Blue Ground Beetle *Carabus intricatus* surveys in the Lower Neath Valley, 2026

NRW Evidence Report No. 1037

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Blue Ground Beetle *Carabus intricatus* © Liam Olds

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Crynodeb gweithredol

Chwilen fawr nad yw'n gallu hedfan yw Chwilen Las y Llawr (*Carabus intricatus)* ac mae ei dosbarthiad yn gyfyngedig ym Mhrydain, ac yn cynnwys nifer fechan o goetiroedd yng Nghwm Nedd Isaf, yn Ne Cymru. Yn dilyn arolygon cydgysylltiedig blaenorol rhwng 2018 a 2020, cynhaliwyd arolygon yng ngwanwyn 2026 i asesu ei dosbarthiad presennol o fewn Cwm Nedd Isaf ac i lywio rheolaeth gadwraeth i'r dyfodol.

Cynhaliwyd deg arolwg nosol wedi'u comisiynu gan Cyfoeth Naturiol Cymru (CNC) rhwng 22 Ebrill a 31 Mai 2026, ynghyd ag asesiadau o gynefinoedd yn ystod y dydd. Cofnododd yr arolygon a gomisiynwyd gan CNC 51 chwilen *C. intricatus* llawn dwf ar draws chwe ardal: Bryn Dewi, Coed-y-graig, Coed Maesmelin, Pen-lan, Coedwig Dyffryn a Longford Lane. Arweiniodd arolygon ychwanegol a gomisiynwyd gan Coed Cadw at saith cofnod arall o chwilod llawn dwf, yn cynnwys dau gofnod ym Mryn Dewi a phump yng Nghoedwig Dyffryn. Cyflwynir y canfyddiadau atodol hyn mewn Atodiad i'r prif adroddiad.

Mae'r canlyniadau'n cadarnhau presenoldeb parhaus chwilen *C. intricatus* ar draws yr ardaloedd a arolygwyd ac maent yn darparu tystiolaeth bellach o'i dosbarthiad o fewn Cwm Nedd Isaf. Roedd Bryn Dewi a hen goridor Heol y Dram yn cefnogi nifer o gofnodion, gan gynnwys pâr oedd yn paru, gan ddarparu tystiolaeth gref o boblogaeth sefydledig. Roedd Coed-y-Graig hefyd yn cynnal nifer sylweddol o chwilod llawn dwf, tra bod y cofnodion ychwanegol o Goedwig Dyffryn yn dangos bod y rhywogaeth i'w chael yn ehangach o fewn y coetir helaeth hwn nag a nodwyd gan arolwg CNC yn unig. Ymestynnodd cofnod Longford Lane y dosbarthiad hysbys y tu hwnt i'r prif ardaloedd coetir, gan dynnu sylw at bwysigrwydd posibl nodweddion cynefin llai a chysylltedd tirwedd.

Nododd asesiadau o gynefinoedd amrywiaeth o ran strwythur a chyflwr coetir rhwng safleoedd. Yng Nghoed Maesmelin, mae'n bosibl bod mieri a phrysgwydd trwchus helaeth yn lleihau argaeledd cynefin cymharol agored, gan gefnogi'r achos dros reoli ac ymchwilio o'r newydd i gyfleoedd pori. Mewn cyferbyniad, mae Pen-lan yn cynnal strwythur coetir pori agored. Mae Coed-y-Graig yn cynnal strwythur coetir amrywiol, digonedd o bren marw a wal gerrig sych a allai ddarparu llochesau ar gyfer treulio'r gaeaf. Ym Mryn Dewi a Choedwig Dyffryn, roedd llawer o gofnodion yn gysylltiedig â choed aeddfed ar hyd llwybrau coedwigaeth. Er bod hyn yn codi'r posibilrwydd fod cysylltiad â choed agored ac ymylon coetir, gall gwahaniaethau yn y gallu i ganfod y chwilen esbonio'r patrwm a nodwyd yn rhannol.

Mae'r canfyddiadau'n cefnogi nifer o flaenoriaethau cadwraeth: adfer a chynnal coetir cymharol agored a choetir pori lle bo'n briodol; cadw coed aeddfed, coed marw sy'n sefyll ac sydd wedi syrthio; rheoli planhigion estron goresgynnol; diogelu nodweddion gaeafu posibl; a lleihau aflonyddu niweidiol gan weithgareddau hamdden. Argymhellir rhagor o arolygon wedi'u targedu, yn enwedig o fewn y coetiroedd helaeth yng Nghoedwig Dyffryn ac mewn cynefin a allai fod yn addas rhwng ardaloedd hysbys, er mwyn sefydlu maint llawn yr ardal lle ceir y chwilen ac ymchwilio i gysylltedd ar draws y dirwedd ehangach.

Executive summary

The Blue Ground Beetle *Carabus intricatus* is a large, flightless ground beetle with a restricted British distribution, including a small number of woodlands in the Lower Neath Valley, South Wales. Following previous coordinated surveys between 2018 and 2020, surveys were undertaken in spring 2026 to assess its current distribution within the Lower Neath Valley and inform future conservation management.

Ten nocturnal surveys commissioned by Natural Resources Wales (NRW) were undertaken between 22nd April and 31st May 2026, supplemented by daytime habitat assessments. The NRW-commissioned surveys recorded 51 adult *C. intricatus* across six localities: Bryn Dewi, Coed-y-Graig, Coed Maesmelin, Pen-lan, Dyffryn Woods and Longford Lane. Additional surveys commissioned by Coed Cadw resulted in seven further adult records, comprising two at Bryn Dewi and five at Dyffryn Woods. These supplementary findings are presented in an Addendum to the main report.

The results confirm the continued presence of *C. intricatus* across the surveyed localities and provide further evidence of its distribution within the Lower Neath Valley. Bryn Dewi and the former Dram Road corridor supported numerous records, including a mating pair, providing strong evidence of an established population. Coed-y-Graig also supported a substantial number of adults, while the additional records from Dyffryn Woods demonstrated that the species occurs more widely within this extensive woodland than the NRW survey alone indicated. The Longford Lane record extended the known distribution beyond the principal woodland localities, highlighting the potential importance of smaller habitat features and landscape connectivity.

Habitat assessments identified variation in woodland structure and condition between sites. At Coed Maesmelin, extensive dense bramble and scrub may be reducing the availability of relatively open habitat, supporting the case for renewed management and investigation of grazing opportunities. In contrast, Pen-lan retains an open, grazed wood-pasture structure. Coed-y-Graig supports a varied woodland structure, plentiful deadwood and a dry-stone wall that may provide overwintering refugia. At Bryn Dewi and Dyffryn Woods, many records were associated with mature trees alongside paths or forestry tracks. Although this raises the possibility of an association with open-grown trees and woodland margins, differences in detectability may partly explain the observed pattern.

The findings support a number of conservation priorities: restoring and maintaining relatively open woodland and wood-pasture where appropriate; retaining mature trees, standing deadwood and fallen deadwood; controlling invasive non-native plants; protecting potential overwintering features; and minimising damaging recreational disturbance. Further targeted surveys are recommended, particularly within the extensive woodlands at Dyffryn Woods and in potentially suitable habitat between known localities, to establish the full extent of the occupied area and investigate connectivity across the wider landscape.

1. Introduction

The Blue Ground Beetle *Carabus intricatus* Linnaeus, 1761 (frontispiece) is a large, flightless ground beetle in the family Carabidae. It is listed as 'Near Threatened' on the IUCN (International Union for Conservation of Nature) Red List, owing to declines and local extinctions documented across much of its temperate European range (Pett *et al*., 2024).

In Britain, *C. intricatus* has a very restricted distribution and is classified as Near Threatened and Nationally Rare (Telfer, 2016). It occurs primarily in ancient woodland and wood-pasture habitats in the river valleys on the southern edge of Dartmoor, Devon, with a small number of additional colonies on the fringes of Bodmin Moor, Cornwall (Boyce & Walters, 2001), and in the Lower Neath Valley, South Wales. The beetle is a nocturnal predator, thought to feed primarily on tree slugs (family Limacidae) (Walters, 2019). Adults are most active during spring, with April, May and June representing the main period of adult activity and breeding (Pett *et al*., 2024). At night, adults climb tree trunks in search of prey and potential mates and, as a result of this nocturnal behaviour, are most readily detected using torchlight (Boyce & Walters, 2016). They are particularly active on mild, damp nights.

Its habitats in Britain are typically characterised by ancient oak *Quercus* and Beech *Fagus sylvatica* woodland and wood-pasture with a relatively open structure and little vegetation in the shrub and field layers (Boyce & Walters, 2001). Such conditions may be maintained through grazing, which can help prevent the development of dense scrub and ground vegetation and retain a more open woodland structure.

The presence of *C. intricatus* in Wales first came to light following the discovery of an adult amongst a woodpile in a garage in the village of Skewen, near Neath, in April 2012 (Walters, 2013). This represented a significant extension of the species' known British range from its stronghold in Dartmoor, Devon. In January 2015, adults were subsequently found in the nearby ancient Sessile Oak *Quercus petraea* woodland of Coed Maesmelin, owned and managed by Coed Cadw (the Woodland Trust in Wales), during a Natural Resources Wales (NRW) survey (Boyce & Walters, 2015). This confirmed Coed Maesmelin, one of the few remaining areas of ancient semi-natural woodland on Drummau Mountain (Mynydd Drumau) near Neath, as the only known site supporting *C. intricatus* in Wales at that time.

Between 2018 and 2020, a Buglife-led project, delivered in partnership with Coed Cadw, received funding from The National Lottery Heritage Fund to undertake a range of conservation actions for *C. intricatus* in the Lower Neath Valley. This included targeted habitat management at Coed Maesmelin to control bramble scrub and create more favourable conditions for the beetle, alongside targeted surveys to identify additional populations in woodlands in the vicinity of Coed Maesmelin and the wider Neath Valley. Surveys targeted a number of sites previously identified as having moderate to high potential to support the beetle (Boyce & Walters, 2016), together with a number of

additional, apparently sub-optimal sites selected because of their proximity to Coed Maesmelin.

These surveys recorded a total of 41 adults and two larvae across six sites: Bryn Dewi, Coed Maesmelin, Darran Wood, Dyffryn Woods, Graig and Coed-y-Graig (also known as Heol-y-Graig), with five of these representing newly identified sites for the species (Olds & Dinham, 2020). The record attributed to Darran Wood was, however, obtained from an area of wood-pasture on Mynydd Drumau that appears to lie outside the boundaries of both Darran Wood and Coed Maesmelin based on the available site boundaries. The area is situated close to the former Pen-lan Farmhouse and, for the purposes of this report, is therefore referred to as Pen-lan. This record is consequently treated as a record from Pen-lan rather than Darran Wood.

The five newly identified sites were all located within approximately 900 m (0.5 miles) of Coed Maesmelin (Olds & Dinham, 2020). Surveys of woodlands elsewhere in the Neath Valley, including sites as far north as Pontneddfechan within the Coedydd Nedd a Mellte Special Area of Conservation (SAC), failed to locate the beetle.

Since the completion of this project in March 2020, there has been no coordinated survey effort across the known *C. intricatus* sites in the Lower Neath Valley, although *C. intricatus* has continued to be recorded occasionally by entomologists visiting the woodlands. In the intervening period, NRW has progressed with the designation of Coed Maesmelin and several adjacent woodlands identified during the Buglife-led project as a Site of Special Scientific Interest (SSSI), recognising their ancient woodland habitat and the presence of *C. intricatus*.

To inform this designation, which is anticipated later in 2026, Christian Owen (trading as Christian Owen Bio-Surveys) was commissioned by NRW to undertake a survey for *C. intricatus* across the known sites in the Lower Neath Valley (Figure 1). The survey was intended to provide up-to-date information on the status of the species within these sites, including its distribution and relative abundance, alongside an assessment of habitat condition.

The survey covered all known sites for *C. intricatus* in the Lower Neath Valley, with the exception of Graig, Skewen (grid reference SS730978). This site could not be included within the survey because land ownership could not be established with sufficient certainty to obtain the necessary landowner permission within the timescales available for the survey. The omission of this site is therefore an access and permissions constraint rather than a decision to exclude it from the survey.

