A detailed survey protocol for Cosnard's Net-winged Beetle is provided.

General habitat management recommendations are provided for sites with Cosnard's Net-winged Beetle, essentially recommending appropriate treatment of Beech deadwood, and management of living Beeches to create large-girth, open-grown veterans.

A number of recommendations for further work are made.

2 Introduction

This report describes the work done in 2015 on Cosnard's Net-winged Beetle *Erotides cosnardi* (Chevrolat, 1829) (Lycidae). This is the first report from the Species Recovery Trust's project on this beetle.

The aims of the work done in 2015 were firstly to collate and review the available information on the distribution, ecology, phenology and conservation status of Cosnard's Net-winged Beetle (CNWB) from published and unpublished sources. Secondly, fieldwork was undertaken in the Wye Valley targeting known and potential sites for CNWB, aiming firstly to establish whether CNWB still occurs, to gather more information about its habitat and microhabitat preferences and start to assess its conservation requirements. Thirdly, with the aim of establishing a long-term monitoring programme for the beetle, a one-day training course was held, teaching volunteers how to survey for CNWB.

3 Review of information

3.1 TAXONOMY AND NOMENCLATURE

The scientific name of CNWB has changed fairly recently. In recent decades it has been known as *Platycis cosnardi* (Chevrolat, 1829), including in the 2008 edition of the *Checklist of Beetles of the British Isles* (Duff, 2008), but was transferred to genus *Erotides* in the 2012 edition (Duff, 2012) to become *Erotides cosnardi* (Chevrolat, 1829).

The English name Cosnard's Net-winged Beetle, abbreviated to CNWB in much of this report, is a recent invention which will be unknown to many entomologists and conservationists. The family Lycidae, to which CNWB belongs, is well-known as the "net-winged beetles" so to name *Erotides cosnardi* as Cosnard's Net-winged Beetle makes obvious sense. However, it could be confusing to use the English name alone and it will always be best to give the scientific name alongside.

3.2 IDENTIFICATION

The four British species of net-winged beetles (Lycidae) may be identified using the keys from Mike Fitton's 1973 PhD thesis, updated by Brian Eversham (Fitton and Eversham, 2006). Another good online key with colour photographs has been provided by Mike Hackston (<https://sites.google.com/site/mikesinsectkeys/Home/keys-to-coleoptera/lycidae>).

3.3 GEOGRAPHICAL DISTRIBUTION

Cosnard's Net-winged Beetle is an extremely rare species in Britain. Details are given here of all the British records in chronological order.

CNWB was first discovered in Britain by Airy Shaw (1944) who took a specimen "in the garden of a house on the Staunton Road, a mile or so to the east of Monmouth" on 6th May 1944 with a second specimen taken on 29th May. What may have been a third specimen was seen flying through the garden on 25th June. No grid reference was given but SO5213 seems likely, in the vice-county of Monmouthshire (VC 35).

On 25th May 1969, a single specimen was "swept adjacent to very rotten beech trunk" (Jon Cooter, *in litt.*, Feb. 2012) in Red Copse, near Goodwood in West Sussex (VC 13) (Cooter, 1970; Anon., 1973). The grid reference has been estimated as SU9110. The copse was revisited in 1970 and found to have been clear-felled, sprayed, and replanted with conifers.

Porter (1985; 1987) found the fourth British specimen of CNWB close to a decaying beech tree near Duncton (c. SU9617, West Sussex (VC 13)) on 16th June 1984. Porter (1987) noted that the day had been particularly hot and that the specimen was taken by sweep-netting the herb layer at about 17.00 GMT.

Alexander (2014a) notes that "a '*Platycis*' is said to have been seen one May in Arundel Park (c. TQ0108, West Sussex (VC 13)), probably during the 1990s, although the full details are not available (via P.J. Hodge)". This record is quite likely to relate to CNWB (known at the time as *Platycis cosnardi*) because the other British *Platycis*, *P. minutus*, occurs as an adult in August and September, unlike CNWB which occurs as an adult in May and June (records span the period 6th May to 16th June). The record is treated here as a possible.

In similar vein, a *Platycis* was noted on 17th June 1993 on low foliage in the hedge south of Black Swan Lake (c. SU7872, Berkshire (VC 22)), Dinton Pastures Country Park, near Reading (Chandler, 1994). Chandler appreciated that the date suggests CNWB but stated "this will require confirmation". The record is treated here as a possible.