In addition to the known sites, mixed woodland along the River Clydach at Bryncoch (grid references SS740989 and SS742992) was also visited on one occasion. This woodland was previously surveyed as part of the Buglife-led project (Olds & Dinham, 2020), but *C. intricatus* was not recorded. However, the habitat was considered to have potential to support the species and the site was therefore included as an additional search area during the current survey. The sites visited during the survey, together with their grid

references and a summary of their principal habitat characteristics, are presented in Table 1.

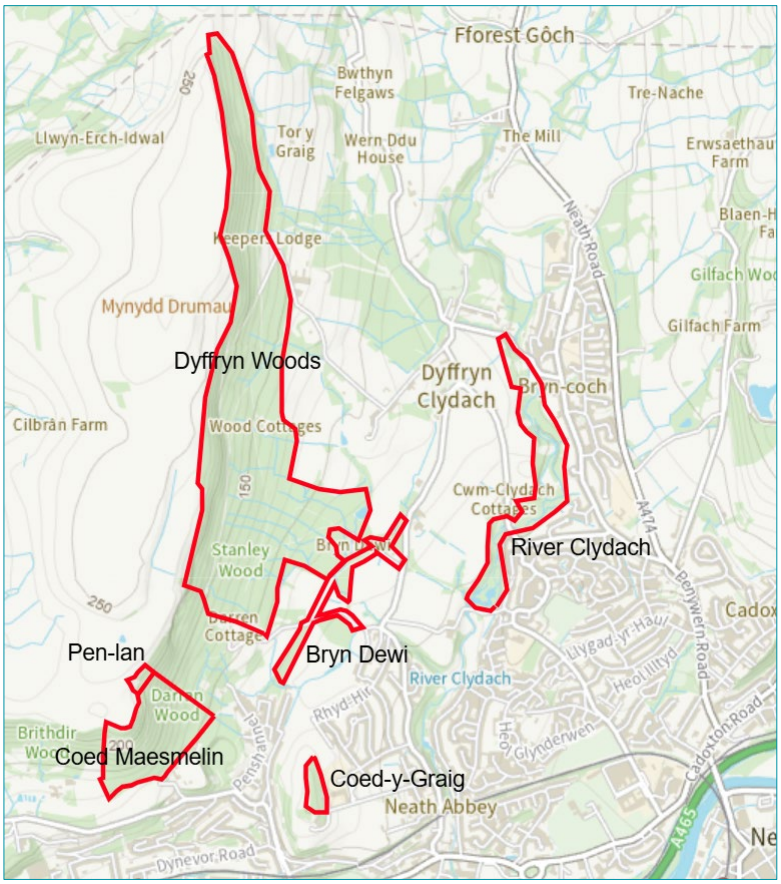


Figure 1. Ordnance Survey map of 2026 survey sites.

Table 1. Survey sites included within the current survey and summary of habitat characteristics, ordered alphabetically by site.

Site	Grid Reference	Habitat description
Bryn Dewi (also known as The Dram Road), Skewen	SS731986	Mixed broadleaved woodland along the former Skewen Dram Road. The understorey varies considerably, being relatively open beneath mature trees and in areas subject to greater recreational pressure, but becoming dense and scrub-dominated in some areas. Invasive non-native species as *Reynoutria japonica* and Rhododendron are present.

Site	Grid Reference	Habitat description
Coed Maesmelin, Skewen	SS724981	Approximately 16.57 ha (40.95 acres) of ancient semi-natural woodland on Mynydd Drumau, representing one of the last remaining areas of such woodland in the locality that has not been replanted with coniferous plantation (Woodland Trust, 2019). The woodland comprises predominantly *Quercus petraea – Betula pubescens – Dicranum majus* woodland, and *Quercus petraea – Betula pubescens – Oxalis acetosella* woodland on the lower slopes. The understorey is predominantly scrub-dominated, with mature and veteran trees present throughout much of the woodland. Some Rhododendron is present.
Coed-y-Graig, Skewen	SS731979	*Quercus petraea* woodland with *Oxalis acetosella*. The understorey varies considerably, being relatively open beneath mature trees and where *O. acetosella* is prevalent, but becoming dense and scrub-dominated in some areas. Invasive non-native species as *Lonicera nitida* and *Prunus laurocerasus* are present.
Dyffryn Woods, Bryncoch	SS7299 & SN737001	One of the largest ancient woodland sites in South Wales, this extensive and structurally varied woodland covers approximately 116.52 ha (287.93 acres) on the eastern side of Mynydd Drumau (Woodland Trust, 2021). The site is an Ancient Woodland Site and was formerly part of a large private estate. Much of the woodland was felled and replanted with conifers during the 1930s, with most of the site subsequently clear-felled by the Forestry Commission during the 1980s. A small number of conifer and Beech *Fagus sylvatica* plantation blocks were retained, while subsequent replanting was predominantly with larch *Larix* and other conifers. These areas are now largely characterised by dense regeneration of birch *Betula*, willow *Salix* and other broadleaved species. Following further conifer felling and extensive Rhododendron control since Coed Cadw acquired the site, there has been substantial regeneration of mixed broadleaved woodland, predominantly birch, with patches of oak *Quercus* and other species. The understorey varies considerably, being relatively open beneath mature trees but dense and scrub-dominated within areas of regeneration and younger broadleaved woodland.
Pen-lan	SS72399839	A small area of *Quercus petraea* wood-pasture on the upper slopes of Mynydd Drumau, beyond the northern boundary of Coed Maesmelin. The understory is grazed improved grassland.
River Clydach, Bryncoch	SS740989 & SS742992	Mixed broadleaved woodland, including some mature trees, alongside the River Clydach. Several invasive non-native plant species are present.

This report presents the results of the survey, which was undertaken by Christian Owen in collaboration with fellow entomologist Liam Olds (trading as Colliery Spoil Biodiversity Initiative). The NRW commission provided for 12 evening surveys, with each evening survey typically comprising approximately 2-3 hours of nocturnal survey effort. Ten of these were undertaken as nocturnal surveys. The remaining two evening surveys were combined to provide one full daytime visit of approximately 7-8 hours, during which the habitat condition of several of the survey sites was assessed. This approach was necessary because a meaningful assessment of habitat condition could not be undertaken effectively during the nocturnal surveys.

A further four evening survey allocations were commissioned separately by Coed Cadw. Two of these were undertaken as nocturnal surveys, while the remaining two were combined to provide one full daytime visit of approximately 7–8 hours for habitat assessment. The additional nocturnal surveys provided further survey effort at Dyffryn Woods, while the daytime assessment covered both Dyffryn Woods and Bryn Dewi. The survey effort, results and associated records from this additional work are presented separately in the Addendum, to distinguish the work undertaken under the two commissions. However, the findings from Dyffryn Woods and the additional records from Bryn Dewi are also considered within the main discussion where relevant to the overall status and distribution of *C. intricatus* in the Lower Neath Valley.

2. Methods

2.1 Nocturnal survey methodology

Owing to the nocturnal behaviour of *C. intricatus* and the species' main period of adult activity and breeding during April, May and June (Pett *et al*., 2024), surveys commenced on the evening of 22nd April 2026, as soon as practicable following the survey commission and at a point in the season considered suitable for detecting adults. On average, two nocturnal surveys were undertaken each week between 22nd April and the final NRW-commissioned survey on 31st May 2026.

Surveys commenced shortly before dusk and generally lasted for 2-3 hours. As daylight hours increased through the spring, survey start times ranged from 20:30 to 21:55, with end times ranging from 23:00 to 00:00. The earliest finishing time of 23:00 occurred during one survey affected by heavy thunderstorms, which necessitated a shortened survey period. Details of the survey dates, sites visited, surveyors, survey duration and weather conditions for the NRW-commissioned surveys are provided in Table 2. The additional nocturnal surveys undertaken as part of the separate Coed Cadw commission are documented in Table A1 of the Addendum.

Table 2. Summary of nocturnal *Carabus intricatus* survey effort and weather conditions.

Date	Site(s) surveyed	Surveyor(s)	Survey time	Weather conditions
22/04/2026	Coed-y-Graig and Bryn Dewi	Christian Owen & Liam Olds	20:50–23:35	Dry, light cloud; 14-11°C; 10 mph E
23/04/2026	Pen-lan and Coed Maesmelin	Christian Owen & Liam Olds	20:45–23:15	Clear; 16-13°C; 10-13 mph E
28/04/2026	Dyffryn Woods and Bryn Dewi	Christian Owen & Liam Olds	20:50-00:00	Clear; 12-10°C; 10-14 mph E
29/04/2026	Dyffryn Woods and Bryn Dewi	Christian Owen & Liam Olds	21:00–23:30	Clear; 15-13°C; 13-14 mph E
03/05/2026	Bryn Dewi and River Clydach	Christian Owen & Liam Olds	20:30–23:50	Dry, overcast; 14-12°C; 6-8 mph NE
05/05/2026	Pen-lan, Coed Maesmelin and Coed-y-Graig	Christian Owen & Liam Olds	20:30–00:20	Dry, partly overcast; 11°C; 5-6 mph N

Date	Site(s) surveyed	Surveyor(s)	Survey time	Weather conditions
14/05/2026	Bryn Dewi	Christian Owen, Liam Olds & Sarah Morgan	21:00–23:30	Clear; 9-7°C; 5–6 mph NW
24/05/2026	Dyffryn Woods and Bryn Dewi	Christian Owen & Liam Olds	20:50–23:45	Clear; 21-18°C; 4-5 mph NE
27/05/2026	Coed-y-Graig	Christian Owen & Liam Olds	21:40–23:00	Thunderstorms with torrential downpours; 22-20°C; 7-8 mph E
31/05/2026	Pen-lan and Coed Maesmelin	Christian Owen & Liam Olds	21:55–23:15	Dry, overcast; 15-14°C; 6-7 mph SW

As *C. intricatus* is typically encountered on tree trunks, high-powered handheld and head-mounted torches were used to illuminate tree trunks during searches. As the majority of adult beetle sightings in Wales have been associated with oak trees (Olds & Dinham, 2020), these were given particular attention. Other tree species were also examined where encountered, including Beech, birch *Betula* spp., Sycamore *Acer pseudoplatanus* and various conifers. Individuals have previously been recorded on Beech and Sycamore, although in substantially lower numbers than on oak. Sessile Oak was by far the most frequently encountered tree species across the survey sites.

Where possible, the entire circumference of each suitable tree trunk was visually inspected, although vegetation and other obstructions sometimes restricted searches to one side of the trunk. Visual inspection of the upper sections of larger trees was also generally challenging, particularly where trunks extended beyond the effective range of the torchlight.

Surveyors generally searched freely throughout each woodland rather than following fixed transects or predetermined routes. This approach was adopted to maximise the area searched and, in particular, to identify previously unrecorded locations occupied by *C. intricatus* within each woodland. Areas where the species had previously been recorded were also revisited to confirm continued occupancy and to assess whether individuals remained associated with previously known trees or areas.

In practice, movement away from established woodland paths was often restricted by dense understorey vegetation and, consequently, searches were generally concentrated along paths and other areas where access was possible. Search effort was directed towards suitable habitat throughout the accessible parts of each site, while allowing surveyors to investigate areas where *C. intricatus* was encountered and to expand the known distribution of the species.

Woodland paths and other accessible areas of woodland floor were also visually searched for adult beetles, particularly individuals potentially moving between trees in search of prey, mates or suitable shelter.

Where an adult *C. intricatus* was located, an attempt was made to determine its sex by examining the front tarsi for the expanded tarsal segments characteristic of males in this species. Sex determination was not always possible, particularly where individuals were high on tree trunks and could only be viewed from a distance, or where the feet and other diagnostic features were obscured by vegetation or debris.

A grid reference was recorded for each *C. intricatus* sighting to allow accurate positioning of individuals and subsequent mapping of records. Grid references were obtained using a mobile phone mapping application. Notes were also made on any observed behaviour, including mating and feeding, and, where applicable, the height above ground at which individuals were located.

Larger and more mature trees were preferentially searched where possible, particularly those displaying features such as rot holes, dead limbs and other areas of dead or decaying wood. These features were considered potentially suitable for *C. intricatus*, including as potential overwintering sites, and may also provide suitable habitat for its prey. Where slugs were observed on tree trunks, these were given particular attention during the search for adult beetles.

From the second NRW-commissioned nocturnal survey onwards, the time of each *C. intricatus* sighting was also recorded. This was not undertaken during the first survey, but was subsequently incorporated to provide additional information on the timing of nocturnal activity during the survey period.

Typically, two woodland sites were surveyed during each nocturnal survey. The number of sites covered varied according to the size and accessibility of individual woodlands, as well as the time required to walk to and from the parking location at The Highlands, Skewen. The survey aimed to visit each woodland site on at least three occasions during the survey period, providing repeated opportunities for detection under different weather and site conditions. Bryn Dewi, including the woodland associated with the former Dram Road, was surveyed on more occasions than the other sites. This was partly because it provided the access route between the parking location at The Highlands and Dyffryn Woods, resulting in additional survey effort, but it was also treated as a distinct survey location in its own right.

The free-search approach was intended primarily to establish the current distribution of *C. intricatus* within the known sites and to identify previously unrecorded occupied areas, rather than to provide a standardised population estimate. Consequently, differences in the numbers of individuals recorded between sites should be interpreted in the context of differences in survey effort, site area, accessibility, weather conditions and the inherently variable detectability of *C. intricatus*.

The survey results should therefore be regarded primarily as an assessment of distribution and relative use of the surveyed sites, rather than as quantitative estimates of population size or population trend. In particular, differences in the number of adults recorded between the 2019 and 2026 surveys cannot be interpreted in isolation as evidence of population increase or decline because survey effort, search area and environmental conditions differed between survey periods.

2.2 Daytime habitat assessments methodology

The survey sites at which *C. intricatus* was recorded during the nocturnal surveys were revisited during daylight hours to assess habitat quality and suitability for the species. These assessments involved a walkover of as much of the accessible area of each site as practicable. Notes were made on a range of habitat characteristics considered relevant to *C. intricatus*, including the tree species present, woodland structure, the density and composition of the shrub and field layers, the presence of invasive non-native species, and the availability and distribution of deadwood. Both standing deadwood and deadwood lying on the woodland floor were considered. Individual trees on which adult *C. intricatus* had been recorded during the nocturnal surveys were also revisited, allowing their characteristics and immediate surroundings to be assessed in greater detail. Site photographs were taken to provide a visual record of habitat conditions at the time of the assessment.

The habitat assessments were intended to inform an overall assessment of the suitability of each site for *C. intricatus*. This was based on the apparent habitat preferences of the species, with British populations generally associated with relatively open woodland and wood-pasture where the shrub and field layers are relatively sparse. Such conditions may be maintained through grazing by livestock, which can help prevent the development of dense scrub and ground vegetation and retain a more open woodland structure. Other habitat features, including the presence of mature and veteran trees, deadwood and potentially suitable prey habitat, were also considered when assessing site suitability.

On 28th May 2026, Christian Owen and Liam Olds undertook a daytime habitat assessment at Coed Maesmelin, Coed-y-Graig and Pen-lan as part of the NRW commission. Bryn Dewi and Dyffryn Woods were assessed during a separate daytime visit on 13th August 2026 as part of the additional work commissioned by Coed Cadw. The methods and findings of the latter assessment are presented in the Addendum. These observations are also considered, where relevant, in the main report's discussion of habitat suitability and potential management requirements.

Given the prolonged dry conditions experienced during summer 2026, little additional effort was made to search for adult or larval *C. intricatus* during the daytime visits. Under such conditions, adults were considered likely to be sheltering within the soil, beneath deadwood or within other suitable refugia to avoid desiccation, and additional daytime searching was therefore considered unlikely to provide a high probability of detection. The daytime visits consequently focused primarily on assessing habitat condition and the features relevant to the species' requirements.

2.3 Survey limitations and interpretation

The survey was designed primarily to establish the current distribution and relative occurrence of *C. intricatus* rather than to generate quantitative population estimates. The free-search methodology maximised the opportunity to locate previously unknown occupied areas but resulted in variation in search effort between sites. Detectability is also likely to vary according to weather, temperature, recent rainfall, vegetation structure, individual behaviour and the accessibility and visibility of tree trunks.

Dense understorey vegetation restricted access to parts of several sites, particularly Coed Maesmelin, meaning that some areas could not be searched as effectively as more open parts of the woodland. Conversely, the greater accessibility and visibility of mature trees alongside paths and woodland margins may have increased the likelihood of detecting beetles in these areas.

Spring 2026 was exceptionally dry, with the majority of the nocturnal surveys undertaken during dry conditions. Although many of the survey evenings were relatively mild, conditions were generally very dry. This is noteworthy because *C. intricatus* is understood to be particularly active during mild, damp conditions, and prolonged dry weather might therefore be expected to reduce activity and consequently the detectability of individuals during nocturnal searches.

However, observations during the 2026 surveys suggest that the relationship between weather conditions and detectability may be more complex. Despite the predominantly dry conditions, adults were frequently encountered and, on some evenings, appeared to be particularly active. One possible explanation is that reduced availability of prey, particularly slugs, during prolonged dry weather may have resulted in increased movement by adult beetles in search of food. In addition, males may have been actively searching for female mates, which could have contributed to increased movement irrespective of prevailing weather conditions. These explanations remain speculative, and the survey data are insufficient to establish whether the apparently increased activity was genuinely related to the prevailing dry conditions.

Interestingly, on the small number of occasions when surveys were undertaken following periods of rainfall, adult *C. intricatus* appeared more difficult to locate. One possible explanation is that wetter conditions may have increased the availability of prey, particularly slugs, allowing adults to feed more readily and subsequently reducing the need for extensive movement for several days. This could potentially result in lower activity and reduced detectability during nocturnal surveys. However, this remains speculative, and the apparent difference may also have resulted from variation in the sites surveyed, survey timing or other factors. Consequently, no firm conclusions can be drawn regarding the influence of rainfall, prey availability and feeding activity on the detectability of *C. intricatus* from the 2026 observations alone.

The results should therefore be interpreted as an assessment of current distribution and habitat use rather than a quantitative assessment of population size or population trend. Nevertheless, the repeated occurrence of adults at several sites, the distribution of records across the landscape, observations of breeding behaviour and the differences in habitat condition between sites provide a basis for identifying current conservation priorities. The exceptionally dry conditions should also be considered when comparing the 2026 results with surveys undertaken in previous years, particularly where survey effort and weather conditions differed substantially.

3. Results

3.1 Nocturnal surveys

Ten nocturnal surveys were undertaken in 2026 as part of the NRW commission. A total of 51 adult *Carabus intricatus* were recorded during these surveys, comprising eight females, 30 males and 13 individuals for which sex could not be determined. Full details of the records obtained during the NRW-commissioned surveys, including survey date, location, tree species, height and associated observations, are provided in Appendix 1.

The records were distributed across six localities: Bryn Dewi, Coed-y-Graig, Coed Maesmelin, Dyffryn Woods, Longford Lane and Pen-lan. The number of adults recorded at each locality is summarised in Table 3. The distribution of records from the 2026 NRW and Coed Cadw surveys is shown in Figure 2.

Table 3. Number of adult *Carabus intricatus* recorded and number of nocturnal survey visits undertaken at each locality during the 2026 NRW survey. *The Longford Lane record was obtained incidentally while surveyors were walking between The Highlands and Coed-y-Graig and does not represent three dedicated survey visits to the locality.

Site	Number of adults recorded	Number of nocturnal surveys
Bryn Dewi	18	6
Coed-y-Graig	17	3
Coed Maesmelin	8	3
Pen-lan	6	3
Dyffryn Woods	1	1
Longford Lane	1	Incidental record*
Total	**51**	-

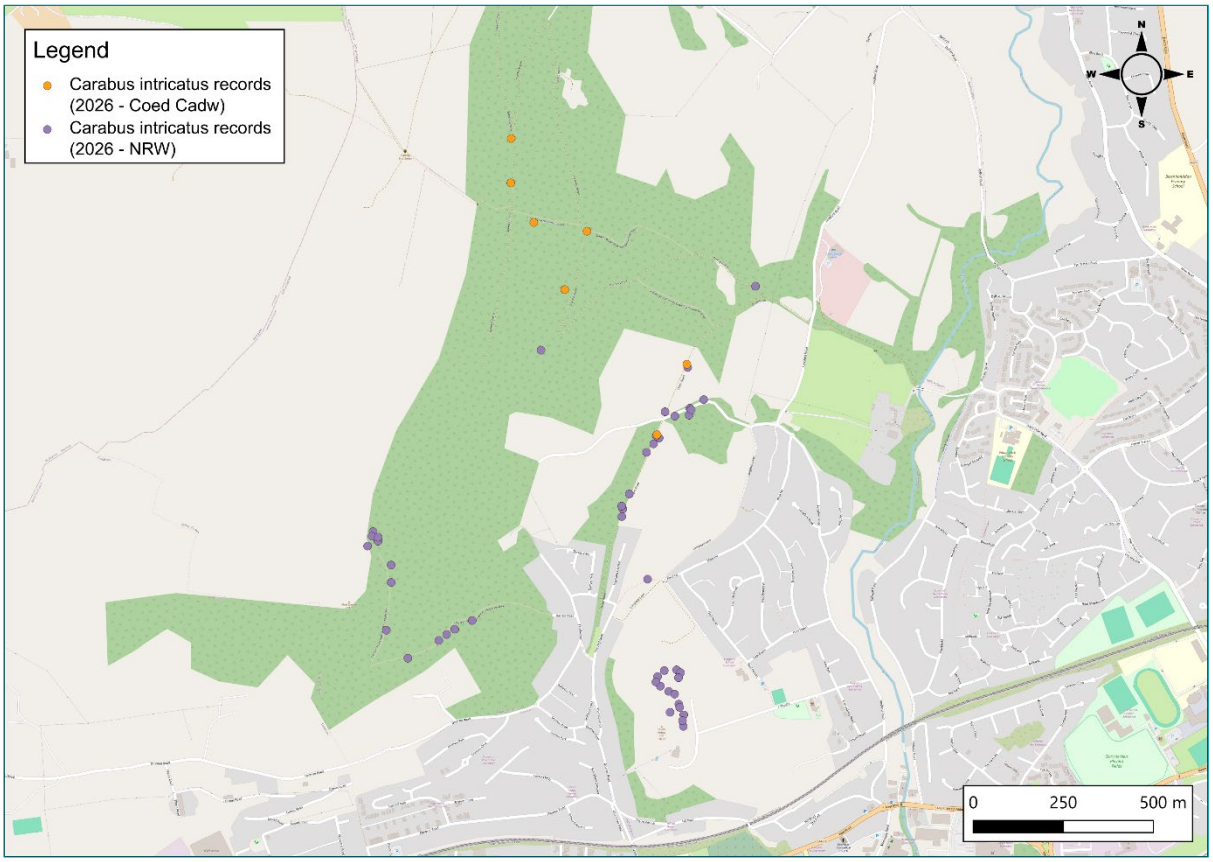


Figure 2. Distribution of adult *Carabus intricatus* records recorded during the 2026 NRW and Coed Cadw surveys in the Lower Neath Valley.

The majority of records were associated with oak trees. In total, 40 individuals were recorded on oak, predominantly on living trees, although some were encountered on standing dead or fallen dead oak. A further six individuals were recorded on Beech, two on birch and one on *Salix* willow. Two individuals were encountered on the ground rather than on trees.
Adults were recorded at a range of heights on tree trunks, from close to ground level to approximately 25 ft above ground. The majority of individuals were recorded on mature trees, but some were associated with younger trees or deadwood. Adults were recorded on the same Beech tree at Bryn Dewi (Photo 1) on three separate survey dates during the 2026 NRW survey, as well as one further date during the 2026 Coed Cadw survey. It is unclear whether these records represented the same individual being encountered on the same tree on multiple occasions, or several separate individuals using the tree on different dates.

A mating pair was recorded at Bryn Dewi on 29th April. The pair was located on an oak tree at approximately 12 ft above ground, with the female observed feeding on a slug while copulation was taking place. A gravid female was also recorded at Pen-lan on 5th May. Longford Lane represents a new locality for *C. intricatus*. The locality comprises a footpath between the residential streets of The Highlands and Rhyd-Hir, alongside the north side of which is a tree-lined field boundary supporting several mature broadleaved trees (Photo 2).