Another such possible record was made on 20th June 2002, on which date David Gibbs collected a male '*Platycis*' from Burledge Hill, ST5959 (North Somerset, VC 6). Using Joy's (1932) key, unaware that *cosnardi* had subsequently been added to the British list, David identified the specimen as *Platycis minutus* and discarded it.

Alexander (2014b) was able to report three further British individuals from two of the Woodland Trust's Wye Valley woodlands: Cadora Woods, West Gloucestershire (VC 34) during 9 to 11 May 2002 (one at SO 5331 0785; one at SO 5368 0731) and Little Doward, Herefordshire (VC 36) during 25 - 27 May 2004 (one at SO 5398 1575), all were swept from path-side vegetation by Peter Kirby.

Most recently, three individuals were seen by D. Bangs on ride-side grass stems in the Forestry Commission's Houghton Forest (c. SU9911, West Sussex (VC 13)), Arundel, on 11th May 2008 (Alexander, 2014a).

In summary, by the end of 2014, CNWB was known from just 10 reliably-identified British individuals, from six localities in two areas: the West Sussex Downs, and the Wye Valley of Monmouthshire, Herefordshire and West Gloucestershire. If the possible records were also to be believed, CNWB would be known from 14 individuals from nine localities and the known range would be extended to include localities in Berkshire and North Somerset.

The known distribution of CNWB in the Wye Valley is indicated in Figure 1. It might be more accurate to refer to this part of CNWB's range as the Wye Gorge, and specifically the Highmeadow Woods area. But by examining aerial imagery (Figure 1) it looks as though potentially suitable wooded habitat could occur further upriver and downriver of the known localities. It is interesting to note from this map how close all the known localities are to the River Wye.



Figure 1: The Wye Valley showing known records of CNWB marked by green pins. Potentially suitable wooded habitat was judged to be present within the approximate area outlined in black. Map data ©2016 Google.

The other cluster of records has been from the area referred to here as the West Sussex Downs (Figure 2). As can be seen from the aerial imagery, these records lie within an extensively wooded landscape, corresponding in at least some part to the ancient Arundel Forest.