An adult *C. intricatus* was recorded on a mature oak while surveyors were walking between The Highlands and Coed-y-Graig. The record was therefore made incidentally while moving between survey areas and represents the first record of the species from this locality.



Photo 1. Beech *Fagus sylvatica* alongside the former Dram Road on which adult *Carabus intricatus* were recorded on four separate survey dates.



Photo 2. Longford Lane, showing the mature oak *Quercus* tree in the foreground (right) on which an adult *Carabus intricatus* was recorded during the 2026 surveys.

3.2 Daytime habitat assessments

Daytime habitat assessments were undertaken at Coed Maesmelin, Coed-y-Graig and Pen-lan on 28th May 2026, with additional assessments undertaken at Bryn Dewi and Dyffryn Woods on 13th August 2026 as part of the Coed Cadw survey work. The assessments focused on woodland structure, the extent and density of the shrub and field layers, the availability of mature and veteran trees, standing and fallen deadwood, grazing, and the presence of invasive non-native plant species. Selected photographs illustrating habitat structure and condition at the assessed sites are provided in Appendix 2.

The assessments identified considerable variation in habitat structure between and within the survey areas. Areas supporting *C. intricatus* generally contained mature or veteran broadleaved trees and relatively open ground conditions, with limited dense shrub growth. Pen-lan was particularly open as a result of grazing, while Coed-y-Graig retained areas of relatively open woodland beneath mature trees. In contrast, parts of Coed Maesmelin, Bryn Dewi and Dyffryn Woods supported dense scrub and understorey vegetation, which restricted access and reduced the extent of apparently suitable open habitat.

Mature and veteran trees were widespread across the surveyed woodlands, with standing dead trees, dead limbs and fallen deadwood also recorded. The availability of dead and decaying wood did not appear to be a limiting habitat feature at the surveyed sites. In

particular, several standing dead and decaying trees and areas of fallen deadwood were noted at Coed Maesmelin and Bryn Dewi.

Invasive non-native plant species were also recorded at several sites, including Rhododendron, Cherry Laurel *Prunus laurocerasus*, Wilson's Honeysuckle *Lonicera nitida* and Japanese Knotweed *Reynoutria japonica*. Their distribution was generally localised, although treatment is recommended where these species have the potential to spread or contribute to further deterioration of habitat condition.

No systematic daytime searches for adult *C. intricatus* were undertaken during these assessments. The surveys took place during a prolonged period of dry weather, when adults were considered likely to be sheltering within deeper soil refugia, beneath deadwood or in other sheltered locations. Consequently, daytime observations were considered unlikely to provide a reliable indication of population size or distribution and the results are primarily used to assess habitat condition and management requirements.

4. Discussion & conclusions

4.1 Overview of the 2026 survey findings

The 2026 NRW-commissioned surveys recorded 51 adult *C. intricatus* across six localities in the Lower Neath Valley. Additional surveys commissioned separately by Coed Cadw produced five further adult records at Dyffryn Woods and two further records at Bryn Dewi (Addendum). Taken together, these findings confirm the continued occurrence of the species across the Mynydd Drumau woodland complex and surrounding landscape. Comparison with the previous systematic surveys undertaken in 2019 (Olds & Dinham, 2020) indicates considerable variation in the number of adults recorded between sites. These differences should be interpreted cautiously because survey effort, weather conditions, accessibility and the potential detectability of the species varied between survey periods. The free-search methodology used in both survey periods was primarily intended to establish distribution and identify occupied areas rather than provide standardised population estimates. Consequently, differences in raw numbers between 2019 and 2026 should not be interpreted in isolation as evidence of population increase or decline.

Nevertheless, the results provide useful evidence of changes in the distribution and apparent importance of individual sites and, when considered alongside the daytime habitat assessments, provide an indication of the current condition and suitability of the principal localities.

4.1.1 Coed Maesmelin

Coed Maesmelin appears to have undergone a notable deterioration in habitat condition since the previous surveys. Fifteen adults were recorded during four nocturnal surveys in 2019 (Olds & Dinham, 2020) compared with eight adults during three surveys in 2026. More importantly, the spatial distribution of records appears to have contracted. All eight adults recorded in 2026 were associated with the margins of the main footpath extending through Coed Maesmelin from Darren Close towards the summit of Mynydd Drumau and the Pen-lan trig point, as illustrated in Figure A2.1 in Appendix 2. During the earlier surveys, a concentration of adults was recorded in the south-eastern part of the woodland around SS726982, but no individuals were recorded in this area during the 2026 surveys.

The apparent reduction in the area in which *C. intricatus* was recorded coincides with a substantial change in the structure of the woodland understorey. Comparison with conditions observed during the 2019 surveys, alongside the 2026 daytime habitat assessment, indicates that the woodland now supports extensive areas of dense bramble and other understorey vegetation (Figures A2.2–A2.14 in Appendix 2). This represents a potentially significant reduction in the availability of the relatively open woodland conditions considered favourable to *C. intricatus*.

Habitat management was undertaken at Coed Maesmelin during the Buglife-led project, including bramble and scrub control during the winter of 2019-20, while infrastructure was also installed to facilitate livestock grazing within the woodland. It appears that these management interventions have subsequently ceased or have become insufficient to maintain the desired habitat structure. The current density of bramble also prevented surveyors from accessing substantial areas of the woodland away from the main paths during the 2026 daytime and nocturnal surveys. Although this restricted the area that could be searched, much of the inaccessible woodland appeared to be characterised by dense understorey and was therefore likely to provide less suitable conditions for *C. intricatus* than areas with a more open structure.

The current findings suggest that reinstating active habitat management at Coed Maesmelin should be considered a priority. In particular, renewed control of dense bramble, bracken and other scrub, together with the use of appropriate livestock grazing where practicable, could help restore a more open woodland structure favourable to *C. intricatus*. Management should be targeted carefully to retain mature and veteran trees, standing and fallen deadwood, and other important structural features while reducing excessive development of the shrub and field layers.

Although some areas of scrub are particularly dense and are likely to require considerable effort to manage, the steep and challenging terrain on parts of the upper slopes may make both mechanical and manual cutting difficult. The photographs in Appendix 2 illustrate the variation in understorey density across the site. In contrast, some areas of the lower slopes support a thinner layer of bramble and/or bracken, as illustrated in Figures A2.4, A2.7 and A2.13. These areas may offer opportunities for relatively straightforward, targeted scrub clearance, allowing meaningful improvements in habitat structure to be achieved at an early stage. Prioritising such areas could provide an achievable starting point for a phased

programme of habitat restoration, while more challenging areas of dense scrub on the upper slopes are addressed as resources and access allow. Any clearance should be carefully planned to retain important trees and deadwood, avoid unnecessary disturbance to the woodland floor and maintain a varied woodland structure.

The availability of dead and decaying wood is unlikely to be a limiting factor for *C. intricatus* at Coed Maesmelin. Several standing dead and decaying trees were noted along the main path during the 2026 surveys, together with some fallen deadwood on the woodland floor. In contrast, the extensive development of dense scrub, particularly bramble, appears more likely to be limiting the availability of suitable open woodland habitat and may be a key factor contributing to the apparent reduction in the area in which the species was recorded. Consequently, management to reduce scrub encroachment and restore a more open woodland structure is likely to be a higher priority than increasing the availability of deadwood.

Rhododendron control should also remain a management priority. Although substantial effort has previously been made to control Rhododendron within Coed Maesmelin, some plants remain within the woodland. Cherry Laurel is also present in some locations. These invasive non-native shrubs should be treated where practicable to prevent further spread and avoid the development of additional dense, evergreen understorey. Control should be undertaken sensitively to minimise disturbance to the woodland floor and retain important mature trees and deadwood features.

4.1.2 Coed-y-Graig

In contrast to Coed Maesmelin, Coed-y-Graig appears to have retained habitat conditions capable of supporting a substantial population of *C. intricatus*. Eleven adults were recorded during two nocturnal surveys in 2019 (Olds & Dinham, 2020), compared with 17 adults during three nocturnal survey visits in 2026. Although differences in survey effort and environmental conditions prevent direct comparison of the numbers recorded, the 2026 findings confirm that the species remains well established within this relatively small woodland.

The availability of dead and decaying wood does not appear to be limiting at Coed-y-Graig, with both standing dead trees and fallen deadwood present throughout parts of the woodland (Figures A.23-A.25 in Appendix 2). Several adults were directly associated with these features during the 2026 surveys, including a male on each of a dead Beech and a dead oak, and two males on the same dead oak limb. These observations demonstrate that dead and decaying trees provide important structures used by adult *C. intricatus* at the site and reinforce the importance of retaining standing deadwood, fallen trees and dead branches wherever it is safe and practicable to do so.

The woodland supports a varied understorey, ranging from relatively open areas to patches of denser vegetation comprising bramble, Holly *Ilex aquifolium*, Beech and other broadleaved saplings (Figures A2.15-A2.22). Bramble scrub is most prevalent in localised areas receiving higher light levels, particularly along the western edge of the raised ridge

either side of the footpath (Figures A2.17 and A2.21) and the north-eastern woodland margins on the lower slopes (Figure A2.22). Elsewhere, areas of more open understorey and natural tree regeneration contribute to the woodland's structural diversity. This variation appears compatible with the continued presence of *C. intricatus*, although maintaining sufficient areas of relatively open woodland will be important to prevent the progressive development of dense scrub and understorey vegetation.

Although relatively few and localised, invasive non-native plants are present within Coed-y-Graig and should be treated where practicable to prevent further spread. These include Cherry Laurel and Wilson's Honeysuckle. Control should be undertaken sensitively to avoid unnecessary disturbance to the woodland floor and to retain mature trees, deadwood and other features of potential importance to *C. intricatus*.

Coed-y-Graig also experiences recreational disturbance, including campfires and evidence of burning and fire damage to trees (Figures A2.15 and A2.16). Nevertheless, adult *C. intricatus* were recorded on oak trees in areas where the understorey remained relatively open. The observations indicate that the species continues to occupy parts of the woodland subject to these pressures, but they do not establish whether recreational activities have any adverse effects on the population or its habitat. Campfires and associated damage to trees should therefore be discouraged, particularly where they threaten mature trees, deadwood or other features of potential importance to the species.

The importance of Coed-y-Graig is further demonstrated by previous evidence of overwintering adults. Eighteen individuals were found within the woodland on 29th January 2020, including 16 associated with the dry-stone wall (Olds & Dinham, 2020). The combination of relatively open woodland structure, mature trees, plentiful standing and fallen deadwood, and the dry-stone wall appears to provide a particularly valuable range of habitat features. The wall may offer sheltered crevices suitable for overwintering, while the surrounding woodland provides mature trees and other structures used by active adults. Coed-y-Graig therefore appears to represent one of the most important known individual woodland localities for *C. intricatus* in Wales.

The apparent retention of suitable habitat at Coed-y-Graig is particularly significant when considered alongside the deterioration in habitat condition observed at Coed Maesmelin. Management should seek to retain the existing mosaic of relatively open woodland, mature trees, deadwood and areas of natural regeneration, while preventing dense scrub from becoming dominant. The dry-stone wall (Figure A2.27) should also be retained and protected from damage or inappropriate management. During the daytime assessment, the upper course of the wall appeared to have been disturbed, with some sections reduced in height, possibly through deliberate interference, while other sections had collapsed following tree falls. The cause of the apparent disturbance could not be confirmed. Where repairs are necessary, these should be undertaken sensitively, retaining suitable crevices and sheltered conditions that may provide overwintering habitat for *C. intricatus*.

The woodland immediately adjacent to Coed-y-Graig also warrants further investigation. This area contains several mature Beech trees and appears to provide potentially suitable habitat contiguous with, or closely connected to, the existing woodland. One of these

mature trees has fallen into Coed-y-Graig, damaging a section of the dry-stone wall (Figure A2.26). Targeted surveys of the adjacent woodland would help establish whether *C. intricatus* already occurs there and whether its distribution extends beyond the currently surveyed area. A resurvey of the previously known Graig locality would also be valuable, subject to establishing land ownership and obtaining the necessary access permission.

4.1.3 Pen-lan

The wood-pasture at Pen-lan continues to support *C. intricatus*, with six adults recorded during three nocturnal surveys in 2026. This compares with three adults recorded during a single survey at the locality in 2019 (Olds & Dinham, 2020). However, differences in survey effort mean that these results cannot be used to infer a change in population size.