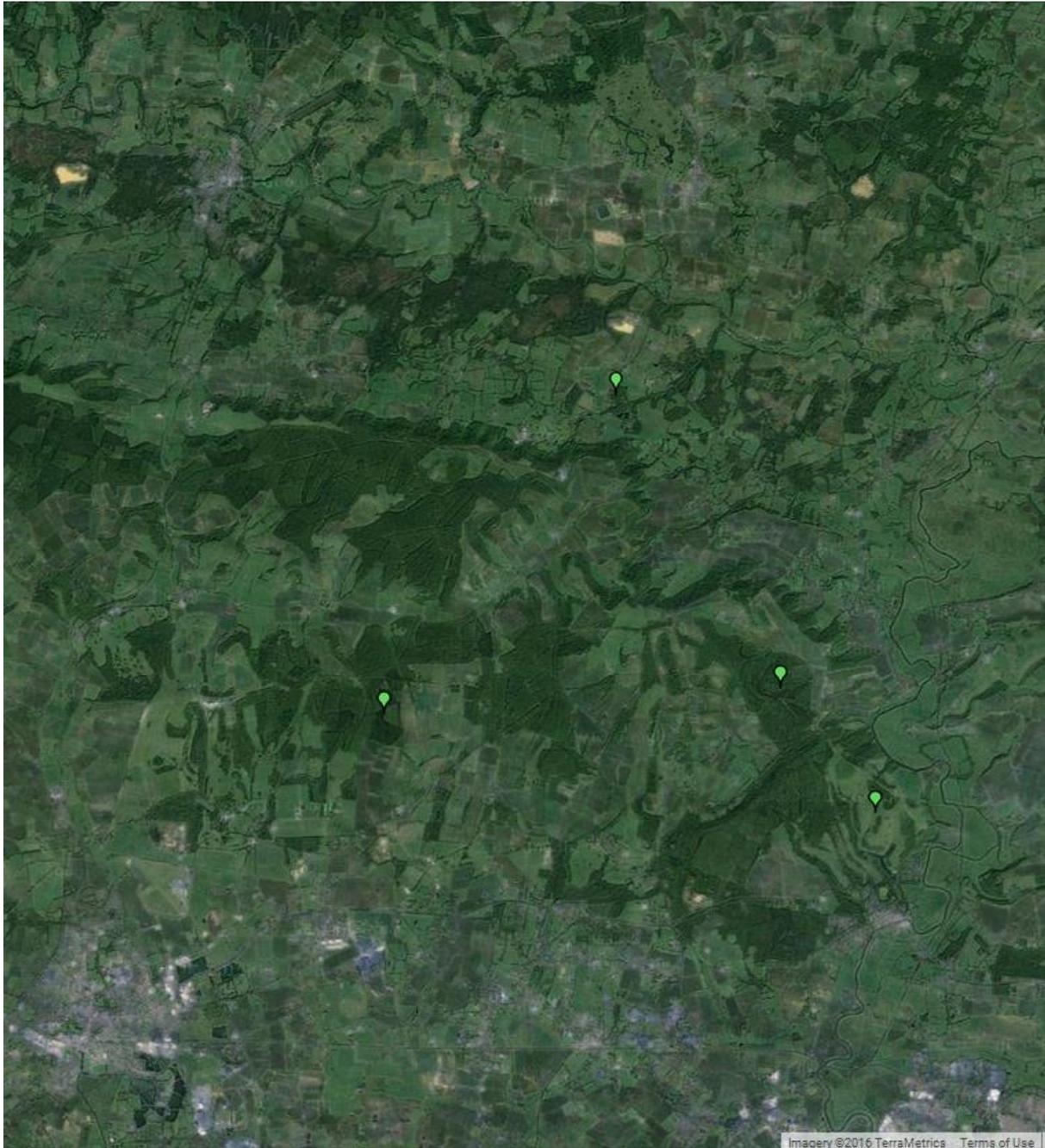


Figure 2: The area referred to here as the West Sussex Downs showing three confirmed records, and one possible record, of CNWB marked by green pins. Map data ©2016 Google. Subsequent to the CNWB fieldwork in 2015, another British record of CNWB came to the author's attention, from Northumberland in 1894 (Max Barclay, *in litt.*, July 2015). Further details of this extraordinary record are awaiting publication but in the meantime it might be best regarded as an accidental importation. Though the native range of Beech in Britain has never been precisely defined, it is more-or-less restricted as a native to south-east England and south-east Wales (Preston *et al.*, 2002).

3.4 CONSERVATION STATUS

Colin Welch (in Shirt (1987)) was the first to assign a conservation status to CNWB in Britain. It was given Endangered (RDB1) status as it was only known from three reliably-identified British individuals from two localities (Monmouth and Goodwood).

Hyman and Parsons (1992) were aware of the fourth British individual from Duncton and revised the status of CNWB to Indeterminate (RDBi).

Alexander (2014a) reassessed the conservation statuses of British Lycidae against the *IUCN Red List Categories and Criteria: version 3.1* (IUCN, 2001). At the time of the assessment, Alexander (2014a) was aware of seven reliably-identified British individuals, the three found by Peter Kirby in the Wye Valley in 2002 and 2004 only came to attention later (Alexander, 2014b). CNWB was assigned to the Endangered (EN) category.

In a separate assessment of rarity in Britain, Alexander (2014a) assigned CNWB to the Nationally Rare (NR) status, defined as “species recorded from 15 or fewer hectads¹ of the Ordnance Survey national grid in Great Britain”.

The current conservation status of CNWB in Britain is thus Endangered and Nationally Rare (EN and NR).

3.5 HABITAT

CNWB is regarded as a saproxylic² species, with larvae developing within the white-rotten heartwood of Beech trunks (Alexander, 2014a). The Goodwood and Duncton specimens were both noted as having been found close to decaying Beech trees or trunks and it seems plausible and likely that all British records are from sites that support large, old, decaying Beeches.

CNWB is likely to prefer larger-girth Beech trunks as these provide a greater volume of larval habitat, and decay over a longer period, therefore providing more habitat for longer.