Pen-lan represents an important example of the relatively open woodland and wood-pasture conditions associated with *C. intricatus* in Britain. The habitat has an open structure, with no shrub cover, while the field layer is maintained through sheep grazing (Figure A2.28 in Appendix 2). These conditions are likely to provide opportunities for nocturnal movement and foraging and contrast with the dense understorey now present across substantial parts of the adjacent Coed Maesmelin. Deadwood is also a prominent feature, with several fallen trees present (Figure A2.28). One male *C. intricatus* was recorded on the trunk of a fallen oak, demonstrating that this feature was being used by the species.

Continued grazing at Pen-lan is likely to be important in maintaining the open habitat structure and preventing the development of dense scrub. The site also illustrates how relatively open wood-pasture can complement more densely vegetated woodland within the wider Mynydd Drumau landscape, potentially providing a range of habitat conditions for *C. intricatus*. Maintaining this open structure, while retaining mature trees and fallen deadwood, should therefore remain a management priority.

4.1.4 Bryn Derw and the former Dram Road

The 2026 surveys indicate that Bryn Dewi, including the woodland associated with the former Dram Road (as illustrated in Figures A2.29-A2.30 in Appendix 2) and woodland alongside several access roads connecting to the Dram Road (such as that shown in Figure A2.31), is an important locality for *C. intricatus*. Five adults were recorded during two surveys in 2019 (Olds & Dinham, 2020), compared with 18 adults during the NRW surveys in 2026. A further two adult records were obtained during the additional Coed Cadw survey effort in May 2026 (see Addendum). Adults were encountered along much of the former Dram Road (Figure 2), indicating that the species uses an extensive section of this corridor rather than being confined to a single, discrete area.

The repeated occurrence of adults at the site provides strong evidence that Bryn Dewi supports an established population. This is reinforced by records from the same Beech tree (Photo 1) on four separate dates, three during the NRW survey, and the observation

of a mating pair on a nearby oak. The latter is particularly significant, demonstrating that the site was being used for reproductive activity during the survey period. Nevertheless, the number of records should not be interpreted as a direct measure of population size.

The distribution of records also highlights the potential importance of the former Dram Road as a linear habitat corridor. The woodland associated with the route may facilitate movement between areas of known or potentially suitable habitat, including Dyffryn Woods, Coed Maesmelin, Graig and Coed-y-Graig. Potential connectivity towards Darran Wood is also worthy of further investigation.

The corridor and adjacent woodland experience considerable recreational pressure. The former Dram Road is a frequently used public right of way, while the surrounding woodland is also used by local children, who have created bicycle tracks and constructed ramps using materials including fallen deadwood (Figures A2.34-A2.35). Fallen deadwood was nevertheless present along the former Dram Road (Figures A2.36-A2.37), although recreational activity may disturb or displace some of this material, potentially affecting its suitability as shelter or refugia. Given the number of adult records obtained during the 2026 surveys, dead and decaying wood does not appear to be a limiting factor for the species at this locality at present. However, the potential effects of continued disturbance on habitat quality cannot be ruled out.

Away from the paths and bicycle tracks, the adjacent woodland is generally scrubby, with plentiful natural regeneration, particularly of Sycamore (Figures A2.38-A2.41). Some areas comprise relatively young woodland in the earlier stages of secondary succession. Although this regeneration contributes to the woodland's structural diversity, further development of dense scrub and understorey vegetation could reduce the availability of relatively open habitat. Management should therefore seek to maintain a varied woodland structure, retaining mature trees and deadwood alongside open areas and some scrubby vegetation. The latter may provide shelter and help maintain humid conditions locally, potentially benefiting the slugs and other invertebrates that provide prey for *C. intricatus*. Management should be targeted and proportionate, avoiding the wholesale removal of scrub or natural regeneration.

Most adults recorded during the 2026 surveys were associated with mature trees immediately alongside the former Dram Road or other accessible routes, such as that shown in Photo 2 and in Figure A2.32 in Appendix 2. Searches of mature trees within woodland away from these routes did not produce additional records, despite some trees appearing superficially suitable (Figure A2.33). This pattern may partly reflect differences in detectability, as tree trunks alongside paths are generally more accessible and at least one side can usually be examined more easily. However, the repeated occurrence of adults on relatively open-grown trees alongside paths and roads, combined with the absence of records from some apparently suitable trees within denser woodland, raises the possibility that *C. intricatus* has a genuine association with open-grown trees and woodland margins.

This apparent association is consistent with the importance of relatively open woodland and wood-pasture conditions at other localities in Britain, including elsewhere in the Lower

Neath Valley. However, further surveys using a standardised sampling design would be required to establish whether the observed pattern reflects a genuine habitat association or is primarily attributable to differences in detectability and search conditions.

Management of the former Dram Road corridor should prioritise the retention of mature and veteran trees, standing and fallen deadwood, and a varied understorey that maintains relatively open areas without eliminating all scrub and natural regeneration. Recreational impacts should also be considered, particularly where activities result in damage to trees or the displacement of deadwood. Invasive non-native plants require treatment where practicable: Rhododendron is present at SS7308298507, while Japanese Knotweed occurs along the watercourse around SS73019840 (Figure A2.42). Control measures should be undertaken sensitively to minimise disturbance to occupied or potentially suitable habitat. Given the length of the corridor and its position within a network of woodland sites, maintaining connectivity between individual woodland blocks should also be an important consideration in the conservation of the wider *C. intricatus* population.

4.1.5 Dyffryn Woods

The NRW survey confirmed the continued presence of *C. intricatus* at Dyffryn Woods, with one adult recorded during the survey period. This was comparable with the single adult recorded during three nocturnal surveys in 2019 (Olds & Dinham, 2020), although the 2026 record was approximately 140 m south-east of the previous record and involved an adult found on a mature oak (see Figure A2.43 in Appendix 2), rather than the dead Beech on which the species was recorded in 2019.

The additional nocturnal surveys undertaken at Dyffryn Woods as part of the Coed Cadw commission provide important further evidence of the species' distribution within this extensive woodland. Five additional adult records, comprising three females and two males, were obtained during the survey on 12th May 2026. Four adults were recorded on Beech trees, while one male was observed crossing a woodland path. Full details of these records are provided in Table A2 of the Addendum. Together with the NRW record, these findings bring the total number of adult records from Dyffryn Woods during 2026 to six, demonstrating that the species was detected at multiple locations within the woodland. The additional survey effort substantially strengthens the evidence for the importance of Dyffryn Woods within the Lower Neath Valley population. It also illustrates how a single record obtained through limited survey effort may not adequately represent the distribution of *C. intricatus* within a large and structurally varied woodland. Nevertheless, the records should not be interpreted as a quantitative measure of population size or as evidence of a change in population status.

Of particular significance is the record of an adult on a roadside Beech at SS7278299489 (Figure A2.44), which represents the most northerly known record of *C. intricatus* in Wales. Additional searches were undertaken further north within Dyffryn Woods, extending as far as SN72690135, but no further adults were located. This does not necessarily indicate that the species is absent from these areas, particularly given the extent and structural variation of the woodland and the potentially variable detectability of *C. intricatus*.

Dyffryn Woods has undergone substantial habitat change following its acquisition by Coed Cadw, including further conifer felling and extensive Rhododendron control. These interventions have been followed by considerable regeneration of mixed broadleaved woodland. In some areas, this has resulted in a dense understorey of broadleaved saplings and bramble scrub (Figures A2.45-A2.46), which may provide less favourable conditions for *C. intricatus* than more open woodland. However, understorey conditions vary considerably across the site, and areas of relatively open ground beneath mature trees remain (Figures A2.47–A2.51). Given the extent of the woodland, it would be inappropriate to characterise habitat suitability across the site solely on the basis of conditions observed in particular areas.

The 2026 records were generally associated with mature Beech trees alongside footpaths or forestry vehicle tracks (Figure 2), including one adult recorded on a fallen Beech tree. One adult was also observed crossing a woodland path (as shown in Figure A2.52) during the Coed Cadw survey. This pattern was apparent despite searches of numerous apparently suitable mature trees within areas of mature Beech plantation with a relatively open understorey (Figures A2.47–A2.51), as well as searches of several trees of a significant age (such as that shown in Figure A2.53). The observations raise the possibility that *C. intricatus* may be associated with woodland edges, tracks and more open-grown trees. However, this apparent pattern could also reflect differences in detectability, as trees alongside paths and tracks are generally more accessible and easier to examine. Further surveys using a standardised sampling approach would be needed to determine whether the observed pattern represents a genuine habitat association.

Given the extensive area of Dyffryn Woods, the variation in understorey structure and the additional records obtained through the Coed Cadw surveys, further targeted surveys are warranted. These should investigate areas beyond the locations where adults have already been recorded, including apparently suitable woodland further north and areas away from established paths and forestry tracks. A more systematic approach would help establish the extent of the occupied area, improve understanding of habitat use and investigate potential connectivity with other known localities in the Lower Neath Valley. Until such work has been undertaken, the current records are best regarded as confirming the presence of *C. intricatus* at multiple locations within Dyffryn Woods, rather than defining the full extent of its distribution.

4.1.6 Longford Lane and landscape connectivity

The discovery of *C. intricatus* at Longford Lane is significant because it demonstrates that the species can occur outside the larger woodland blocks that have historically been the focus of survey effort. The adult was recorded on a mature oak along a tree-lined field boundary between The Highlands and Rhyd-Hir, where several mature broadleaved trees occur alongside the footpath (Photo 2).

The Longford Lane record is important not simply as an extension of the known distribution, but because it demonstrates that *C. intricatus* may utilise relatively narrow

linear habitats outside the larger woodland blocks that have historically been the focus of survey effort. Narrow tree-lined field boundaries, small woodland blocks and individual mature trees may provide habitat for adults and potentially contribute to movement between larger occupied woodland areas.

The record also illustrates the value of inspecting apparently less typical habitats when moving between known sites. However, as the record was obtained incidentally rather than through a dedicated survey of the locality, further survey would be required to determine whether Longford Lane supports a resident population or represents occasional use by dispersing individuals.

Given the number of small woodland blocks, mature tree lines and other areas of potentially suitable habitat around Skewen, Bryncoch and Neath Abbey, there is considerable scope for further survey to identify additional *C. intricatus* localities. Such surveys could help establish whether the known sites form part of a more extensive and potentially interconnected distribution than is currently recognised.

4.2 Implications for the conservation of *Carabus intricatus* in the Lower Neath Valley

Taken together, the 2026 results suggest that the conservation status of *C. intricatus* in the Lower Neath Valley is strongly influenced by the condition and connectivity of individual woodland and wood-pasture habitats. The species is not restricted to one particular woodland type, but the occupied sites share a number of important characteristics, including mature broadleaved trees, an open or relatively open woodland structure, limited development of dense scrub and ground vegetation, and the presence of deadwood and other sheltered features.

The 2026 records also suggest that the Lower Neath Valley population should not necessarily be regarded as a series of wholly isolated woodland colonies. Records from Bryn Dewi, Coed-y-Graig, Coed Maesmelin, Pen-lan, Dyffryn Woods and Longford Lane indicate a potentially interconnected population occupying a heterogeneous network of woodland, wood-pasture, woodland margins and mature tree corridors across Mynydd Drumau and the surrounding landscape. The degree of connectivity between these localities remains uncertain, however, and further survey would be required to establish whether individuals regularly move between them.

The contrast between Coed Maesmelin and Coed-y-Graig is particularly informative. Coed Maesmelin historically supported substantial numbers of *C. intricatus*, but the apparent increase in dense understorey vegetation and reduction in accessible open habitat coincide with a smaller area of woodland from which adults were recorded in 2026. Conversely, Coed-y-Graig continues to support comparatively high numbers of adults despite its relatively small area, with an open woodland structure and additional overwintering features provided by the dry-stone wall. Pen-lan provides a further example of the apparent value of maintaining open conditions through grazing.

These observations support the continuation or reinstatement of management measures that maintain an open woodland structure where appropriate. Grazing appears particularly valuable in the wood-pasture habitat at Pen-lan and could potentially play an important role elsewhere where feasible, especially at Coed Maesmelin. However, management should avoid creating uniformly open conditions and should instead retain a structurally diverse mosaic containing mature and veteran trees, standing and fallen deadwood, open areas and areas of natural regeneration.