Larger-girth trees are to be found growing in the open in parklands and wood-pastures, whereas the shaded conditions of closed-canopy woodland promote the development of taller, thinner and less long-lived trees. It is to be expected, therefore, that CNWB will be found more commonly in association with open-grown Beeches in parkland and wood-pasture habitats than in woodland, and the British records give some support to this.

As well as providing larger-girth and longer-lived trees, parklands and wood-pastures may provide warm, sunny and sheltered habitat which can be a critical requirement for some invertebrates. Most invertebrates require sunshine to raise their body temperatures above ambient temperature in at least some stage of their lives, and elevated temperatures may be important for development of the immature stages, for successful moulting, and for vital adult activities such as foraging, mate-finding, mating and oviposition. To what extent CNWB is dependent on warm, sunny and sheltered habitat is not known but it is known to

¹ A hectad is a 10 × 10 km square of the national grid.

² “*Saproxylic invertebrates*” are often, and more loosely, referred to as “dead-wood invertebrates” but as the following definition shows, saproxylic species are often associated with features of damaged and decaying, but not dead, wood. Saproxylic invertebrates may be defined as those species “dependent upon microhabitats associated largely with the processes of damage and decay in the bark and wood of trees and larger woody shrubs and climbers. This includes sap runs, fungal hyphae or fruiting bodies, rot holes, etc.”.

be a species that flies³ and the Duncton record was from a particularly hot day. Microclimate requirements are another reason for supposing that CNWB will be found more commonly in parkland and wood-pasture habitats than in woodland.

3.6 PHENOLOGY

The ten reliably-identified British individuals of CNWB were found between 6th May and 16th June. If the possible records were also to be believed, the adult period of CNWB in Britain would be extended to 25th June.

As noted above, the earlier adult season of CNWB compared to its closest British relative *Platycis minutus* is an important difference and appears to be sufficiently clear-cut that date may be used as an identification character: any record of CNWB in August or September is likely to be a misidentified *Platycis minutus*, and any record of *Platycis minutus* in May or June is likely to be a misidentified CNWB. However, it must be clear that these are the seasons of adults and it may be possible to record larvae at other times of year. Note also that the author has recorded adult *Platycis minutus* on the very late date of 18th November but only from the fragmentary remains of a dead adult!

4 Fieldwork

Field survey work targeting CNWB was carried out on 12th, 13th and 14th May, combined on the latter date with a training course for volunteer surveyors. An informal fieldwork diary describes the fieldwork and the results.

4.1 FIELDWORK DIARY

4.1.1 Tuesday 12th May: Cadora Woods

The strategy for field survey work was firstly to visit known, recent localities for CNWB and to become visually familiarised with CNWB habitat, and then secondly to use this experience to spread the survey more widely within the Wye Valley to attempt to discover additional localities for CNWB.

As a locality with two recent records, the first site to be visited was Cadora Woods, on a day of warm, sunny weather. The woodland was reconnoitred by driving along the A466, and surveyed on foot between about SO536091 and about SO535076, as well as in the vicinity of the Woodland Trust car park at SO543055. Both points where Peter Kirby found CNWB in 2002 were visited.

The immediate vicinity of the Woodland Trust car park at SO543055 was oak woodland so the main survey work of the day was conducted further north. The northernmost section of the wood was broad-leaved woodland with plentiful deadwood and a diverse ground flora, though with no rides or open paths. The middle section of the wood had a network of open forestry rides but was coniferised with few Beeches, none of them large or old (Figure 3), and with very little deadwood. As more and more ground was covered, it became increasingly puzzling that CNWB had been recorded here on two occasions in such obviously unpromising habitat.

³ Photograph of *Erotides cosnardi* about to take flight: <http://www.koleopterologie.de/gallery/FHL06/platycis-cosnardi-flug-foto-koehler.jpg>



Figure 3: One of the few Beeches within the coniferised section of Cadora Woods.

However, it became clear that at least one of Peter Kirby's spots for CNWB (at SO 5331 0785) is an area used for stacking felled timbers ready for extraction. On the 2015 visit, there were some oak trunks stacked here (Figure 4) and at least 11 adults of the Welsh Oak Longhorn beetle *Pyrrhidium sanguineum* were seen on the trunks (Figure 5). This is a Vulnerable (RDB2) saproxylic beetle according to Hyman and Parsons (1992) though it has been noted more widely and more frequently in recent years.