The apparent importance of Bryn Dewi and the former Dram Road, as well as the new Longford Lane record, also highlights the need to consider *C. intricatus* at a landscape scale. Conservation management should not focus solely on the larger known woodlands, as linear tree corridors, small woodland blocks, mature field boundaries and individual trees may contribute to dispersal and connectivity between occupied sites. Further targeted survey of these features could therefore identify additional populations and improve understanding of the extent to which the known localities are interconnected.

The results also demonstrate the value of continued monitoring. Differences in the number and distribution of adults between 2019 and 2026 suggest that occupancy and habitat use can change over relatively short periods, particularly where habitat management changes. However, because the surveys were not standardised sufficiently to generate quantitative population estimates, such differences should be interpreted primarily as evidence of changes in distribution and habitat use rather than population trends.

Repeat nocturnal surveys, combined with periodic daytime habitat assessments, would provide a useful means of monitoring both the distribution of *C. intricatus* and the condition of its supporting habitat. Future monitoring would ideally use consistent survey routes or search areas, comparable survey effort and, where practicable, similar seasonal and weather conditions. This would improve the ability to identify genuine changes in distribution and habitat use over time.

This would be particularly important at Coed Maesmelin, where targeted habitat management and subsequent monitoring could help determine whether restoration of a more open woodland structure results in an expansion of the area occupied by the species.

5. Recommended management and monitoring priorities

Based on the findings of the 2026 surveys and associated habitat assessments, the following management, survey and monitoring priorities are recommended.

5.1 Coed Maesmelin

- Reinstate or strengthen management of dense bramble and other scrub to maintain and restore areas of relatively open woodland.
- Prioritise areas of thinner bramble and bracken on the lower slopes, where targeted clearance may offer relatively straightforward opportunities for early habitat improvements. Explore suitable methods for managing denser scrub on the steeper upper slopes, where access and terrain may constrain operations.
- Investigate the feasibility of reinstating or strengthening livestock grazing to help maintain a more open woodland structure.
- Continue control of Rhododendron and Cherry Laurel where practicable.
- Retain mature and veteran trees, standing deadwood and fallen deadwood.
- Monitor the response of *C. intricatus* to habitat management, including any changes in its distribution within the site and use of areas subject to scrub management.

5.2 Coed-y-Graig

- Retain the existing mosaic of relatively open woodland, mature trees, natural regeneration and areas of scrub, preventing dense scrub from becoming dominant.
- Retain mature and veteran trees, standing deadwood and fallen deadwood wherever safe and practicable.
- Protect the dry-stone wall from further disturbance. Where repair is necessary, retain suitable crevices and sheltered features that may provide overwintering habitat for *C. intricatus*.
- Discourage campfires and other recreational activities that could damage trees, disturb deadwood or otherwise degrade the woodland habitat.
- Control Cherry Laurel and Wilson's Honeysuckle where practicable.
- Survey the adjacent woodland to determine whether the occupied area extends beyond the currently known woodland boundary.
- Resurvey the former Graig locality, subject to establishing land ownership and obtaining the necessary access permission.

5.3 Pen-lan

- Maintain the existing sheep-grazing regime, where appropriate, to retain the open wood-pasture structure.
- Prevent significant encroachment by dense scrub and woody regeneration while retaining some natural regeneration and structural diversity.
- Retain mature trees, standing deadwood and fallen deadwood wherever practicable.

5.4 Bryn Derw and the former Dram Road

- Retain mature and veteran trees, particularly relatively open-grown trees along the former Dram Road and woodland margins.
- Maintain a varied woodland structure, retaining relatively open areas alongside some scrub and natural regeneration, while preventing the development of extensive dense understorey where this would reduce the availability of open habitat.
- Retain standing and fallen deadwood wherever practicable, and minimise recreational disturbance that damages trees or displaces deadwood.
- Continue control of Rhododendron and Japanese Knotweed at the recorded locations, using methods that minimise disturbance to suitable habitat.
- Investigate potential connectivity towards Darran Wood and maintain the continuity of suitable habitat along the former Dram Road corridor.

5.5 Dyffryn Woods

- Undertake further targeted nocturnal surveys to establish the extent of the occupied area, recognising that the woodland is extensive and that the 2026 records are unlikely to define the full distribution of the species across the site.
- Survey suitable habitat both alongside footpaths and forestry tracks and within the woodland interior, including areas further north and beyond the locations where adults have already been recorded.
- Use a consistent sampling approach, where practicable, to investigate the apparent association with mature Beech, oak, woodland margins and relatively open-grown trees, while accounting for differences in detectability.
- Retain mature trees, standing and fallen deadwood, and areas of relatively open woodland structure, alongside a varied understorey.
- Continue control of invasive non-native vegetation, including Rhododendron, where practicable, while minimising disturbance to potentially suitable habitat.

5.6 Landscape-scale survey and connectivity

- Undertake targeted surveys of mature tree lines, field boundaries, small woodland blocks and other potentially suitable habitat between known localities.
- Investigate potential connectivity between Bryn Dewi, Coed Maesmelin, Coed-y-Graig, Pen-lan, Dyffryn Woods and surrounding habitats.
- Prioritise investigation of potentially suitable habitat around Skewen, Bryncoch and Neath Abbey, where the Longford Lane record indicates that the species may occur beyond the previously recognised woodland localities.
- Where access and permissions allow, extend surveys to additional potentially suitable habitat to help identify any further occupied sites and improve understanding of the distribution of *C. intricatus* in the Lower Neath Valley.

5.7 Long-term monitoring

- Repeat nocturnal surveys at appropriate intervals to monitor changes in the known distribution and habitat use of *C. intricatus*.
- Where possible, use consistent survey routes, search areas, survey methods and effort to improve comparability between monitoring periods.
- Record survey conditions, particularly temperature and rainfall, to help interpret differences in detection between visits.
- Combine repeat nocturnal surveys with periodic daytime habitat assessments so that changes in beetle distribution and occurrence can be considered alongside changes in habitat condition and management.
- Interpret changes in the number of records cautiously, recognising that they may reflect differences in survey effort, weather, detectability and the distribution of search effort rather than changes in population size.

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Addendum: Supplementary 2026 *Carabus intricatus* surveys commissioned by Coed Cadw.

1. Introduction

The Blue Ground Beetle *Carabus intricatus* Linnaeus, 1761 is a large, flightless ground beetle with a restricted British distribution. In South Wales, the species is known from a number of woodland localities within the Lower Neath Valley. Previous coordinated surveys undertaken in 2019 confirmed its presence at several sites, but further survey work was required to improve understanding of its distribution and habitat use.
During spring 2026, Natural Resources Wales (NRW) commissioned a programme of nocturnal surveys to assess the current distribution of *C. intricatus* across selected localities in the Lower Neath Valley. The results of this work, together with habitat assessments and conservation management recommendations, are presented in the main report.

Coed Cadw subsequently commissioned additional survey work to supplement the NRW programme. This comprised two nocturnal survey visits, undertaken on 12th and 22nd May 2026, and a daytime habitat assessment on 13th August 2026. The nocturnal surveys focused on Dyffryn Woods, with Bryn Dewi also surveyed as it was located along the route to and from Dyffryn Woods. The daytime assessment examined habitat features at both localities.

The supplementary surveys produced seven additional adult records of *C. intricatus*: five at Dyffryn Woods and two at Bryn Dewi. These findings provide further information on the distribution of the species within the surveyed woodlands and complement the results of the NRW survey programme. The purpose of this Addendum is to document the supplementary survey methods and findings and consider their implications for future survey and conservation management.

2. Methods

2.1 Nocturnal surveys

Nocturnal surveys followed the methodology described in the main report. Surveys involved searching suitable habitat for adult *C. intricatus*, with particular attention paid to woodland paths, mature trees and other potentially suitable features. The survey effort and weather conditions for each visit are summarised in Table A1.

Table A1. Summary of supplementary nocturnal surveys commissioned by Coed Cadw in 2026.

Date	Site	Surveyors	Survey time	Weather conditions
12/05/2026	Dyffryn Woods	Christian Owen & Liam Olds	21:15–00:00	Dry, occasional cloud; 12-9°C; 8-11 mph W
22/05/2026	Dyffryn Woods and Bryn Dewi	Christian Owen & Liam Olds	21:15–23:40	Dry, passing clouds; 17-14°C; 3-4 mph NW

2.2 Daytime habitat assessments

A daytime habitat assessment was undertaken on 13th August 2026 at Dyffryn Woods and Bryn Dewi, taking approximately 7-8 hours in total. The assessment examined woodland structure and features potentially relevant to *C. intricatus*, including mature trees, standing and fallen deadwood, understorey vegetation, areas of scrub and natural regeneration, and the presence of invasive non-native plants. The assessment also considered the wider habitat context and features that could influence the distribution and detectability of the species.

The assessment was intended to inform interpretation of the nocturnal survey findings and identify potential considerations for future survey and habitat management. It was not a comprehensive assessment of habitat suitability throughout either woodland.

3. Results

3.1 Nocturnal surveys

The two supplementary nocturnal survey visits produced seven adult records of *C. intricatus*: five at Dyffryn Woods on 12th May 2026 and two at Bryn Dewi on 22nd May 2026. The full records are presented in Table A2.

At Dyffryn Woods, three females and two males were recorded on 12th May. Four records were associated with Beech, including one individual on a fallen tree, while a further male was observed crossing a woodland path. The records were distributed across several locations within the woodland. One male was recorded at grid reference SS7278299489, which represents the most northerly known record of *C. intricatus* in Wales identified during the survey programme.

At Bryn Dewi, one adult of undetermined sex was recorded on a Beech on 22nd May. This was the same tree on which adults had been recorded during the NRW surveys on 22nd and 28th April and 29th April 2026. A second adult, a male, was recorded on a dead Birch later that evening.

Table A2. Full records of adult *Carabus intricatus* from supplementary nocturnal surveys commissioned by Coed Cadw in 2026. Note: A dash indicates that a time or observation detail was not recorded in the available survey data. Records are presented as observations and should not be interpreted as a count of unique individuals.

Date	Site	Grid Reference	Sex	Tree or feature	Height or observation details	Time
12/05/2026	Dyffryn Woods	SS7292099067	Female	Beech *Fagus sylvatica*	Approximately 6 ft above ground	21:38
12/05/2026	Dyffryn Woods	SS7283999255	Female	Beech *Fagus sylvatica*	Gravid female, approximately 10 ft above ground	22:08
12/05/2026	Dyffryn Woods	SS7277899366	Female	Fallen Beech *Fagus sylvatica*	On fallen tree	-
12/05/2026	Dyffryn Woods	SS7278299489	Male	Beech *Fagus sylvatica*	Approximately 6 ft above ground	22:46
12/05/2026	Dyffryn Woods	SS7298699227	Male	Woodland path	Observed crossing the path	23:08
22/05/2026	Bryn Dewi	SS7316698659	Undetermined	Beech *Fagus sylvatica*	Same tree as records from 22nd and 28th April and 29th April 2026	21:30
22/05/2026	Bryn Dewi	SS7325498852	Male	Dead Birch *Betula*	Approximately 1.5 ft above ground	23:04

3.2 Habitat observations

3.2.1 Dyffryn Woods

Dyffryn Woods is an extensive woodland with variation in woodland structure and understorey conditions. Previous conifer felling and Rhododendron control have been followed by the regeneration of mixed broadleaved woodland. The daytime assessment identified areas with dense broadleaved saplings and bramble scrub, as well as more open ground beneath mature trees.

3.2.2 Bryn Derw

The daytime assessment identified a varied woodland structure at Bryn Dewi. Areas away from paths and recreational tracks included scrub and natural regeneration, particularly Sycamore, alongside more open areas and mature trees. Fallen deadwood was present along the former Dram Road, although recreational use of the woodland has resulted in some disturbance, including the displacement of deadwood. Rhododendron and Japanese Knotweed were also recorded at the site.

4. Discussion

4.1 Dyffryn Woods

The five additional adult records from Dyffryn Woods substantially supplement the findings of the NRW survey programme, which recorded one adult during a single survey visit. Including the supplementary records, six adult records were obtained from Dyffryn Woods during the 2026 survey programme. This provides further evidence of the species' occurrence within the woodland and demonstrates the value of additional survey effort at extensive sites where a limited number of visits may provide only a partial picture of distribution.