Figure 4: Oak logs at Cadora Woods.



Figure 5: A pair of Welsh Oak Longhorns under an oak log at Cadora Woods. The male appears to be guarding the female while she lays eggs.

Presumably, on the occasions when Peter Kirby found CNWB at Cadora Woods, he was sweeping near to Beech trunks that had been stacked up awaiting transportation. How far those Beech trunks had been moved before being stacked is of course not known.

4.1.2 Wednesday 13th May: Little Doward, The Slaughter, Lancaut and Ban-y-Gor

Having concluded that Cadora Woods was not a good exemplar of CNWB habitat, on the following day (Wednesday 13th May, a hot, sunny and almost windless day), it was decided to start by visiting Little Doward, where Peter Kirby had found CNWB in 2004. Alexander (2014b) had stated that “there is precious little left of beech old growth in the Wye Gorge, and neither Cadora nor Little Doward are known for this habitat in particular”. This may be true of Little Doward in general but Peter Kirby’s grid reference for CNWB (SO 5398 1575) is within an area of excellent open-structured woodland with numerous mature and over-mature Beeches, including several fallen trees and standing dead or moribund trees (Figure 6; Figure 7; Figure 8). The Beeches of Little Doward seemed to be an excellent example of potential CNWB habitat.



Figure 6: Fallen Beech at Little Doward.



Figure 7: Fallen Beech at Little Doward.



Figure 8: Open Beech woodland at Little Doward.

Favourable impressions of Little Doward were vindicated within a fairly short time when the author found an adult CNWB (Figure 9; Figure 10).



Figure 9: Cosnard's Net-winged Beetle *Erotides cosnardi* at Little Doward. In *Platycis minutus*, the pronotum is entirely black whereas it is reddish in *Erotides cosnardi* with a black patch in the centre.



Figure 10: Cosnard's Net-winged Beetle *Erotides cosnardi* at Little Doward. Note the entirely black antennae, including the last segment.

The adult CNWB was found by sweep-netting the vegetation growing around the base of a standing dead Beech (Figure 11; Figure 12). Though there is little doubt that Beech is the sole or main host tree in Britain, only two of the previous British individuals were noted as being found in close proximity to a decaying Beech, so the occurrence of a third individual

right next to a decaying Beech adds further evidence for the host association. It is worth noting that this tree is in a very open situation, though partly shaded by its neighbours. The standing dead Beech was in a quite advanced stage of decay with the bark around the base of the trunk starting to loosen and with some soft rotten wood exposed. No bracket fungi were noted.