The supplementary records were obtained from several locations and included adults on standing Beech trees, a fallen Beech and a woodland path. Although these observations provide useful information on the features used by adults, they are insufficient to establish a preference for mature trees or woodland edges. The apparent concentration of records along paths may reflect genuine habitat use, but it may also be influenced by the greater accessibility and visibility of these features during nocturnal searches.

The northernmost record at SS7278299489 is particularly relevant to understanding the species' distribution within Dyffryn Woods. Further searches north of this location during the survey programme did not produce additional records. However, the absence of further detections does not demonstrate that the species is absent from these areas, particularly given the size of the woodland and the limitations of the survey effort.

The variation in understorey conditions observed during the daytime assessment further supports the need for a more systematic assessment of the wider woodland. Areas of dense regeneration and bramble occur alongside relatively open ground beneath mature trees. Targeted surveys across these different structural conditions, including areas away from established paths, would help establish whether the species occurs more widely within Dyffryn Woods and clarify the relationship between records and habitat features.

Given the extent of the woodland and the additional records obtained through the supplementary surveys, further targeted nocturnal survey work at Dyffryn Woods is recommended. This should include areas further north and within the woodland interior,

with survey effort distributed across a range of habitat conditions rather than concentrated primarily along accessible routes, where access allows.

4.2 Bryn Derw

The two additional records at Bryn Dewi complement the findings of the NRW surveys. The record from a Beech previously associated with several observations during April 2026 provides further evidence of repeated use of that tree by adult *C. intricatus*. The additional record from a dead Birch provides another observation of an adult on a tree feature at the site.

As discussed in the main report, Bryn Dewi includes mature trees, areas of open woodland, natural regeneration and fallen deadwood, alongside recreational tracks and localised invasive non-native plants. The supplementary habitat assessment confirmed that these features occur within a varied woodland structure. Maintaining this variation, retaining mature trees and deadwood, and managing invasive non-native plants where practicable should remain considerations for future management.

The repeated records from the same Beech indicate that individual trees may be important features for survey and potentially for the species' use of the woodland. Nevertheless, records from individual trees should not be taken as evidence that other areas of the woodland are less suitable, particularly where survey effort and detectability may differ.

4.3 Interpretation and limitations

The supplementary surveys were limited to two nocturnal visits and one daytime habitat assessment. They therefore provide additional observations rather than a comprehensive assessment of either woodland. The results are influenced by the timing and extent of survey effort, weather conditions, accessibility and the detectability of adult beetles.

The number of records obtained should not be interpreted as a quantitative estimate of population size, nor should differences between localities or survey periods be taken as evidence of population change without comparable survey effort and consideration of other factors affecting detection.

The habitat observations are intended to provide context for the survey findings and help identify priorities for further investigation. They do not establish causal relationships between particular habitat features and the occurrence of *C. intricatus*. Further systematic surveys, coupled with consistent habitat assessments, would be needed to test these relationships more robustly.

5. Implications for future survey and management

The supplementary findings reinforce the value of continued survey and conservation work at both Dyffryn Woods and Bryn Dewi.

At Dyffryn Woods, priority should be given to further targeted nocturnal surveys across the wider woodland, including areas away from established paths, areas of varied understorey structure and woodland further north of the most northerly record. A more systematic approach would help distinguish patterns of habitat use from those arising through differences in survey effort and detectability.

At Bryn Dewi, future management should retain mature trees and fallen deadwood, maintain a varied woodland structure and address invasive non-native plants where practicable. Recreational disturbance should also be considered when planning management, with care taken to avoid unnecessary removal or displacement of potentially important habitat features.

Across both sites, repeat surveys using consistent methods and clearly recorded effort and weather conditions would improve the ability to compare results over time. Habitat assessments undertaken alongside these surveys would help evaluate changes in woodland structure and inform future conservation management.

These recommendations should be considered alongside the site-specific findings and wider conservation priorities set out in the main report.

Appendix 1. *Carabus intricatus* records obtained during the 2026 NRW-commissioned surveys

Species	Date	Site	Grid Reference	Recorder(s)	Abundance	Stage	Sex	Comment
Carabus intricatus	22/04/2026	Coed-y-Graig	SS7318197948	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree.
Carabus intricatus	22/04/2026	Coed-y-Graig	SS7321997850	Olds, Liam; Owen, Christian	1	Adult	female	On oak *Quercus* tree around 20 ft high.
Carabus intricatus	22/04/2026	Coed-y-Graig	SS7320498007	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree.
Carabus intricatus	22/04/2026	Coed-y-Graig	SS7318397890	Olds, Liam; Owen, Christian	1	Adult	male	At the base of an oak *Quercus* tree trunk.
Carabus intricatus	22/04/2026	Coed-y-Graig	SS7315897963	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree at head height, 5-6 ft high.
Carabus intricatus	22/04/2026	Bryn Dewi	SS7321798709	Olds, Liam; Owen, Christian	1	Adult	undetermined	On large oak *Quercus* tree with Ivy growth at head height, 5-6 ft high. Seen at 22:30 hours.
Carabus intricatus	22/04/2026	Bryn Dewi	SS7325798711	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree with ivy growth.
Carabus intricatus	22/04/2026	Bryn Dewi	SS7325998730	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree around 10 ft high.
Carabus intricatus	22/04/2026	Bryn Dewi	SS7329898753	Olds, Liam; Owen, Christian	1	Adult	female	On oak *Quercus* tree around 8 ft high.
Carabus intricatus	22/04/2026	Bryn Dewi	SS7317298650	Olds, Liam; Owen, Christian	1	Adult	male	On Beech *Fagus sylvatica*.
Carabus intricatus	22/04/2026	Bryn Dewi	SS7313698611	Olds, Liam; Owen, Christian	1	Adult	undetermined	Adult on the ground between tree trunks feeding on a juvenile slug.
Carabus intricatus	23/04/2026	Coed Maesmelin	SS7256898121	Olds, Liam; Owen, Christian	1	Adult	female	On dead birch *Betula* tree, recorded at 20:55 hours.
Carabus intricatus	23/04/2026	Coed Maesmelin	SS7241898269	Olds, Liam; Owen, Christian	1	Adult	male	On birch *Betula* tree around 1 ft up the trunk, recorded at 21:25 hours.
Carabus intricatus	23/04/2026	Coed Maesmelin	SS7241998317	Olds, Liam; Owen, Christian	1	Adult	female	On oak *Quercus* tree around 4-5 ft high, recorded at 21:28 hours.

Species	Date	Site	Grid Reference	Recorder(s)	Abundance	Stage	Sex	Comment
Carabus intricatus	23/04/2026	Coed Maesmelin	SS7254698105	Olds, Liam; Owen, Christian	1	Adult	undetermined	On oak *Quercus* tree, high up, recorded at 22:27 hours.
Carabus intricatus	23/04/2026	Coed Maesmelin	SS7264098158	Olds, Liam; Owen, Christian	1	Adult	male	On the ground, recorded at 22:39 hours.
Carabus intricatus	28/04/2026	Dyffryn Woods	SS7285098901	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus tree*, recorded at 21:48 hours.
Carabus intricatus	28/04/2026	Bryn Dewi	SS7345099063	Olds, Liam; Owen, Christian	1	Adult	male	On Beech *Fagus sylvatica*, recorded at 23:04 hours.
Carabus intricatus	28/04/2026	Bryn Dewi	SS7316498656	Olds, Liam; Owen, Christian	1	Adult	male	On Beech *Fagus sylvatica*, recorded at 23:50 hours. Same tree as male recorded on 22/04/2026.
Carabus intricatus	29/04/2026	Bryn Dewi	SS7325698843	Olds, Liam; Owen, Christian	1	Adult	undetermined	On willow *Salix* tree, recorded at 22:50 hours.
Carabus intricatus	29/04/2026	Bryn Dewi	SS7319098722	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree, recorded at 23:00 hours.
Carabus intricatus	29/04/2026	Bryn Dewi	SS7316498656	Olds, Liam; Owen, Christian	1	Adult	undetermined	On Beech *Fagus sylvatica* around 8 ft high, same tree as males recorded on 22/04/2026 and 28/04/2026. Recorded at 23:07 hours.
Carabus intricatus	29/04/2026	Bryn Dewi	SS7308598497	Olds, Liam; Owen, Christian	2	Adult	mixed	Mating pair on oak *Quercus* tree around 12 ft high. Female predating a slug while copulating. Recorded at 23:14 hours.
Carabus intricatus	29/04/2026	Bryn Dewi	SS7306398435	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree, recorded at 23:21 hours.
Carabus intricatus	03/05/2026	Bryn Dewi	SS7315698634	Olds, Liam; Owen, Christian	1	Adult	male	On a young oak *Quercus* tree around 7 ft high. Recorded at 23:25 hours.
Carabus intricatus	03/05/2026	Bryn Dewi	SS7306698456	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree around 3 ft high, recorded at 23:38 hours.
Carabus intricatus	05/05/2026	Pen-lan	SS7235598371	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree around 4 ft high, recorded at 21:14 hours.

Species	Date	Site	Grid Reference	Recorder(s)	Abundance	Stage	Sex	Comment
Carabus intricatus	05/05/2026	Pen-lan	SS7237198403	Olds, Liam; Owen, Christian	1	Adult	female	Gravid female on oak *Quercus* tree around 5 ft high, recorded at 21:12 hours.
Carabus intricatus	05/05/2026	Pen-lan	SS7238498384	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree, near base, recorded at 21:20 hours.
Carabus intricatus	05/05/2026	Coed Maesmelin	SS7240198137	Olds, Liam; Owen, Christian	1	Adult	female	On oak *Quercus* tree, around 5 ft high, recorded at 21:56 hours.
Carabus intricatus	05/05/2026	Coed Maesmelin	SS7245998058	Olds, Liam; Owen, Christian	1	Adult	undetermined	On oak *Quercus* tree, around 25 ft high, recorded at 22:10 hours.
Carabus intricatus	05/05/2026	Coed Maesmelin	SS7259198135	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree, around 6 ft high, recorded at 22:30 hours.
Carabus intricatus	05/05/2026	Longford Lane	SS7313098260	Olds, Liam; Owen, Christian	1	Adult	undetermined	On oak *Quercus* tree, around 5 ft high, recorded at 23:00 hours.
Carabus intricatus	05/05/2026	Coed-y-Graig	SS7315197990	Olds, Liam; Owen, Christian	1	Adult	undetermined	On oak *Quercus* tree, around 15 ft high, recorded at 23:08 hours.
Carabus intricatus	05/05/2026	Coed-y-Graig	SS7317098006	Olds, Liam; Owen, Christian	1	Adult	undetermined	On oak *Quercus* tree, around 12 ft high, recorded at 23:15 hours.
Carabus intricatus	05/05/2026	Coed-y-Graig	SS7321597999	Olds, Liam; Owen, Christian	2	Adult	male	Two males, both on the same oak *Quercus* tree, at 5ft and 4 ft high respectively. Recorded at 23:30 hours.
Carabus intricatus	05/05/2026	Coed-y-Graig	SS7319797940	Olds, Liam; Owen, Christian	1	Adult	male	On young Beech *Fagus sylvatica*, around 4 ft high, recorded at 23:36 hours.
Carabus intricatus	05/05/2026	Coed-y-Graig	SS7320897912	Olds, Liam; Owen, Christian	2	Adult	male	Two males on the dead limb of an oak *Quercus* tree, around 6 ft high, recorded at 23:45 hours.
Carabus intricatus	05/05/2026	Coed-y-Graig	SS7322197882	Olds, Liam; Owen, Christian	1	Adult	undetermined	On oak *Quercus* tree, around 10 ft high, recorded at 23:53 hours.

Species	Date	Site	Grid Reference	Recorder(s)	Abundance	Stage	Sex	Comment
Carabus intricatus	14/05/2026	Bryn Dewi	SS7326398726	Olds, Liam; Owen, Christian; Morgan, Sarah	1	Adult	undetermined	On oak *Quercus* tree, around 10 ft high, recorded at 22:16 hours.
Carabus intricatus	24/05/2026	Bryn Dewi	SS7306398464	Olds, Liam; Owen, Christian	1	Adult	undetermined	On oak *Quercus* tree, around 10 ft high, recorded at 23:35 hours.
Carabus intricatus	27/05/2026	Coed-y-Graig	SS7320997985	Olds, Liam; Owen, Christian	1	Adult	male	On young oak *Quercus* tree, low down, recorded at 21:53 hours.
Carabus intricatus	27/05/2026	Coed-y-Graig	SS7321097903	Olds, Liam; Owen, Christian	1	Adult	male	On dead oak *Quercus* tree, around 3 ft high, recorded at 22:08 hours.
Carabus intricatus	27/05/2026	Coed-y-Graig	SS7321797866	Olds, Liam; Owen, Christian	1	Adult	male	On dead Beech *Fagus sylvatica*, around 6 ft high, recorded at 22:25 hours.
Carabus intricatus	27/05/2026	Coed-y-Graig	SS7314697975	Olds, Liam; Owen, Christian	1	Adult	female	On oak *Quercus* tree, near the base, recorded at 22:50 hours.
Carabus intricatus	31/05/2026	Pen-lan	SS7237198411	Olds, Liam; Owen, Christian	1	Adult	undetermined	On oak *Quercus* tree, around 3 ft high.
Carabus intricatus	31/05/2026	Pen-lan	SS7236898398	Olds, Liam; Owen, Christian	1	Adult	male	On oak *Quercus* tree, around 6 ft high.
Carabus intricatus	31/05/2026	Pen-lan	SS7238598395	Olds, Liam; Owen, Christian	1	Adult	male	On the trunk of a fallen oak *Quercus* tree.

Appendix 2. Selected photographs from the daytime habitat assessments



Figure A2.1. Main footpath at Coed Maesmelin, extending from Darren Close towards the summit of Mynydd Drumau, along which adult *Carabus intricatus* were recorded. Grid reference SS72739819. Photograph taken on 28th May 2026.



Figure A2.2. Bramble scrub alongside the main footpath at Coed Maesmelin. Grid reference SS72829818. Photograph taken on 28th May 2026.



Figure A2.3. Bracken-dominated vegetation alongside the main footpath at Coed Maesmelin. Grid reference SS72829818. Photograph taken on 28th May 2026.



Figure A2.4. Bramble scrub beside the main footpath at Coed Maesmelin. Grid reference SS72779821. Photograph taken on 28th May 2026.



Figure A2.5. Bramble scrub beside the main footpath at Coed Maesmelin. Grid reference SS72709821. Photograph taken on 28th May 2026.



Figure A2.6. Bramble scrub beside the main footpath at Coed Maesmelin. Grid reference SS72709821. Photograph taken on 28th May 2026.



Figure A2.7. Bramble scrub alongside the main footpath at Coed Maesmelin. Grid reference SS72739819. Photograph taken on 28th May 2026.



Figure A2.8. Bramble scrub beside the main footpath at Coed Maesmelin. Grid reference SS72649817. Photograph taken on 28th May 2026.



Figure A2.9. Bracken-dominated vegetation along the main footpath at Coed Maesmelin. Grid reference SS72679818. Photograph taken on 28th May 2026.



Figure A2.10. Bramble scrub alongside the main footpath at Coed Maesmelin. Grid reference SS72669818. Photograph taken on 28th May 2026.



Figure A2.11. Bramble scrub alongside the main footpath at Coed Maesmelin. Grid reference SS72629816. Photograph taken on 28th May 2026.



Figure A2.12. Bramble scrub beside the main footpath at Coed Maesmelin. Grid reference SS72629816. Photograph taken on 28th May 2026.



Figure A2.13. Bramble scrub beside the main footpath at Coed Maesmelin. Grid reference SS72399809. Photograph taken on 28th May 2026.



Figure A2.14. Bramble scrub beside the main footpath at Coed Maesmelin. Grid reference SS72419820. Photograph taken on 28th May 2026.



Figure A2.15. Open glade at Coed-y-Graig, with a campfire in the central area. Grid reference SS73159798. Photograph taken on 28th May 2026.



Figure A2.16. Oak *Quercus* at Coed-y-Graig showing damage at its base, apparently associated with previous campfires. Grid reference SS73159798. Photograph taken on 28th May 2026.



Figure A2.17. Scrub alongside a path at Coed-y-Graig. Grid reference SS73169797. Photograph taken on 28th May 2026.



Figure A2.18. Area of relatively open understorey at Coed-y-Graig. Grid reference SS73169796. Photograph taken 28th May 2026.



Figure A2.19. Area of relatively dense understorey and natural regeneration at Coed-y-Graig. Photograph taken on 28th May 2026.



Figure A2.20. Area of relatively open understorey at Coed-y-Graig. Grid reference SS73209787. Photograph taken on 28th May 2026.



Figure A2.21. Scrub alongside a path at Coed-y-Graig. Grid reference SS73189785. Photograph taken on 28th May 2026.



Figure A2.22. Bramble scrub at Coed-y-Graig. Grid reference SS73209801. Photograph taken on 28th May 2026.



Figure A2.23. Fallen deadwood at Coed-y-Graig. Photograph taken on 28th May 2026.

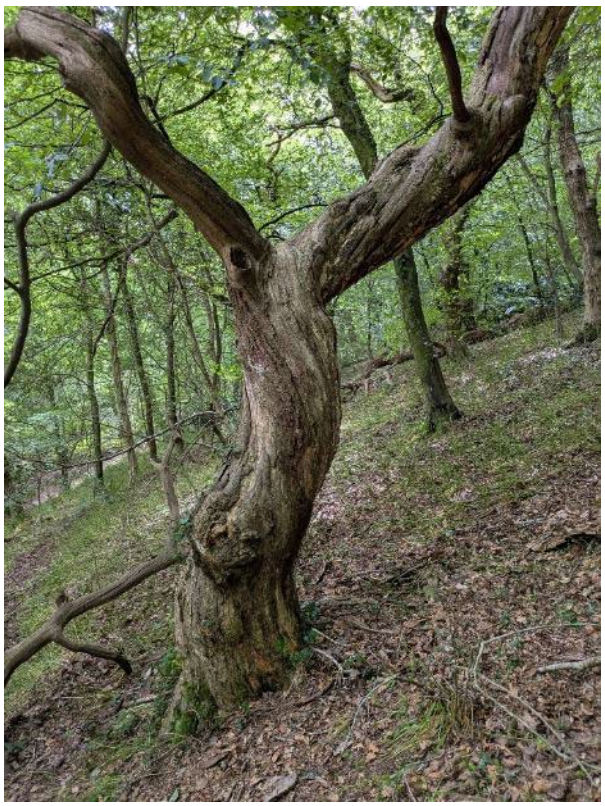


Figure A2.24. Standing dead tree, believed to be oak *Quercus*, at Coed-y-Graig. Photograph taken on 28th May 2026.



Figure A2.25. Standing dead tree at Coed-y-Graig. Photograph taken on 28th May 2026.



Figure A2.26. Mature Beech *Fagus sylvatica* that had fallen from adjacent private land into Coed-y-Graig, damaging part of the dry-stone wall. Photograph taken on 28th May 2026.



Figure A2.27. Dry-stone wall delimiting the southern boundary between Coed-y-Graig and adjacent private land. Photograph taken on 28th May 2026.



Figure A2.28. Open wood-pasture at Pen-lan, with an improved grassland field layer maintained by grazing. Photograph taken on 28th May 2026.



Figure A2.29. Former Dram Road at Bryn Dewi. Grid reference SS73119857. Photograph taken on 13th August 2026.



Figure A2.30. Former Dram Road at Bryn Dewi. Grid reference SS73249884. Photograph taken on 13th August 2026.



Figure A2.31. Woodland along the access road connecting the former Dram Road to Longford Lane/Road. Grid reference SS73289873. Photograph taken on 13th August 2026.



Figure A2.32. Mature oak *Quercus* alongside the former Dram Road at Bryn Dewi, on which an adult *Carabus intricatus* was recorded during the nocturnal surveys. Grid reference SS73189872. Photograph taken on 13th August 2026.



Figure A2.33. Mature oak *Quercus* at Bryn Dewi. Grid reference SS73019842. Photograph taken on 13th August 2026.



Figure A2.34. Bicycle track constructed within the woodland at Bryn Dewi. Grid reference SS730984. Photograph taken on 13th August 2026.



Figure A2.35. Bicycle track constructed within the woodland at Bryn Dewi. Grid reference SS73299890. Photograph taken on 13th August 2026.



Figure A2.36. Fallen deadwood alongside the former Dram Road at Bryn Dewi. Photograph taken on 13th August 2026.



Figure A2.37. Fallen deadwood alongside the former Dram Road at Bryn Dewi. Photograph taken on 13th August 2026.



Figure A2.38. Bramble scrub at Bryn Dewi. Grid reference SS73099855. Photograph taken on 13th August 2026.



Figure A2.39. Scrub at Bryn Dewi. Grid reference SS73099853. Photograph taken on 13th August 2026.



Figure A2.40. Bramble scrub at Bryn Dewi. Grid reference SS73099855. Photograph taken on 13th August 2026.



Figure A2.41. Woodland alongside an access road at Bryn Dewi. Grid reference SS73219871. Photograph taken on 13th August 2026.



Figure A2.42. Japanese Knotweed *Reynoutria japonica* alongside a watercourse at Bryn Dewi. Grid reference SS73039839. Photograph taken on 13th August 2026.



Figure A2.43. Oak *Quercus* at Dyffryn Woods on which an adult *Carabus intricatus* was recorded on 28th April 2026. Grid reference SS7285098901. Photograph taken on 13th August 2026.



Figure A2.44. Beech *Fagus sylvatica* at Dyffryn Woods (left), on which an adult *Carabus intricatus* was recorded on 12th May 2026. Grid reference SS7285098901. Photograph taken on 13th August 2026.



Figure A2.45. Regenerating woodland with a dense bramble understorey at Dyffryn Woods. Grid reference SS731992. Photograph taken on 13th August 2026.



Figure A2.46. Regenerating woodland with a dense bramble understorey at Dyffryn Woods. Grid reference SS72959928. Photograph taken on 13th August 2026.



Figure A2.47. Beech *Fagus sylvatica* plantation with a relatively open understorey at Dyffryn Woods. Grid reference SS72869972. Photograph taken on 13th August 2026.



Figure A2.48. Beech *Fagus sylvatica* plantation with a relatively open understorey at Dyffryn Woods. Grid reference SS72859982. Photograph taken on 13th August 2026.



Figure A2.49. Beech *Fagus sylvatica* plantation with a relatively open understorey at Dyffryn Woods. Grid reference SS72859982. Photograph taken on 13th August 2026.



Figure A2.50. Beech *Fagus sylvatica* plantation with a relatively open understorey at Dyffryn Woods. Grid reference SS72769986. Photograph taken on 13th August 2026.



Figure A2.51. Beech *Fagus sylvatica* plantation with a relatively open understorey at Dyffryn Woods. Grid reference SS72809942. Photograph taken on 13th August 2026.



Figure A2.52. Path at Dyffryn Woods along which an adult *Carabus intricatus* was observed crossing during the Coed Cadw surveys. Grid reference SS7298699227. Photograph taken on 13th August 2026.



Figure A2.53. Mature oak *Quercus* at Dyffryn Woods. Grid reference SS73109925. No adult *Carabus intricatus* was recorded on this tree despite repeated checks during nocturnal surveys. Photograph taken on 13th August 2026.

Data Archive Appendix

The data archive contains:

[A] The final report in Microsoft Word and Adobe PDF formats.

~~[B] A full set of maps produced in JPEG format.~~

~~[C] A series of GIS layers on which the maps in the report are based with a series of word documents detailing the data processing and structure of the GIS layers.~~

~~[D] A set of raster files in ESRI and ASCII grid formats.~~

~~[E] A database named [name] in Microsoft Access 2000 format with metadata described in a Microsoft Word document [name.doc].~~

~~[F] A full set of images produced in [jpg/tiff] format.~~

[G] Species records are held in the Welsh Invertebrate Database (WID).

Metadata for this project is publicly accessible through Natural Resources Wales' Library Catalogue https://libcat.naturalresources.wales (English Version) and https://catllyfr.cyfoethnaturiol.cymru (Welsh Version) by searching 'Dataset Titles'. The metadata is held as record no. **NRW_DS161963**.

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