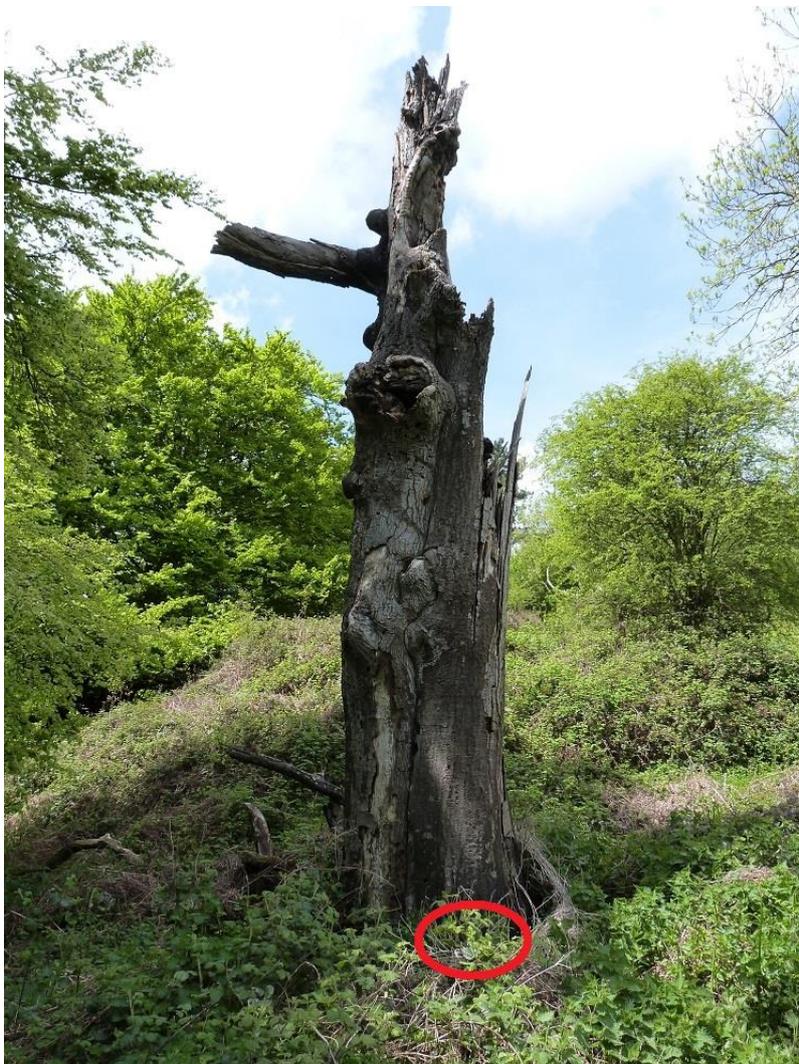


Figure 11: Cosnard's Net-winged Beetle was found at the base of this Beech, swept from roughly the area circled.

It is interesting that this beetle was found by sweeping. Five of the previous British individuals have also been found by sweeping. Of the remainder, the three in Houghton Forest were apparently seen on ride-side grass stems. It would appear to be a feature of CNWB behaviour that the adults spend time up on vegetation, presumably usually near to their natal Beech tree. Perhaps they climb up the vegetation preparatory to launching into flight in search of food, mates or breeding sites. Perhaps they choose an elevated resting place from which to release pheromones to attract mates, or from which to scent the air for pheromones from potential mates. Whatever the purpose or purposes of this behaviour, sweeping vegetation around suitable Beech trees would certainly appear to be the best technique for finding CNWB. With that in mind, it is worth noting that the individual found at Little Doward played dead in the bottom of the sweep net with its head and antennae quite tightly folded-up under its thorax and abdomen; it was not immediately obvious.



Figure 12: A closer view of the tree in Figure 11.

No further adults of CNWB could be found at Little Doward, despite continuing the search to cover several other suitable Beeches. In the afternoon, survey work was carried out more widely, covering the following areas:

- The Slaughter, both from the top of the cliffs and from the bottom (south of the New Weir car park). Both areas were almost devoid of veteran trees, and certainly of veteran Beeches. There were few fallen trees and none suitable for CNWB.
- Lancaut (south of Lancaut Lane). Though there are some Beeches at Lancaut, few if any are veteran trees. The woodland cover is mostly closed-canopy and shady, though with open conditions on the river-bank. Deadwood is largely restricted to fallen branches and smaller trees. Although it is a rather good site for saproxylic insects, it doesn't seem to support species that depend on large-girth trees. Lancaut probably has rather low potential to support CNWB.
- Ban-y-Gor (north of Lancaut Lane). Only a relatively small area at the top of the very steep slope was covered but mature and over-mature Beeches were numerous and there were several fallen trees. Because of the very steep slope, this is a very difficult area to survey and it could be rather dangerous to search around fallen trees and to try to walk while using a sweep-net. Nevertheless, this appears to have good potential for

CNWB. A fortuitous meeting with the Gloucestershire Wildlife Trust's warden confirmed that Ban-y-Gor is one of the very best sites in the Wye Valley for fallen, mature Beeches.

4.1.3 Thursday 14th May: training course at Cadora Woods

On the final day, the author and Charlotte Carne (Species Recovery Trust) met up in the Cadora Woods car park to run a course on surveying and monitoring CNWB for volunteer trainees. Despite the persistent heavy rain which was forecast to continue throughout the day, two volunteers attended. A few hours were spent walking a loop around the southern part of Cadora Woods, covering ground which had not been part of the survey work on 12th May. Several fully mature woodland trees were noted which had fallen over quite recently, including Beeches as well as oaks, and there must be at least a moderate potential for this part of the wood to support CNWB. However, the weather conditions on this day were extremely difficult and there was no chance of actually finding CNWB.

Both the trainees received training at first hand in how to spot potentially suitable CNWB habitat, how to search for the adult beetles, and how to identify them once found. With everybody thoroughly soaked, the course was cut short at lunchtime.

5 Discussion and conclusions

5.1 A SURVEY PROTOCOL FOR COSNARD'S NET-WINGED BEETLE

This is unquestionably a difficult beetle to find with, for example, only a single individual found by the current survey, and with only between 12 and 16 individuals having ever been found in Britain. Nevertheless, there can be little doubt that it is a native species that has survived in the Wye Valley and the West Sussex Downs from long before man started to study the beetles of Britain. How many tens, hundreds or thousands of adult CNWBs emerge in Britain each year, mate, lay their eggs and die, without ever being detected by an entomologist?

To stand the best chance of success in finding CNWB, surveyors should regard the following.

- Search between 6th May and 16th June. It is likely that peak numbers of adults may be found near the middle of this date range. But it is likely that adults could also be found earlier and later than this date range.
- Target areas with large populations of Beech trees including a good proportion of mature and over-mature trees. Focus effort on individual trees which are dead or with extensive heartwood decay, standing or fallen, especially of large girth and in open, sunny situations.
- Use a stout, canvas sweep-net to sweep the grassy and herbaceous vegetation all around any potential Beeches. Look carefully in the bottom of the sweep-net for any CNWBs lying folded-up and motionless.
- Be alert to the possibility of seeing CNWB sitting up on vegetation, as with the Houghton Forest record, and to the possibility of seeing CNWB in flight, as with the possible record from the garden on the Staunton Road, near Monmouth.
- Concentrate survey effort on the hottest, sunny and still days of the season. Sitting up on vegetation, and thus being available for capture by sweep-netting, may be part of a dispersal or mate-seeking behaviour which is only expressed by the beetles during the most amenable weather conditions.

Anyone finding CNWB should use the opportunity to glean a little more information about this species and to publish their findings to add to our collective understanding of its ecological requirements, and of how to find it.

5.2 HABITAT MANAGEMENT FOR COSNARD'S NET-WINGED BEETLE

At sites where CNWB has been recorded, the high value of Beech deadwood should be recognised. The following guidelines would ensure that the existing deadwood resource is treated appropriately:

- No Beech deadwood should be taken as firewood, removed from site for any other reason, or burnt on site.
- As far as possible there should be a minimal intervention approach to Beech deadwood. For example, fallen trees should be left untouched, not trimmed and logged, except where they fall across a path or track in which case the route could be cleared without impacting the rest of the tree (e.g., Figure 6; Figure 7).

Living Beech trees are the CNWB habitat of the future and management should generally aim to prolong their lives and to promote their growth into open-grown trees of large girth. In the short term, this may mean thinning, clearing or coppicing competing trees and shrubs in a halo around selected Beeches. Where important veteran trees have become swamped in secondary woodland, halo-thinning should be phased over several years, allowing the veteran to adapt to increased exposure. It is particularly important to open the tree to the morning sun from the south-east and south and the halo-thinning operations may extend up to 30 metres from the tree in this direction.

Historically, grazing has tended to create the more open-structured, wood-pasture habitat that is probably more suitable for CNWB, as well as many other invertebrates. In the longer term, the reinstatement of grazing on former wood-pasture sites should restore a more open structure. New tree-fall clearings should remain more open for longer as livestock suppress the growth of saplings. This management by more natural processes is preferable to halo-thinning but does mean that grazing would need to be sustained for the long term. In the early stages of wood-pasture restoration, it would make sense to manually create tree-fall clearings and halo-thinnings, and allow the livestock to graze these areas. Cattle are preferred, using hardy breeds which will browse as well as graze.

In the Wye valley, the steep, rugged and rocky terrain of much of the woodland means that trees may fall more frequently and woodlands on especially steep slopes such as Ban-y-Gor may naturally have a much more open and dynamic structure without livestock grazing.

5.3 FUTURE WORK

Cosnard's Net-winged Beetle may always remain a rare and elusive creature in Britain. But further targeted survey work could at least refine the survey protocol for adults, and there is always the possibility of a breakthrough from exploring other techniques. Can CNWB be found by nocturnal survey? Can CNWB be found by flight interception trapping around suitable Beeches, or by subterranean trapping at the roots of Beech trees?

Little is known about the larvae of CNWB and it may be that they can only be found by unconscionable destruction of Beech trunks to examine the heartwood. Nevertheless, finding larvae would provide valuable direct evidence of the species larval requirements.

There is considerable potential to use the survey protocol outlined here to find further CNWB localities in the known areas of distribution (Wye Valley and West Sussex Downs). It would also be very valuable to carry out surveys of those localities with possible records, especially Dinton Pastures Country Park and Burlledge Hill. A confirmed record from either locality would represent an important extension to the known range of the beetle.

In the Wye Valley, consulting people with good local knowledge to identify sites with potential CNWB habitat would be very worthwhile, as suitable patches of habitat appear to be very restricted. Apart from Little Doward, Ban-y-Gor would repay further survey, as would the wider Cadora Woods area. Chapelhouse Wood has been recommended as a site with large Beeches and would repay further survey. It is at the southernmost end of Lancout Woods but best accessed from Mopla Road, Tutshill, by prior arrangement with Gloucestershire Wildlife Trust.

Finally, it seems likely that such a rare and elusive beetle could have escaped detection from other areas of old-growth Beech wood-pasture in Britain. By promoting a greater awareness of the species, of its identification characters, its phenology and the key elements of the survey protocol, the Species Recovery Trust could help to discover this beetle in more parts of Britain.

6 Acknowledgements

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7 References

- Airy Shaw, H.K. (1944). *Dictyoapterus (Platycis) cosnardi* Chev. (Col., Cantharidae, Lycinae) new to Britain. *Entomologist's monthly magazine*, **80**, 204 - 205.
- Alexander, K.N.A. (2014a). *A review of the scarce and threatened beetles of Great Britain. Buprestidae, Cantharidae, Cleridae, Dasytidae, Drilidae, Lampyridae, Lycidae, Lymexylidae, Malachiidae, Phloiophilidae and Trogossitidae*. Species Status No. 16. Natural England.
- Alexander, K.N.A. (2014b). *Erotides cosnardi* (Chevrolat) (Lycidae) re-discovered in the Wye Gorge, in both West Gloucestershire (VC 34) and Herefordshire (VC 36). *The Coleopterist*, **23**, 34 - 35.
- Anon. (1973). Centenary exhibition. *Proceedings and transactions of the British Entomological and Natural History Society*, **6**, 20 - 27. [A fine case of Coleoptera shown by Mr. J. Cooter is described on page 26].
- Chandler, P. (1994). Fieldwork at Dinton Pastures to the end of 1993. *British journal of entomology and natural history*, **7**, 118 - 126.
- Cooter, J. (1970). *Platycis cosnardi* Chev. (Col., Lycidae), the third British record. *Entomologist's monthly magazine*, **105 (1969)**, 171.
- Duff, A.G. (2008). *Checklist of beetles of the British Isles*. 2008 edition. Wells: A.G. Duff.

- Duff, A.G. (2012). *Checklist of beetles of the British Isles*. 2012 edition. Iver: Pemberley Books.
- Fitton, M. and Eversham, B. (2006). *Cantharidae - keys to the adults of the British species*. Available online: http://markgtelfer.co.uk/files/2012/04/CantharidaeKeys_v3.pdf
- Hyman, P.S. (revised Parsons, M.S.) (1992). *A review of the scarce and threatened Coleoptera of Great Britain. Part 1*. U.K. Nature Conservation: 3. Peterborough: Joint Nature Conservation Committee.
- IUCN (2001). *IUCN Red List Categories and Criteria: version 3.1. Prepared by the IUCN Species Survival Commission*. Gland, Switzerland: International Union for Conservation of Nature.
- Joy, N.H. (1932). *A practical handbook of British beetles*. 2 volumes. H.F. & G. Witherby.
- Porter, D.A. (1985). 1984 Annual Exhibition: Coleoptera. *Proceedings and transactions of the British Entomological and Natural History Society*, **18**, 5.
- Porter, D.A. (1987). *Platycis cosnardi* (Chevrolat) (Col., Lycidae) in West Sussex. *Entomologist's monthly magazine*, **123**, 106.
- Preston, C.D., Pearman, D.A. and Dines, T.D. (eds) (2002). *New Atlas of the British and Irish Flora*. Oxford: Oxford University Press.
- Shirt, D.B. (ed.) (1987). *British Red Data Books: 2. Insects*. Peterborough: Nature Conservancy Council.